145 YEARS

Pioneering progress

RioTinto

Partnering for progress

2017 Sustainable development report

riotinto.com/sd2017

About this report

Image: Parker Point port stockyards, Dampier, Western Australia

Contents

This Sustainable development report forms part of Rio Tinto's annual corporate reporting suite. It offers a fuller account of our contributions to sustainable development to that in the *2017 Annual report*. In this report there is expanded commentary and additional data about our performance during 2017.

To complement this report we communicate sustainable development performance highlights and case studies throughout the year on our website at riotinto.com. Archived reports and information on specific product group activities are detailed in local sustainable development reports also available online at riotinto.com.

This report has been prepared in accordance with the Global Reporting Initiative (GRI) Sustainability Reporting Standards (Core option), the GRI Mining & Metals Sector Supplement and the International Council on Mining & Metals (ICMM) Sustainable Development Framework.

We engaged an independent external assurance organisation, PricewaterhouseCoopers, to provide the directors of Rio Tinto with assurance on selected sustainable development subject matter, as explained in the independent limited assurance report available online.

The scope we use to define how we report data at the Group level can be found on page 67. All performance data relates to Rio Tinto managed operations only unless otherwise stated. The definitions of the subject matter selected for assurance can be found in our Glossary.
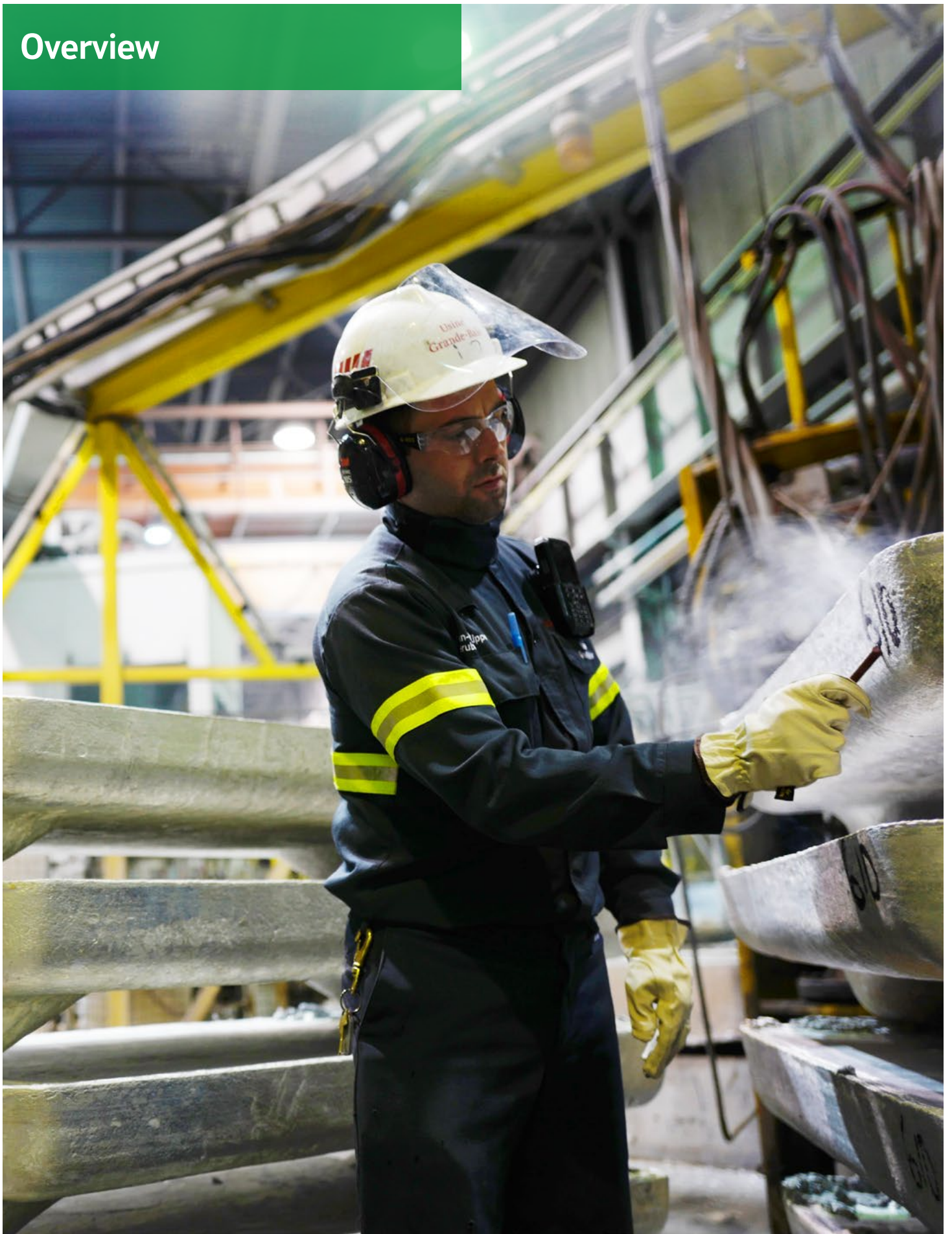
We welcome your feedback on this report.

Cover image: Casuarina seedlings for sand dune rehabilitation at RBM nursery, Richards Bay Minerals, South Africa

Image: Grande-Baie, Saguenay, Quebec, Canada

2017 Sustainable development report

Chief executive's message

Image: J-S Jacques, chief executive

Dear stakeholders,

This year, 2018, marks Rio Tinto's 145th year of operation. There is no doubt the world has changed a lot in that time, but one thing has not: we still produce the essential materials upon which our world is built – and in doing so, our work drives human progress.

Today, from smartphones made with green aluminium to copper pipes that provide clean water to homes, and from skyscrapers to cars, you can see Rio Tinto around you, every day, everywhere.

We are equally proud of the economic contribution we make across communities and generations. From the Pilbara in Western Australia to the far north of Canada, with our partners, customers and suppliers, Rio Tinto provides jobs, investment and business opportunities that help each of these communities become stronger and more resilient.

In 2017, we made more good progress against some of our sustainability performance targets, but in other areas, we have more work to do.

Safety comes first

Safety is one of Rio Tinto's core values, because nothing is more important than eliminating fatalities from our business.

While our safety performance has improved in some areas, there is more work to do. We are not yet a top-performing company when it comes to safety, and becoming one requires a deliberate step change. In October 2017, one of our colleagues lost his life at our Rio Tinto Kennecott smelter in the US. In the same month, there was a health-related death of a colleague undertaking exploration activities. These are tragedies that must not happen again.

In addition, a number of our colleagues were hurt at work and we had three material process safety incidents. We continued to experience potentially fatal incidents during the year.

We will learn from each of these incidents, and are making the changes that will help prevent them from happening again. Most importantly: we must all remain vigilant on safety – every hour, every single shift. We must never be complacent, because a sense of chronic unease helps keep us safe.

Mental health is a societal issue that can affect a person's ability to work safely and productively. Although it isn't an issue Rio Tinto can solve alone, we do what we can to support our employees' mental wellbeing. As you will see on page 21, across our organisation, we have resources in place to support our people and help them build resilience.

When it comes to safety and health, we know that we can and must do better. Because each of us must go home safe, every day.

Strength in partnership

At Rio Tinto, our partnerships help us achieve our goals. Our stakeholders, rightly, have high expectations of Rio Tinto. We welcome those high expectations, and must continue to provide them with confidence that we produce the essential materials the world needs, responsibly.

The way we work – our strong code of conduct – is underpinned by our values: safety, teamwork, respect, integrity and excellence. These guide us every day, in the decisions we make, and in how we behave. In 2017, we spent considerable time communicating and discussing our values and code of conduct in a global programme which focused on engaging leaders and is now being led by employee values-champions right across the business.

In 2017, we strengthened our focus on engagement with our key stakeholders, including our host communities and governments, our employees, our supply chain partners, and with our industry peers through associations such as the International Council on Mining & Metals.

Our business life cycle

At Rio Tinto, we never take our licence to operate for granted. We know that if we are to be successful, we must continue to build strong partnerships at every stage of our business – through exploration, development, operations and closure.

In this report you will see examples of our contributions to sustainable development throughout the lifecycle of our operations. Right from the start of a project, we look for ways to provide work and business opportunities for our host communities, while protecting the environment and the region's cultural heritage. Amrun in Australia is one of our key growth projects, and where we're working in partnership with local businesses like Northern Haulage and Diesel Services who are also committed to maximising employment opportunities for local Aboriginal people (see page 54).

Learning from how we have closed businesses and rehabilitated land we have mined helps us improve our operations today, and for the future. In 2017, we conducted a post investment review of our Holden mine remediation project in Washington State, in the US, which you can read about on page 46. The learnings from Holden will inform our future closures, and feed into the way we plan for the end of an operation's life from the very beginning.

Pioneering the future

As I mentioned, 2018 marks our 145th anniversary. Through the hard work and dedication of generations of our employees and community partners, we have had many wins over that time – pioneering land use partnerships with Indigenous groups across the Pilbara, developing new products that meet society's needs, and transforming communities and livelihoods. We have made some mistakes along the way. We have learned from these, and as we do, our business becomes stronger and more resilient than it was before.

The future is not possible without the 47,000 pioneers who work in our organisation. I am proud of what we do at Rio Tinto, but nothing to me is more rewarding than seeing the progress our people deliver, every day. To them, and to you, our partners, thank you.

I hope you enjoy this report.

J-S Jacques
Chief executive

The Chief Executive Safety Awards

Safety is our number one priority and a core value. A key pillar of our Safety strategy is learning from each other and from our experiences.

The Chief Executive Safety Awards focus on improving our safety performance across the Group – by recognising, celebrating and learning from our successes. These awards are the highest recognition of safety excellence in our business. The 2017 Chief Executive Safety Award winners are:

Chief Executive Safety Award: Oyu Tolgoi – Operations, Growth & Innovation (Mongolia)

Despite the challenges of building and operating a mine in a remote location, the team maintained focus on strategic HSE activities. This has seen an all injury frequency rate (AIFR) trending steadily downwards since 2014. The high level of engagement and rigour on site impresses everyone who visits Oyu Tolgoi.

Most Improved: Cape Lambert, Iron Ore (Australia)

At Cape Lambert the emphasis on collaboration between site and contractor leaders has seen effective engagement between contractors and the site workforce. Cape Lambert has sustained reduction in its AIFR since 2014 and a similar reduction in significant incidents and potential fatal incidents.

Best Contractor: Diavik Underground Sustaining Capital Group, Copper & Diamonds (Canada)

Diavik has worked in partnership with contractor companies to develop an interdependent safety culture and to embed safety and integrate our critical risk management (CRM) fatality prevention programme successfully.

The work of the Underground Sustaining Capital group is carried out by three long-term contractors: the Gisborne Group, Nahanni Construction and Ryfan Electric Limited. Collectively, the contractors have not had a single lost time injury in five years and only recorded two injuries requiring medical treatment during that time.

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Our stakeholders, rightly, have high expectations of Rio Tinto. We must continue to provide them with confidence that we produce the essential materials the world needs, responsibly."

Message from the chair of the Sustainability Committee

Image: Megan Clark AC, chair of the Rio Tinto Sustainability Committee

Dear stakeholders,

At Rio Tinto we are committed to operating our business responsibly, with respect for the safety and health of our people, our communities and the risks and responsibilities of our business locally and globally. Throughout 2017, the Sustainability Committee has continued overseeing the key sustainability risks Rio Tinto faces. We support the management team in mitigating those risks, helping the company deliver on its commitments.

Our priorities

Safety, and particularly process safety, remains a priority. We did not meet our goal of eliminating fatalities from our business this year, and were deeply saddened that a colleague lost his life as a result of a safety incident while working at the Rio Tinto Kennecott smelter in Utah. This tragic incident reinforced the need for intense focus on the safety practices in our minerals and metals processing activities. We are redoubling our efforts to understand, and then address, the risks that our people are exposed to in these lines of work, so that this never happens again.

The safety lessons we are learning must be shared beyond our own organisation, to help raise the safety performance of our industry as a whole. Rio Tinto is committed to passing along the knowledge we are gaining to our partners and peers. Sadly, in 2017 there were also fatalities at Grasberg and Alumar, two operations in which Rio Tinto has a financial stake, but which are not managed by our company. We offer support, such as sharing our fatality prevention approaches with the management of these businesses, and taking lessons on board from these incidents and from our partners' own safety practices.

Tragically, an employee also died while carrying out exploration activities in Australia during the year. Through our ongoing investigations we will consider all lessons learned from this incident.

Water and tailings management were other priorities for the Committee in 2017. Again, on areas like these we collaborate closely with our industry peers – to better understand and manage the risks associated with tailings and water storage facilities. We will adopt further improvements in these areas in 2018 based on detailed analysis we carried out in 2017 at five of our operations.

Global challenges

Like many other organisations, we face broader, global issues such as climate change and the transition to low-carbon energy systems.

Climate change is one good example where our attention covers both internal and external issues. We consider climate change strategically, as a factor in our business decisions. It feeds into our commodity strategy, and through our asset portfolio we build in ways to address climate change issues – for instance through basing our energy-intensive aluminium business largely on hydropower.

Across the company, 69 per cent of all our electricity used is now from renewables: hydro, wind and solar power. We're also doing more work to understand the risks to our business under various climate scenarios – making sure our facilities are resilient to climate variations and weather extremes such as assessing the decadal trends in cyclones and rainfall in the Pilbara and ensuring our logistics network is resilient to intense rainfall events.

A close-up on safety

An important part of the Committee's work is to visit the operations, gaining first-hand experience of the risks and challenges they are facing and verifying sustainability performance. We visited two diverse parts of the business this year: iron ore operations in the Pilbara region of Australia, and aluminium operations in the Saguenay region of Canada.

Both visits were extremely valuable. We were particularly encouraged to see significant progress on safety. In the Saguenay, we concentrated on process safety, and learned how teams are streamlining day-to-day processes to protect our people from the dangers of working with hot metal. In the Pilbara, we saw changes we've been implementing since the fatality there in 2016. This has included new approaches to isolating electrical equipment, and using technology like drones and remote cameras so people no longer have to physically be in dangerous areas.

It was inspiring to witness the ingenuity and dedication of our people, and to hear them talk about how the CRM programme makes their work safer. We know we have more work to do, but the feedback from our people tells us that we are on the right track.

Operating in the right way

David Constable and Sam Laidlaw joined Michael L'Estrange and me on the Sustainability Committee in 2017. Together, this team brings a blend of industry experience in operational and technical matters, as well as in sustainability issues more broadly. We welcome the expertise David and Sam bring from the petroleum industry, notably in the area of process safety. I would also like to thank Simon Thompson and Anne Lauvergeon, who moved on from the Sustainability Committee during the year, for their valuable contributions.

As a Committee, we have also welcomed Rio Tinto's newly articulated purpose and refreshed values and the company's commitment to sustainable development. They provide an important lens for all of Rio Tinto's people, and for us as a Sustainability Committee, to make sure the company is operating responsibly. This is vital, as I believe the way we work is more important than the tonnes we deliver, and is critical to upholding our licence to operate. By maintaining a relentless focus on our values, we believe that our goal of eliminating fatalities can be within our grasp.

We look forward to 2018, and to an even stronger, safer Rio Tinto.

Megan Clark AC
Chair of the Rio Tinto Sustainability Committee

About Rio Tinto's Sustainability Committee
Rio Tinto's Sustainability Committee oversees, on behalf of the board, the management processes, standards and strategies that are designed to manage health, safety, security, environment, community and social performance risks, and achieve compliance with the Group's responsibilities and commitments in these areas.

The Committee ensures our approach is consistent with Rio Tinto's purpose and values.

Among its areas of focus, the Committee:

– Monitors the commitment management makes to the behaviours, systems and processes required by the policies and standards within its scope.
– Ensures local and global sustainability-related risks are appropriately captured and considered in Rio Tinto's risk profile.
– Reviews sustainability targets annually and the metrics used to evaluate them.
– Reviews the Group's performance against those targets.

At the end of 2017, its members were:

– Megan Clark AC, chair
– David Constable
– Sam Laidlaw
– Michael L'Estrange AO

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I believe the way we work is more important than the tonnes we deliver, and is critical to upholding our licence to operate."

Our business

For 145 years, Rio Tinto has been pioneering the production of materials essential to human progress. The minerals and metals we produce play a vital role in meeting consumer needs. They're used in a diverse range of everyday items and innovative technologies that help make modern life work.

As a leading international mining and metals group, we have an important role to play in helping create positive impact for the benefit of many – for our people, the communities and governments we work with, our shareholders, joint venture partners, customers and suppliers, and society.

But we recognise that our work has the potential to affect people, communities and the environment, negatively as well as positively. We work with those affected to minimise our negative impacts and to share the wealth and benefits our business creates over the short and long term. We produce materials responsibly – operating and closing operations safely and with care.

Shared value
Our approach is long-term. We develop first-class orebodies into large, long-life and efficient operations, and apply technology at our mines, plants and in our infrastructure to make work safer and more efficient, and to reduce our environmental footprint.

As a result, our operations are capable of sustaining competitive advantage through business cycles.

We pursue opportunities for productivity improvements, cost reductions and prudent growth. Through enhancements like these, we aim to stay ahead, securing our activities so that we can deliver greater shared value for our stakeholders, for longer.
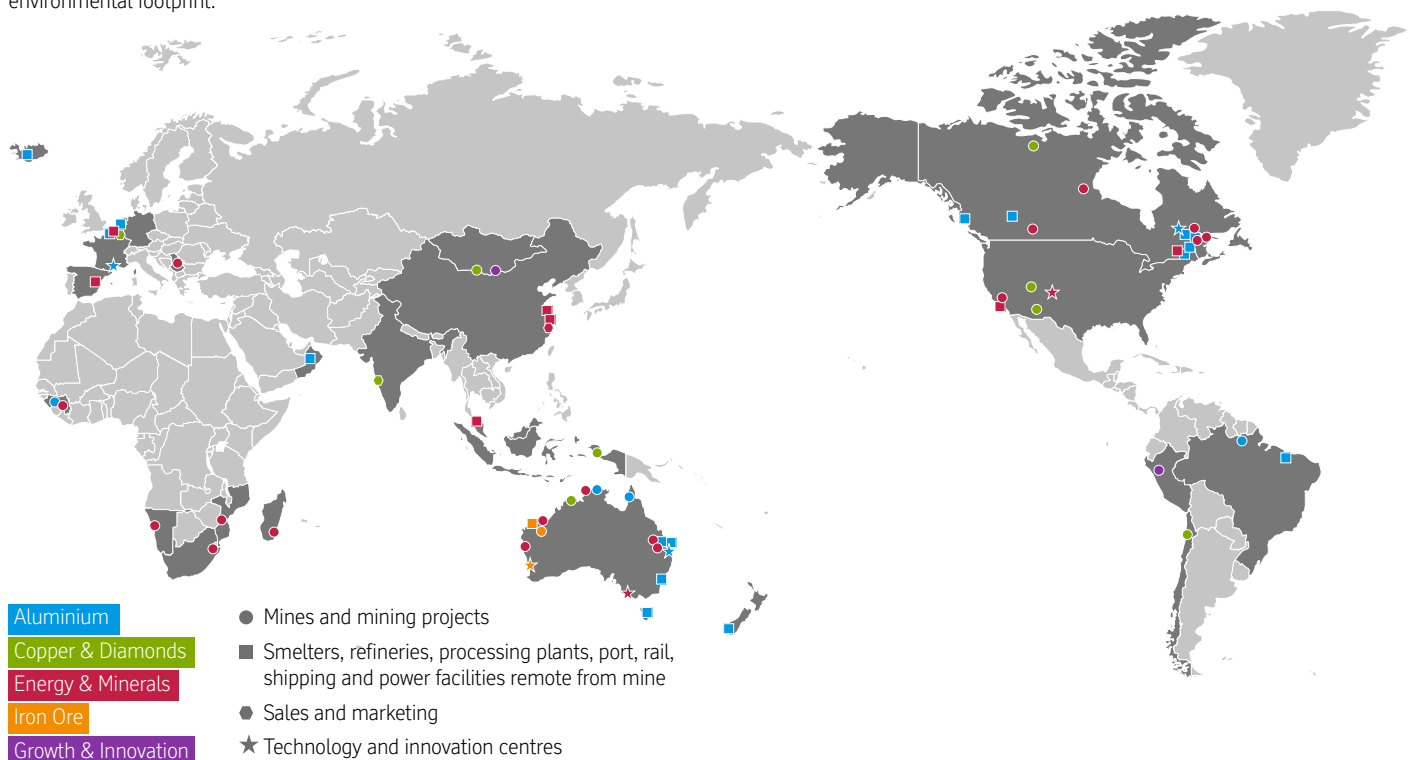
The strength of our partnerships – with our people, the communities we work with, the countries where we operate, our customers and suppliers – is what makes human progress possible. We can always improve and enhance our partnerships to find smarter ways of operating.

Our contribution
At Rio Tinto, our contribution to sustainable development is interlinked with our commercial results. It supports our business strategy of delivering superior value for our shareholders through the business life cycle, and our strategic focus on portfolio, performance, people and partners.

Our contribution also aligns to our "partner-to-operate" approach. This approach guides us in balancing and bringing together the internal priorities that will set us up for success with the priorities of our broad network of stakeholders, and the changing external environment in which we operate.
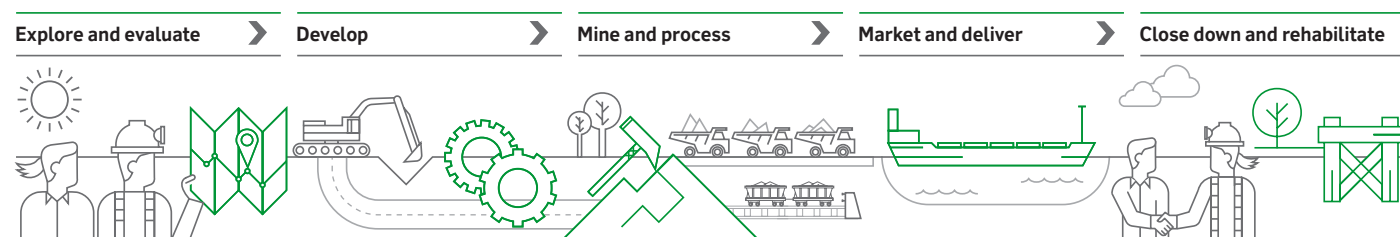
At all times, we are guided by our values of safety, teamwork, respect, integrity and excellence. These are set out in our global code of business conduct, *The way we work*, and expressed through our business principles, policies and standards. Our values underpin the way we manage the social, environmental and economic effects of our operations, and how we govern our business.

Aluminium
Copper & Diamonds
Energy & Minerals
Iron Ore
Growth & Innovation

● Mines and mining projects
■ Smelters, refineries, processing plants, port, rail, shipping and power facilities remote from mine
● Sales and marketing
★ Technology and innovation centres

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Business life cycle

Rio Tinto's business life cycle extends through the exploration, development, operation and closure of our assets, how we market mineral and metal products, and the legacy we leave at the end of an asset's economic life. Coupled with our framework for managing risk, sustainable development considerations form part of every phase.

| Explore and evaluate > | Develop > | Mine and process > | Market and deliver > | Close down and rehabilitate |

Explore and evaluate

We look for new opportunities around the world to develop orebodies in both greenfield and brownfield settings. Our in-house exploration teams and partners are often the first contact with people and communities we may work alongside for many years – we explore respectfully and engage with local communities early.

We develop our resources and position our products in the marketplace in ways that add value and support the Group's investment decision-making.

Develop

Rigorous assessments and review processes aim to ensure we only approve investments that offer attractive returns above our capital costs over the long term, whilst ensuring there are minimal negative impacts associated with our activities on people, communities and the environment.

We plan for the most efficient configuration for mining and processing of minerals and getting the products to market. We engage local communities and work with regulators and local suppliers to identify ways to deliver mutual benefits from the development of our operations and associated assets. Working closely with our customers during this phase helps to maximise the value of the deposit over its lifetime and ensures the products will meet their requirements.

Mine and process

Operating our assets safely and efficiently is essential to our business approach. Our global operating model allows us to apply standard processes and systems across the Group for business management, safety, health, communities, environment, human resources, finance, procurement, information technology, operations and maintenance. We aim to maximise the value of our assets, to increase production and reduce operating costs by extending equipment life and optimising ore extraction. This operating phase brings direct and indirect benefits to local economies through the payment of taxes and royalties, employment and procurement opportunities.

Market and deliver

Our business is based on the supply of high-quality products that meet our customers' needs. The minerals and metals we supply – mostly to industrial companies that process them further – are in the essential building blocks of infrastructure, transport, machinery, construction, energy and consumer items.

Rio Tinto's marketing teams work with our operations to align resource management with market needs, and to improve products and services to maximise value to customers. Our diverse portfolio also allows us to respond to customer demand throughout countries' economic development cycles and refine our investment decisions.

Close down and rehabilitate

Closure is part of every asset's life cycle. We start planning for the closure of our operations from the early development phases to help optimise outcomes and minimise risk. Planning for closure aims to minimise financial, social and environmental liabilities and costs by finding sustainable and beneficial future land uses. We identify post-closure options that take into account stakeholder concerns whilst fulfilling regulatory requirements. We progressively rehabilitate to the extent practicable.

Rio Tinto Group

The Rio Tinto Group comprises Rio Tinto plc, a London listed public company headquartered in the UK, and Rio Tinto Limited, which is listed on the Australian Stock Exchange. The two companies are joined in a dual listed company structure as a single economic entity.

Our interests are diverse both in geography and product. Most of our assets are in Australia and North America, and we also have activities in Europe, Asia, Africa, and Central and South America. We own and operate open pit and underground mines, mills, refineries, smelters, power stations, and research and service facilities, to produce aluminium and copper, diamonds, gold and industrial minerals, iron ore, coal and uranium, and use our railways, ports and ships to deliver these materials to our customers.

Message from the Group executive of HSE

Image: Joanne Farrell, Group executive, Health, Safety & Environment

Dear readers,

In June 2017, we achieved something we had never achieved before in our history: 12 months without a fatality at our managed operations. It gave us hope that we could repeat fatality-free shifts, month after month, leading to our goal of fatality-free years, year after year.

But this fatality-free performance was not to last, and tragically, in October, two of our colleagues lost their lives: one at the Rio Tinto Kennecott smelter in the US, and one while conducting exploration activities in the Pilbara, Australia.

During 2017 we also experienced a major safety incident at our Bell Bay aluminium smelter in Australia, where a colleague suffered severe burns and a disabling injury, and an explosion at our Sorel-Tracy metallurgical complex in Canada, where thankfully no-one was hurt.

These incidents remind us of the dangers in our operations, and that we must do everything in our power to understand and manage the risks to our safety and health.

I believe that we are on the way to making our company a safer place to work. We have the right systems and processes in place to support us, including first and foremost, our CRM programme, which is now fully embedded at more than 60 operational sites. We are also in the implementation phase of our process safety standard. The incidents this year at Rio Tinto Kennecott, Bell Bay and Sorel were all related to the processing side of our business, and were sobering reminders of how important it is that we improve our safety performance in this area.

A forum for safety

The great dedication that Rio Tinto people have to safety shone through at the two inaugural safety conferences we held during the year.

We brought together a diverse cross-section of people from across our product groups and functions, as well as our safety professionals. This was a deliberate move. For the business to go to the next level of safety performance, we need to make changes that are not just for safety teams to decide upon, but that require the perspectives of people across the organisation. When it comes to safety, everyone has a stake; everyone has a role, and to accelerate improvements we need to harvest diverse viewpoints.

The themes that came through most clearly were the importance of strong safety leadership, the value that comes from sharing safety learnings across the business, and the need to simplify our safety systems even further. We will be bolstering our work in these three areas in 2018.

Fostering wellbeing

People are the heart of our business, and we're working hard to build a positive and supportive culture that fosters their wellbeing.

For example, we're working with our human resources teams to improve shift design, and the benefits we provide – such as introducing a new global minimum standard for paid parental leave.

And as part of our efforts to support wellbeing and personal resilience, our Executive Committee has signed a mental health commitment that encourages our people to seek support without fear of prejudice. We're also taking some of the successful initiatives already in place locally, like the peer supporter network in our Iron Ore business, and broadening them out across the Group (see page 21).

Progress in 2017

In 2017, we improved our all injury frequency rate by five per cent. We also extended CRM to cover the three health critical risks which could lead to fatalities in our business: thermal extremes, hazardous substances and malaria.

Closure will become a bigger issue for our industry, as more mines approach the end of their lives (see page 45). In 2017, we reviewed our closure strategy and have agreed a path forward to clarify and codify our approach. We have established a dedicated business unit to manage closure activities across the life of our assets, and to look after deconstruction, remediation and our long-term management obligations after production has come to an end.

We also revisited our environment strategy to ensure it is current and aligned with our purpose. Our aim remains to prevent or minimise impacts from our operations on the surrounding environment and to ensure we are fully compliant with the relevant regulations.

We refreshed our environment standards, and we also approved a new biodiversity protection and natural resource management standard. These standards set out the minimum requirements that all parts of our business must deliver when managing our environmental impact.

The new biodiversity standard incorporates the lessons we learned from the now-retired commitment to achieving a net positive impact on biodiversity across all our operations. That commitment was ambitious and well-intentioned, however it was made without a full understanding of the challenges we would face at our sites.

The new standard takes a more local approach, and one which is more measureable. It is about every site having the right biodiversity plan for the biodiversity challenges in its own specific area, and setting and reaching locally appropriate targets.

Focus for 2018

I believe we can look to 2018 as being a year of sustainable improvement.

In the environment space, we'll be embedding the refreshed standards and introducing our new biodiversity standard.

In safety, it will be the fourth and final year of embedding CRM, making it a fully sustainable business practice, Group-wide.
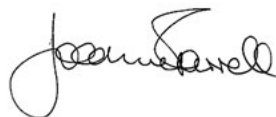
We have more work to do on catastrophic event prevention, particularly in process safety. We will continue to work with our Growth & Innovation teams in the technical space, for instance in assuring our processes around underground safety, geotechnical risks, tailings and water storage.

We are bringing in more automation across the company, and while we believe this will ultimately make our sites safer, it will also present new safety challenges for us to address during development and implementation.

A global and committed team

We recognise we have more work to do, but I believe that we have our foundations right.

Our first priority is to make sure our people get home to their families safe and healthy, every day. All our people have a role to play, and I am grateful for their commitment to making our company a safer and healthier place to work, and one that always looks for ways to do things better – so we make the biggest positive impact we can on the world around us.

Joanne Farrell
Group executive, Health, Safety & Environment

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When it comes to safety, everyone has a stake; everyone has a role, and to accelerate improvements we need to harvest diverse viewpoints."

Reporting what matters

Every year we review the sustainability topics that matter most to our business and stakeholders. This helps us select the information to be disclosed in our Annual report and this report, and aligns our sustainability reporting with the Global Reporting Initiative (GRI) Sustainability Reporting Standards.

In 2017, to determine our material topics we combined feedback from our internal leaders and subject matter experts, and we considered stakeholder expectations and analysis of the external environment. Topics identified as being material were assessed against an internally developed scoring scheme. The scoring informs the plotting of material topics against the two dimensions: "Importance to Rio Tinto" and "Importance to our stakeholders". Our assessment includes impacts across the GRI-defined sustainability dimensions of economic, environmental and social aspects across our business life cycle.

The Sustainability Committee reviewed and approved the assessment. Our material topics are described on the following pages, together with the most relevant GRI boundary and topics, their relevance across stakeholder groups and the location of our responses in this report. Our Annual report also contains information on those topics prioritised as being highly material.

As a member of the ICMM, we commit to upholding the ICMM 10 Principles for sustainable development and incorporate the mandatory requirements from the ICMM position statements into our own policies, standards and practices. Refer to our ICMM sustainable development framework online. The GRI index on page 72 includes disclosures and responses to the GRI Standards' general and specific standards and the Mining & Metals sector supplement indicators, where we have determined the matters to be material. The index also notes where the ICMM 10 Principles apply and other sources of information.

Image: Employee conducting a heritage survey in Dampier, Western Australia

Reporting what matters

Biodiversity

Mining disturbs land and potentially the livelihoods of those neighbouring communities that rely on adjacent natural resources. With considered approaches, we can add to the biodiversity database to conserve sensitive areas and contribute to regional biodiversity efforts.

Read how we are responding in this report in "Protecting the environment" (page 29).

- ■ Environment
- ● Outside including Governments, Regulators, Special interest groups

Business integrity

Adhering to the highest level of honesty, integrity and transparency in communicating our processes and performance is vital in maintaining the trust and confidence of stakeholders.

Read how we are responding in our Annual report and this report in "Governance integrity" (page 40).

- ■ Socio-economic compliance, Grievance mechanisms, Anti-corruption, Anti-competitive behaviour, Public policy
- ▲● Within/Outside including Employees, Contractors, Shareholders, Investors, Governments, Regulators, Special interest groups, Customers

Climate change

The way we manage our energy use and the impacts of climate change, and the disclosure of our response are important as we move towards a low-carbon future. Our products need to be part of the solution.

Read how we are responding in our Annual report and this report in "Protecting the environment" (page 29) and "Performance data" (page 66).

- ■ Economic performance, Energy, Emissions
- ▲● Within/Outside including Shareholders, Investors, Suppliers, Customers, Governments, Regulators, Special interest groups

Closure

The way in which we plan and execute the closure of multiple operations and facilities must consider social, environmental and economic aspects. This is vital to leaving a lasting, positive legacy.

Read how we are responding in our Annual report and this report in "Community relationships" (page 24), "Governance integrity" (page 40) and "Our value chain" (page 49).

- ■ Closure planning
- ▲● Within/Outside including Employees, Contractors, Shareholders, Investors, Host communities, Governments, Regulators, Special interest groups

Communities

Developing strong and lasting relationships is paramount to our partner-to-operate approach. This includes aspects relating to our operations such as agreements, regional development and managing cultural and heritage impacts.

Read how we are responding in our Annual report and this report in "Community relationships" (page 24), "Governance integrity" (page 40) and "Our value chain" (page 49), "Engaging with our stakeholders" (page 60) and "Performance data" (page 66).

- ■ Procurement practices, Indigenous rights, Local communities, Resettlement, Grievance mechanisms
- ▲● Within/Outside including Employees, Contractors, Shareholders, Investors, Host communities, Governments, Regulators, Special interest groups

Economic contributions

Natural resources are a significant source of value for our business and the countries that have them. It is important the direct and indirect economic value generated and distributed from our activities brings opportunity and stability, and supports our partnerships.

Read how we are responding in our Annual report and this report in "Community relationships" (page 24), "Our value chain" (page 49) and "Performance data" (page 66).

- ■ Economic performance, Indirect economic impacts, Procurement practices
- ▲● Within/Outside including Employees, Contractors, Shareholders, Investors, Host communities, Suppliers, Customers, Governments, Regulators

Employee relations

People are our priority. Maintaining an engaged, diverse and inclusive workforce is essential to maximising the value of our contributions to stakeholders. It is important we offer opportunities in employment, training and development, and best practice workplace conditions.

Read how we are responding in our Annual report and this report in "Our people" (page 15), "Engaging with our stakeholders" (page 60) and "Performance data" (page 66).

- ■ Market presence, Employment, Labor/management relations, Training and education, Diversity and equal opportunity, Equal remuneration, Non-discrimination, Freedom of association and collective bargaining
- ▲● Within/Outside including Employees, Contractors, Shareholders, Investors, Governments, Regulators

Health

A healthy and engaged workforce contributes to productivity and is essential to maximising the value of our contributions. We focus on reducing exposures and industrial diseases, and improving wellbeing.

Read how we are responding in our Annual report and this report in "Our people" (page 15) and "Performance data" (page 66).

- ■ Occupational health and safety
- ▲● Within/Outside including Employees, Contractors, Shareholders, Investors, Host communities

Human rights

We operate in countries where human rights issues are prevalent, with the rights of all people along our value chain protected. There is growing interest in the rigour of our systems, our due diligence and performance in the supply chain.

Read how we are responding in our Annual report and this report in "Community relationships" (page 24), "Governance integrity" (page 40) and "Our value chain" (page 49).

- ■ Non-discrimination, Freedom of association and collective bargaining, Child labor, Forced or compulsory labor, Security practices, Indigenous rights, Human rights assessment, Supplier social assessment, Grievance mechanisms
- ▲● Within/Outside including Employees, Contractors, Shareholders, Investors, Host communities, Suppliers, Customers, Governments, Regulators, Special interest groups

Key

■ GRI topic is the subject area covered by the GRI Standards

GRI Boundary describes where each material topic impacts in relation to Rio Tinto's business.

▲ GRI Boundary: Within including employees, contractors, shareholders and investors.

● GRI Boundary: Outside including host communities, suppliers, customers, special interest groups, governments and regulators.

Reporting what matters

Non-managed operations

Our reputation is influenced by the reputation of our non-managed operations and joint arrangements. It is therefore important that we continue to work with our partners to deliver positive performance outcomes.

Read how we are responding in our Annual report and this report in "Governance integrity" (page 40).

- 🟩 Economic performance, Occupational health and safety, Environment
- 🔺🔴 Within/Outside including Shareholders, Investors, Host communities, Governments, Regulators, Special interest groups

Operational environment performance

Preventing and minimising impacts from our operations on surrounding environments and communities is essential to our licence to operate. It is important that our management controls and programmes help manage inherent risks.

Read how we are responding in our Annual report and this report in "Our people" (page 15), "Community relationships" (page 24), "Protecting the environment" (page 29), "Governance integrity" (page 40) and "Performance data" (page 66).

- 🟩 Effluents and waste, Emissions, Compliance, Occupational health and safety, Environment, Environmental grievance mechanisms
- 🔺🔴 Within/Outside including Employees, Contractors, Shareholders, Investors, Host communities, Governments, Regulators, Special interest groups

Safety

Safety is our number one priority and a core value. Its importance is fundamental and non-negotiable to us, and a vital aspect in our partner-to-operate. Stakeholders are increasingly interested in our performance.

Read how we are responding in our Annual report and this report in "Our people" (page 15), "Governance integrity" (page 40) and "Performance data" (page 66).

- 🟩 Occupational health and safety
- 🔺🔴 Within/Outside including Employees, Contractors, Shareholders, Investors, Host communities, Regulators

Tailings and structures

The mining and metals industry produces large volumes of tailings which need to be permanently and safely stored. Stakeholders are interested in the controls we have implemented and our performance.

Read how we are responding in our Annual report and this report in "Protecting the environment" (page 29) and "Governance integrity" (page 40).

- 🟩 Effluents and waste, Emergency preparedness
- 🔺🔴 Within/Outside including Shareholders, Investors, Host communities, Governments, Regulators, Special interest groups

Value chain

Our business performance is dependent upon our supply chain and the responsible, innovative and reliable supply of products to our customers. Stakeholder interest and expectations in our value chain is increasing.

Read how we are responding in our Annual report and this report in "Community relationships" (page 24), "Governance integrity" (page 40) and "Our value chain" (page 49) and "Performance data" (page 66).

- 🟩 Procurement practices, Supplier assessment of labor practices, Supplier human rights assessment, Supplier assessment for impacts on society
- 🔺🔴 Within/Outside including Shareholders, Investors, Host communities, Suppliers, Customers, Governments, Regulators, Special interest groups

Water

Water is a valuable global resource and is crucial to our operations. Our water management practices and actual impact can be influenced by stakeholder perception.

Read how we are responding in our Annual report and this report in "Protecting the environment" (page 29) and "Performance data" (page 66).

- 🟩 Water
- 🔺🔴 Within/Outside including Shareholders, Investors, Host communities, Governments, Regulators, Special interest groups

Key

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Our people

Image: Mobile equipment maintenance, Paraburdoo operations, Western Australia
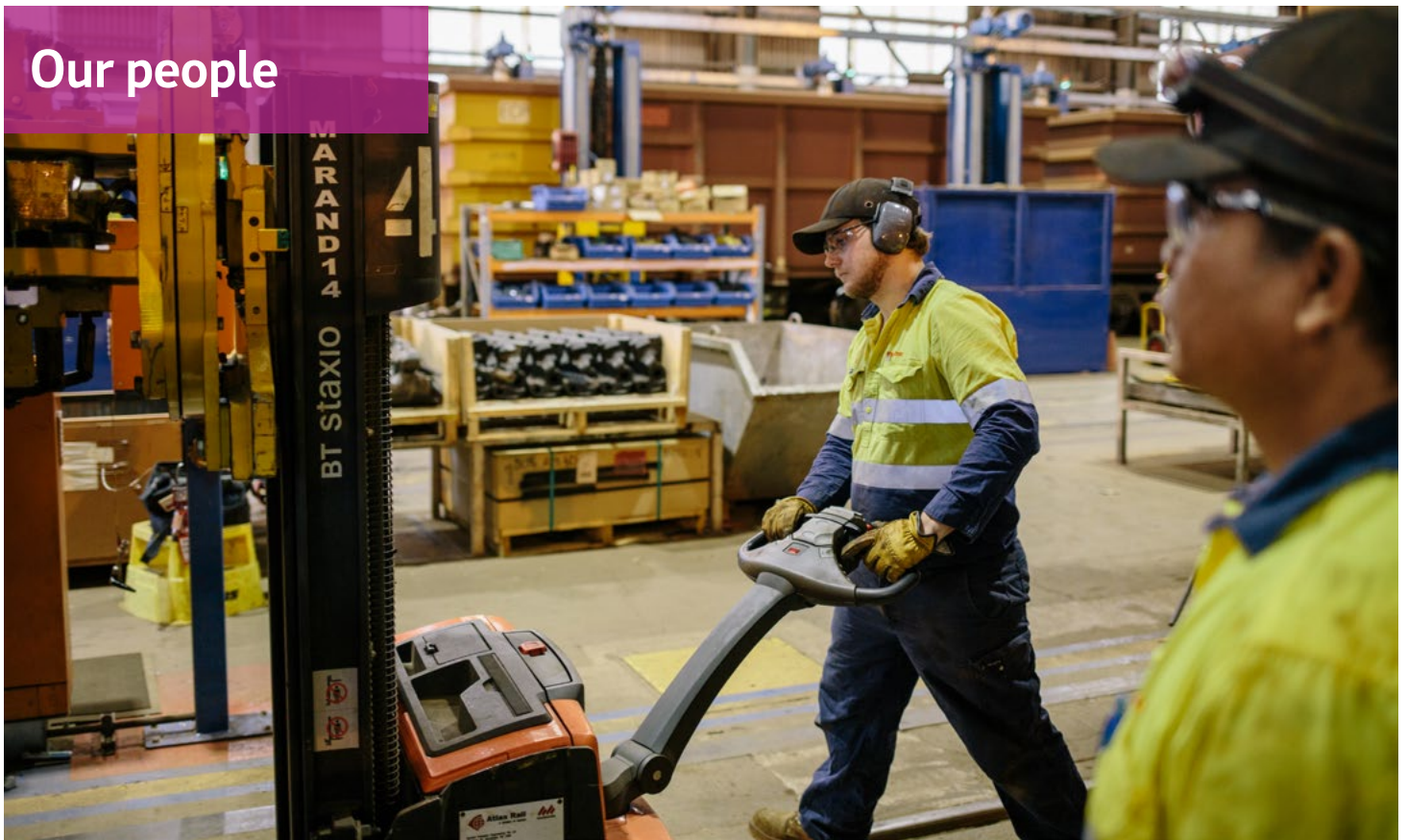
Our people

Image: Rolling stock maintenance workshop, 7 Mile, Railways, Dampier, Western Australia

Our people are the most important asset of our business. We need a safe, healthy and engaged workforce to sustain and expand our operations, to accelerate innovation and technology, and to contribute positively to our partnerships with local communities and other stakeholders.

We want to be an employer of choice and a company that continues to attract, develop and retain talented and engaged employees globally. We will do this by investing in our people throughout their careers, and offering diverse and inclusive employment prospects and development opportunities that are supported by competitive remuneration and benefits linked to performance.

Our stakeholders pay particular attention to our safety record, our progress towards our inclusion and diversity goals and how we are achieving local employment requirements particularly in developing countries.

2
fatalities at
managed operations

0.42
all injury
frequency rate*

* per 200,000 hours worked

Women represented

18%
of our total workforce

Safe and healthy operations

The safety, health and wellbeing of our people, contractors and suppliers is Rio Tinto's top priority, one of our core values and an essential component of our sustainable development performance. We work to create a safe and healthy environment through visible and caring leadership, strong systems and verifications of critical controls.

We believe in achieving zero safety and health fatalities, and that all incidents that impact safety and health are preventable. In partnerships across teams and contractors, we can raise our year-on-year performance and promote wellbeing.

Our approach is centred on eliminating fatalities and disabling injury or occupational illness, avoidance of major hazard risk (catastrophic) events, and reduction in occupational illness and injury. Guided by our safety and health standards, we identify emerging issues and key risks, and apply and assure controls. Our management system, risk assessments and critical risk management (CRM) fatality prevention programme are core tools to support this effort and help us understand both the short-term safety impact and the long-term health impact of our operations.

We introduced CRM in 2015 and it continues to be crucial to the elimination of fatalities. Our teams maintain the quantity of critical control verifications throughout the year, while focusing on quality and coverage. As a complement, we are exploring our understanding of human behaviour to reduce human error.

The complexity of our operations requires that we must understand the major hazard risks and the critical controls to prevent a catastrophic event. Major hazard risks are characterised as low probability, high consequence events. These risks are managed through standards, detailed analysis and external reviews, which are overseen by our Major Hazard Risk Management Steering Committee. We have updated our standards and processes for underground safety, slopes and geotechnical, tailings and water storage facilities, and established a governance framework.

The identification and verification of critical controls is a key aspect of managing process safety risk. The Rio Tinto Investment Committee has approved capital projects during the year to mitigate process safety risks to people in occupied buildings, such as installing detection and protection technology, and replacing chlorine metal treatment units with new units that remove the use of chlorine.

We are starting to simplify the tools and systems used in operational tasks to ensure safe outcomes and to enable our workforce to complete their work more efficiently and safely. We are also strengthening controls by continual evaluation of information provided to leaders, which is an improvement on our site assurance process.

We aim for a year-on-year improvement on our all injury frequency rate (AIFR). Over the past five years, we have seen improvement in AIFR but we still have much improvement work to do in reducing the number and severity of injuries and illnesses across the business.

We consider the local factors affecting the health of our workforce, such as type of resource, location and type of work. Our target is for all our managed operations to be effectively controlling exposure to all identified critical fatality health risks by verifying that critical controls are controlling harmful exposure.
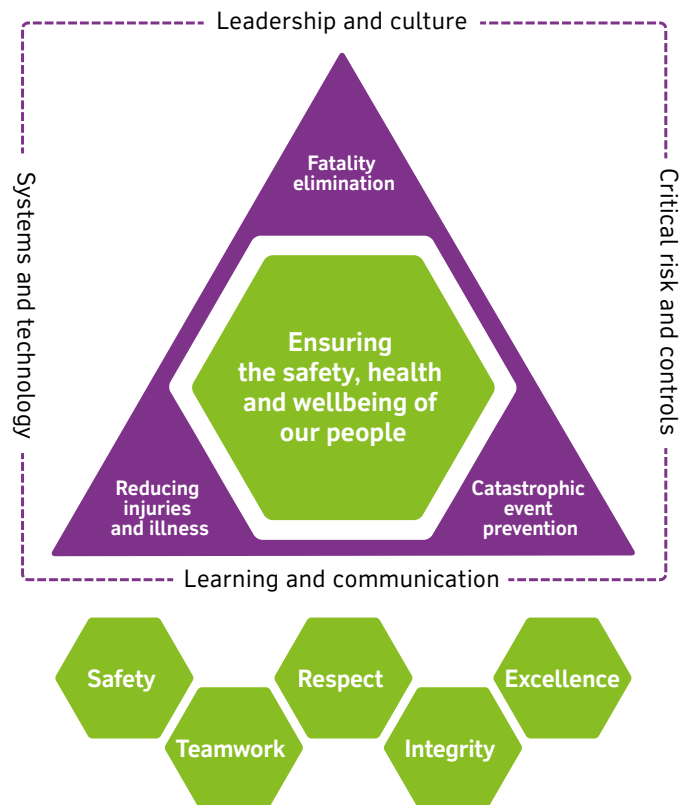
Mental health is a societal issue that impacts some of our employees and their families, and we continue to provide support in this area. We also recognise that work pressures can contribute to mental stress and we seek to control these pressures and offer a supportive work environment.

Fatigue is a critical risk in operations, projects and business travellers. In conjunction with the Central Queensland University in Australia and the University of Witwatersrand in South Africa, we studied beliefs and attitudes about fatigue across sites in Africa and Australia. The study to date has confirmed effective practices and identified improvement opportunities such as risk identification and mitigation, and training.

Our work continues with local governments and health organisations to ensure effective education in, control of and, where necessary, treatment of our employees, contractors and communities surrounding our operations for vector-borne and infectious diseases. These include tuberculosis, Ebola, malaria, plague, HIV/AIDS and Zika virus.

Safe and healthy operations

2017 performance

We are yet to achieve our goal of zero fatalities and an incident-free year.

In October, we experienced one safety-related fatality when an employee was exposed to sulphur dioxide while working near the flash smelting furnace at our Rio Tinto Kennecott copper smelter in Utah. In the same month, there was a health-related death of an employee conducting exploration activities.

At our Bell Bay smelter in Tasmania, an employee suffered severe burns from contact with molten material, causing a disabling injury. There was an explosion at our Sorel-Tracy metallurgical complex in Canada, in which no one was injured, but which resulted in a serious interruption to production.

These tragedies continue to impact family, friends, workmates and their local communities. The business provided immediate support and counselling services and continues to do so. We complete full investigations as part of the process and share the learnings across Rio Tinto to seek to prevent incidents like these being repeated. These incidents reinforce our commitment to learn from our fatal and nearly fatal incidents. The ongoing focus on our learning critical lessons programme is designed to eliminate repeat incidents. Similarly, our focus on fitness for work and wellness will continue and ongoing investigations will consider all lessons learned from the health-related tragedy.

We know our goal is possible. In June 2017, we achieved 12 months without a fatality. This gives us hope that fatality-free shifts, repeated month after month can lead to our goal of fatality-free years.

In 2017, over 1.4 million critical control verifications were completed. We added three critical health fatality risks to our existing 22 safety fatality risks to prevent harmful health exposures to the workforce. The three risks are thermal extremes, hazardous substances (chronic) and malaria.

We achieved our lowest all injury and lost time injury rates in our company history, although we did not meet the improvement in all injuries we were targeting. Our AIFR has improved 37 per cent over the last five years.

The rate of new cases of occupational illness decreased by 43 per cent from 2016. This is due to an increased focus on health and partially attributed to a reduction of previously unreported historic noise-induced hearing loss (NIHL) cases. The main types of occupational illnesses in 2017 were NIHL (36 per cent), musculoskeletal disorders (28 per cent), and stress (19 per cent).

Ninety-five per cent of our managed operations are on track to achieve our target of verifying controls for critical health risks by the end of 2018. The remaining operations are being provided assistance to implement the critical control verification process.

We established a Group-wide cross-functional wellbeing steering committee to update our wellbeing strategy and improve mental health management. A
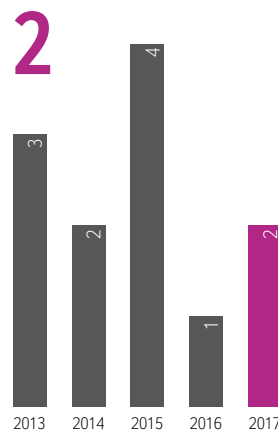
series of videos and online learning modules were also developed to support awareness training for supervisors and employees. See "Mental health at Rio Tinto", page 21, for more information.

We introduced fatigue risk management guidance, produced a series of fatigue awareness videos and established a fatigue technology group.
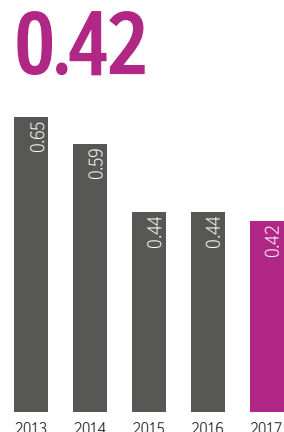
The first phase of the epidemiological study of the workforce at the Rössing uranium mine in Namibia has been completed. The objective of the study is to improve understanding of possible health effects from mine-related radiation exposure.

Our commitment to improving our safety and health performance has been recognised throughout the year by a range of organisations. Details can be found on the voluntary commitments, external benchmarking and accreditation pages of this report.
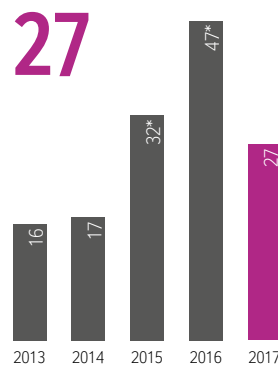
Fatal incidents
(number)

2

2013: 3
2014: 2
2015: 4
2016: 1
2017: 2

All injury frequency rate
(per 200,000 hours worked)

0.42

2013: 0.65
2014: 0.59
2015: 0.44
2016: 0.44
2017: 0.42

New cases of occupational illness
(per 10,000 employees)

27

2013: 16
2014: 17
2015: 32*
2016: 47*
2017: 27

* Numbers restated from those originally published to ensure comparability over time.

Safe and healthy operations

Image: Cole Klease, compliance coordinator at Rio Tinto's Kestrel coal mine in Australia

In the words of Cole Klease, compliance coordinator, Kestrel coal mine

I was born in Nambour, Queensland, down the Sunshine Coast. We moved to central Queensland when I was ten. When I was 17, I joined the Navy and spent the majority of my service in submarines.

The Navy teaches you many values in life and a couple of those values are safety and teamwork. I have carried these values with me through my working life.

I joined the underground coal mines at Moura in 1979, starting at number two underground. I spent 15 years there and during this time I was unfortunate enough to be called upon to attend to two mining disasters as a volunteer mines rescue person – the Moura number four explosion in 1986 and my mine, number two underground in 1994.

It is a cold hard fact that we learn from incidents. For example, new rules and regulations are put in place, better systems for monitoring and control are established, better management of risks and more robust controls are put in place and we gain knowledge and experience. So it is very important that this knowledge and experience is passed on to the coal miners so that we do not have a repeat of the past.

Rio Tinto's safety message is quite simple – we need to all go home as we came to work, "with no injury or illness". This can only happen if we are all vigilant, having a positive attitude towards your personal safety, knowing and following processes and finally, teamwork (looking after your mates). There should be no compromise to safety.

"Is zero harm really achievable?" It has to be – we need to have a goal to aim for, otherwise it means nothing.

Engaged, inclusive and capable workforce

Our approach to working with our people is centred on building and enabling a highly capable, high-performing, engaged and inclusive business. We understand the relationship between employee engagement, the health and safety of our employees, and productivity. We also want to be an attractive and competitive employer of choice.

We value the strength that a diverse workforce and an inclusive culture bring to our business. We employ people on the basis of job requirements and we do not discriminate on grounds of age, ethnic or social origin, gender, sexual orientation, politics, religion, disability or any other status. We do not employ forced, bonded or child labour. We recognise the right of all employees to choose to belong to a union and seek to bargain collectively. We employ people with disabilities and make considerable efforts to offer suitable alternative employment and retraining to employees who become disabled and can no longer perform their regular duties.

Our focus on meeting our objectives for workforce diversity continues to be a focus. We continue to increase the gender balance in senior management positions by creating opportunities at this level and partnering with recruitment teams to increase the female employee pipeline and talent pool.

We aim for our workforce to be representative of the communities in which we operate and for our leaders to come from diverse backgrounds. We prefer to employ local candidates. Where local capacity does not meet our requirements we work in partnership with local communities and government on programmes to develop skills and work readiness.

We help Indigenous people participate in the local economy through employment and learning programmes along with our local supplier and procurement programmes. Rio Tinto is proud to be one of the largest private sector employers of Indigenous Australians. Our local employment commitments are often managed through directly negotiated agreements with Traditional Owners.

The relationship between employee engagement and the productivity of our business is essential to our success. We are increasing the frequency and transparency of engagement with all employees by promoting open and honest dialogue. We conduct global employee engagement surveys biannually to understand the current and emerging issues affecting employees and to ensure our actions are driving impact.

Our Group-wide performance systems support the consistent and transparent assessment of people across the company. They also drive a performance-focused culture by making clear linkages between performance and reward, as well as career paths and progression. The package is designed to be competitive, in compliance with applicable laws and regulations and balance between fixed pay with variable pay that is linked to performance.

We focus on building talent from within our business to meet future skill requirements. Learning and development opportunities are broadly available to all employees via different channels including our virtual College. All employees are encouraged to participate in annual development planning to identify and support development for their current role and their future aspirations. Our graduate development framework provides the foundation for the development of our graduates during their two-year programme through a combination of on-the-job experience and blended learning approaches.

Our long-term partnerships with educational institutions focus on growing the future capabilities and diversity we need to meet our long-term business strategy. They are specifically targeted at attracting students to capability areas key to our industry such as science, technology, engineering and mathematics.

2017 performance

In 2017, we launched the new Rio Tinto purpose and enhanced our company values and global code of business conduct, *The way we work,* to set a strong sense of direction, increase employee engagement and attract future talent.

We reset our employee relations focus. Our people survey indicates that while we have made progress we still have work to do to improve employee satisfaction and continue to make Rio Tinto a better place to work. The results in the second half of the year show improvement as a result of our work to simplify core processes, strengthen engagement and develop our people.

We introduced a new global minimum standard for paid parental leave, which is available to every employee regardless of their personal circumstances or location.

We are championing Australia's White Ribbon (domestic violence) campaign and produced a package to protect and support families affected by family and domestic violence. In March 2018, Rio Tinto became a White Ribbon accredited workplace in Australia.

We launched several leadership signature programmes to develop and recognise leaders. Over 100 participants from frontline to senior leader levels were selected to develop their global leadership and networking skills over a 12-month period. Supported by an executive sponsor, participants are also taught by other leaders and exposed to an internationally recognised business faculty.

More broadly, over 1,500 leaders across Australia, Canada, China, Mongolia, South Africa, the UK and the US completed a six-month Leading for Success programme and developed core leadership capabilities.

We exceeded our 20 per cent target for women in senior management, and achieved strong gender (41 per cent female) and nationality representation (29 per cent nationals from regions where we are developing new businesses) across our 2017 graduate intake.

We remain one of the largest private sector employers of Indigenous Australians, with over 1,431 full time Indigenous employees who represented approximately eight per cent of our Australian employees in 2017.

Further information on inclusion and diversity, and our work of pay equity can be found in the *2017 Annual report.*

Mental health matters

Image: Safety share, Brockman 2, Pilbara, Western Australia

Good mental health is important for everyone to enjoy life, earn a living, maintain relationships and realise their potential. But every day, millions of people worldwide experience mental health challenges. When left unmanaged, these can negatively affect not only emotional health but all too often physical health and even workplace safety.

Mental health is a societal issue, and while there are effective treatments for mental illness, estimates suggest that, worldwide, up to 70 per cent of those who need treatment for a mental health disorder don't receive it.

Mental health in the workplace

Health and safety is Rio Tinto's most important priority. The safety of Rio Tinto employees extends beyond physical safety to include their mental health and wellbeing.

Dr Will Ponsonby, head of Health at Rio Tinto, says that stigma around mental health is one of the biggest obstacles to people seeking help and treatment. The World Health Organisation's (WHO) Comprehensive Mental Health Action Plan 2013-2020 calls for a change in the attitudes that perpetuate stigma and discrimination.

Mental illness is often not work-related, but work can be a place where people are able to find help and support. The workplace can play a key role in recovery from mental health challenges. A positive work environment improves employee wellbeing, morale and productivity. Good work is a positive for mental health.

Creating a supportive work environment also extends to managing issues related to workload, hours, fatigue management, role clarity and leadership.

"This is a conversation we are having with our workforce. We added a question about wellbeing to our twice annual employee survey so we can track how we are doing and address concerns.

"At Rio Tinto we are working hard to create a positive and supportive environment for all employees. There are areas where we believe we are succeeding but it is vital that we continue to increase our efforts to further raise awareness," he says.

"Mental illness is just as real as any other illness. It is not a weakness."

Mental illness is one of the most rapidly growing causes of long-term sickness absence and labour market exclusion across developed countries, despite improved rates of detection and methods of intervention. Studies have suggested that mental health training for managers might help improve occupational outcomes for employees with mental health problems.

In the UK alone, about 300,000 people with a long-term mental health problem lose their jobs each year. These findings in a review commissioned by British Prime Minister Theresa May in 2017, titled The *Thriving at Work* report, put the annual cost to the UK economy of poor mental health at up to £99bn, of which about £42bn was borne by employers.

"Although the research verifies that mental health is a serious challenge and there are costs to companies and countries, we must not lose sight of the suffering that mental health challenges can cause," says Will.

Understanding mental illness

A mental health problem may develop into mental illness. There are many different types of mental illness with depression and anxiety being the most common.

The WHO says that depression is a common illness with more than 300 million people affected worldwide. Depression is different from mood fluctuations and short-lived emotional responses to challenges in everyday life. When long-lasting and with moderate or severe intensity, depression may become a serious health condition. It can cause the affected person to suffer greatly and function poorly at work, at school and in the family. At its worst, depression can lead to suicide.

WHO statistics show that close to 800,000 people die due to suicide every year.

While the link between suicide and mental disorders is well established in high-income countries, many suicides happen impulsively in moments of crisis with a breakdown in the ability to deal with life stresses, such as financial problems, relationship break-up or chronic pain and illness.

Mental health matters

Healthful minds

Rio Tinto promotes a healthy balanced lifestyle, work-life balance, good nutrition, regular exercise, and access to health care. Rio Tinto also promotes "healthful minds", through its new health strategy, introduced in 2017.

"A healthful mind chooses personal health options and starts to guide their own wellbeing and influence others," says Dr Oswaldo Ortiz, principal adviser, Occupational Health at Rio Tinto.

There are five pillars of Rio Tinto's health strategy: employee awareness, leader awareness, peer support, positive mental health, and systematic and continuous assessment of our workplaces.

"The strategy has evolved to incorporate prevention and early intervention. We need to be more proactive and build resilience. It also aligns with existing work being undertaken across our business."

Oswaldo said that the longer-term view is for all employees to be empowered to build their own health, wellbeing and resilience, and for Rio Tinto to influence and build a culture of doing this.

"In the workplace we have controls in the source of exposure and Personal Protective Equipment (PPE) as important tools to help keep us safe. Similarly we have tools and resources that are effective in protecting our mental health: we procure to identify and tailor our sources of work stress to maintain a positive challenging environment, and help our employees to build their resilience".

"It starts with a healthful mind that chooses personal healthy options such as a good diet, regular exercise, sleep, rest and relaxation, limiting alcohol and spending time doing what makes you happy," he says.

Rio Tinto is committed to empowering all employees to make positive choices towards a fulfilling life and healthier future. One of the initiatives supporting this includes participation in the Virgin Pulse Global Challenge in 2018. One of the aims of the challenge is to build a network of health champions across the business to promote health and wellbeing. Later every employee will have the opportunity to participate in a journey where there is a virtual walk around the world while receiving continuous awareness and education on exercise, nutrition and mental health.

Tools for health

Rio Tinto has a diverse health and wellbeing offering to encourage and support all employees in their health journey.

Raising awareness, working to overcome negative stereotypes, and promoting a healthy balanced lifestyle are important tenets of the programmes at Rio Tinto.

This suite of tools includes the Employee Assistance Programme, peer support programmes and online educational tools. In addition, leader and employee training aims to create awareness around mental health, in order to recognise a problem before it develops and to encourage employees to manage their health.

Peer support

For people suffering with mental health issues, talking to someone they trust can make all the difference. Research suggests that when people do reach out for help, particularly in a work environment, they are more likely to approach friends and colleagues, rather than formal support programmes.

Rio Tinto has peer support programmes at many sites, and is set to roll the initiative out globally. Peer supporters provide colleagues affected by stress with a listening ear or practical assistance, or can connect them to professional help when needed.

Rio Tinto's Group executive, Health, Safety & Environment Joanne Farrell said "Our people at site are often isolated from family and friends and it's really important we recognise our employee's safety extends beyond physical safety to include mental health and wellbeing too.

"As an employer we cannot prevent life's curveballs coming. What we can do is provide our people with the resources, tools and skills to help them deal with these curveballs.

"Our peer support programmes focus on building positive mental health and resilience including how we can integrate health into leadership training and how we set up our camps and offices to maximise health outcomes by design."

A listening ear

Rio Tinto's Iron Ore business introduced a peer support programme in 2012. The programme equips employees at all levels and parts of the business to support their colleagues through difficult times.

Employees who would like to become peer supporters are provided with training. All peer supporters are easy to identify with their logo on email signatures, a sign card at their work station and pins they wear. The role is to lend a listening ear, help people access mental health and wellness tools and services, or if needed access to professional help.

Taurai Gusha, a mobile mining equipment fitter at Rio Tinto's Yandicoogina iron ore mine, in Western Australia's Pilbara region, has been one of the business's peer supporters for the past two years.

A former professional rugby player, Taurai has always had a love of team environments. Taurai says this is one of the reasons he joined the peer support programme – it's one way he can play a part in creating a positive, healthy and safe work environment for his team.

"I help people around our site who are struggling with a few problems – it could be mental health issues, they may be having a down moment in their life, or it could be issues at home with their kids. It varies day to day.

"It's good to have people at the same level, like team mates, who can help – just to talk. It can make a big difference," said Taurai.

Mental health matters

White Ribbon

Rio Tinto supports and participates in community, national and international initiatives that raise awareness around mental health.

In 2018, Rio Tinto became a White Ribbon accredited workplace in Australia. The White Ribbon Accreditation Programme recognises workplaces that are taking active steps to stop violence against women.

In 2017 Rio Tinto introduced a package of initiatives designed to protect and support Australian employees affected by family and domestic violence. Under the package of measures, Rio Tinto will make up to ten days additional leave available to directly affected employees for legal assistance, court appearances, relocation and counselling.

Support also extends to providing appropriate safety plans to protect at-risk employees while they're at work, including security, new telephone numbers, screening or blocking calls and email protection.

Short-term financial assistance and emergency accommodation can also be provided as required to employees who need immediate help, as well as a range of other specialised support services.

Rio Tinto will continue to train leaders and human resources teams to equip them with the skills to recognise and respond to issues of family and domestic violence in the workplace.

Employee Assistance Programme

More than 95 per cent of all Rio Tinto employees are covered by the Employee Assistance Programme, and the remaining employees have support from on-site counsellors.

The programme gives employees access to professional coaching, advice and support for themselves and their families. It can help with many types of concerns, including: financial and legal questions, children's needs, family relationships, advice for supporting an ill parent, balancing work and home, and dealing with change and stress.

Community relationships

Image: Rössing Foundation, Namibia

Community relationships

Image: Indigenous partners. East Weipa Mine Centre, Weipa, Queensland, Australia

Our approach to Communities and Social Performance (CSP) is to secure and maintain lasting relationships with those communities affected by our operations and activities. We want to be a trusted partner to all affected communities throughout the life cycle of our operations. Fundamental to this approach is the shared understanding of the impacts and benefits our business brings.

Our CSP standard describes how we maintain our community relationships. It covers how we monitor and manage day-to-day impacts and concerns, identify and manage social risks, form long-term community agreements and close operational sites. The CSP standard is supported by guidance notes which describe our site procedures. These are aligned with international guidelines, such as the International Finance Corporation's (IFC) Performance Standards on Environmental and Social Sustainability and ICMM's Position Statement on Indigenous Peoples and Mining.

Using our local knowledge, we engage with communities and develop programmes that reflect mutually agreed priorities. Our CSP standard and framework enable us to identify and manage social risks, and thus build relationships that secure community support for our operations.

Recognising and respecting people's human rights and cultural heritage are principles embedded in our values, policies and standards. We have strong processes for managing human rights risks and pay particular attention to human rights issues – such as water resources, land access, resettlement and security – that may be commonly associated with mining activities. Read more about our approach to human rights in the "Governance integrity" section (page 40).

Protecting and managing cultural heritage assets jointly with communities contributes to the quality of our relationships and avoids delays, legal action and compliance costs. We work with all communities to understand and protect cultural places, objects and practices and respect their diverse cultures, lifestyles, heritage and preferences. All our operations maintain and implement a cultural heritage management system. This requires undertaking cultural heritage risk assessments to identify and understand cultural heritage values, their significance and management plan options. Our CSP standard, Cultural heritage management guidance and *Why cultural heritage matters* document provide practical guidance for our teams.

All our sites must have a complaints, disputes and grievance mechanism that meets the UN Guiding Principles on Business and Human Rights criteria. Our businesses also measure and report on their performance against their CSP targets. Our CSP targets for 2016-2020 are focused on increasing local economic participation at our assets and reducing significant and repeat CSP incidents and complaints.

We undertake social and economic impact assessments to understand the implications of our activities and reduce any negative impacts throughout the life cycle of our operations. We collaborate with local communities to develop clear and transparent agreements, which are essential to providing access to land we require and for directing benefits to those affected by our activities.

Read more about our partnerships with communities on riotinto.com/Spotlight.

Community contribution spend of

US$176m

Contributed to

1,336
Community programmes

Contributing to strong and prosperous communities

We seek to use the natural resources we have access to responsibly, and to share the benefits with host communities.

Regional economic development is a key part of the community and stakeholder engagement plans that every operation has. These plans describe opportunities and regional priorities. We also help our stakeholders to develop their own plans and we set up investment funds, trusts and foundations to help them achieve their goals and to deliver long-term benefits. Through our investments in, for example, health and education services, our business makes significant, positive contributions to the growth of local economies and the improvement of living conditions.

Our CSP targets are focused on increasing local economic participation at our assets. We employ local people and engage local businesses. We also build the skills of local workforces and work on employment-related programmes to help local communities, and, in particular, youth, women and Indigenous people, benefit from employment and procurement opportunities.

Resettlement of people or communities can be required as a result of acquisition of, or restriction of community access to land needed for our operations. We only resettle people or move existing economic activity where it is unavoidable. When resettlement is necessary, we work hard to ensure resettled people maintain their social harmony and have their standard of living and livelihood sustainably restored or improved over the long term. This is undertaken in accordance with the IFC's Land Acquisition and Involuntary Resettlement Performance Standard and our CSP standard. We are currently monitoring the outcomes from the resettlement of communities at our Oyu Tolgoi operations and are nearing the completion of resettling community members at our Richards Bay Minerals operation.

We work with local communities during the planning for closure of our mines and facilities, and during divestments of our assets. The closure of our operations can have a significant impact on the surrounding local community. As part of our planning for closure we work with stakeholders to understand the community's priorities, set closure objectives, manage risks and identify sustainable, beneficial future land uses.

Image: Kwambonambi community, Nzalabantu area, Richards Bay Minerals, South Africa

Contributing to strong and prosperous communities

2017 performance

During 2017 we contributed to 1,336 programmes covering health, education, environmental protection, housing, agricultural and business development sectors. In total our business spent US$176 million on community contribution programmes. This was an increase in overall community contributions of five per cent compared with 2016 due to higher agreement-related payments flowing from higher commodity prices.

All sites established their CSP targets in 2016, and in 2017 commenced the first year of reporting their performance towards meeting the target. At the end of the year, 42 per cent of sites were already on track to meet their targets by 2020. For those sites who reported risk of not achieving their 2020 targets, management activities are in place for early intervention of performance and outcomes.

During the year, five significant community incidents were reported through our CSP complaints and incidents management system. These related to unauthorised impacts to cultural heritage and a community safety incident.

We were pleased to reach the resolution of herder complaints lodged with the IFC Ombudsman regarding our Oyu Tolgoi operation. This followed a four-year dispute resolution process involving herder households, local government and our Oyu Tolgoi operational representatives.

Our engagement with the Jabiru community and governments continued ahead of the closure of the Ranger uranium mine in the Northern Territory, Australia, and on the impacts and opportunities identified from the recent social impact assessment.

In 2017, we worked to ensure that the divestment of our thermal coal assets in Australia did not negatively impact the local communities in the Hunter Valley. During the divestment process, we continued to place a high priority on the interests of local communities with whom we worked over many years.

Community contributions by region
(percentage of annual total)

- North America: 36.4
- Australia/New Zealand: 48.6
- Europe/Africa: 13.0
- Asia: 2.0
- South America: 0.0
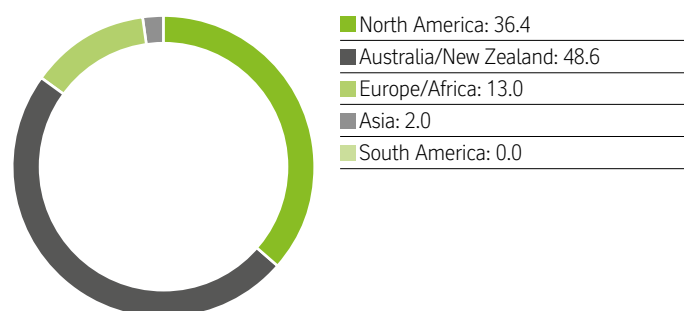
Excludes Rio Tinto management costs and direct payments.

Community contributions by programme type
(percentage of annual total)

- Education: 19.2
- Business development: 8.4
- Culture: 7.0
- Health: 13.1
- Environment: 12.4
- Recreation: 29.2
- Transport: 0.1
- Agriculture: 1.6
- HIV/AIDS: 0.1
- Housing: 0.1
- Other: 8.8
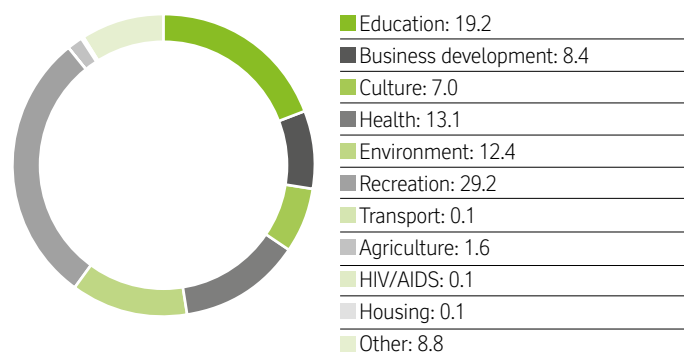
Due to rounding the sum may not total 100 per cent.

Negotiating long-term, mutually beneficial partnerships

Stable, life-of-mine access to land is fundamental to the success of our business. However, many of our operations are located on land that holds particular significance for local communities and land-connected peoples, including Indigenous peoples. To manage these issues and to help with approvals and permits, we form community agreements.

Agreements are the basis of many of our relationships. They form an essential part of the planning, operation and closure actions of every project and operational site.

Our agreements are based on finding common ground, where both parties benefit. They provide transparent and measurable commitments on how we will share the benefits. It takes time to negotiate mutual agreements and the process can be as important as the final agreement itself. A whole-of-business approach is applied. In recognising and respecting what land means to the people who occupy it, agreements typically include commitments on land use, cultural heritage, environment, employment and procurement. As each agreement is developed, we refine and improve our practice.

Currently we have 40 comprehensive participation agreements and over 120 global exploration access agreements in place across the business. Most of our community agreements are with local Indigenous communities. In forming these, we strive to achieve the free, prior and informed consent of Indigenous communities as defined in the IFC's Indigenous Peoples Performance Standard and the ICMM Position Statement on Indigenous peoples and mining. Our *Why agreements matter* guide also supports good practice in agreement-making.

2017 performance

In 2017, we celebrated 20 years of the Yandicoogina Agreement between Rio Tinto and the Gumala Aboriginal Corporation, which represents the interests of the Nyiyaparli, Banjima and Yinhawangka people in the Pilbara, Australia.

Our agreement with the Cheslatta Carrier Nation people in British Columbia, Canada progressed, with a final conclusion anticipated during 2018.

The Apache Leap Special Management Area (SMA) was added to the bipartisan legislation that passed US Congress in 2013 to facilitate a land exchange between the Tonto National Forest and Resolution Copper. A milestone critical to the process was achieved in December 2017 with the approved SMA plan for Apache Leap, a culturally significant site above the town of Superior in Arizona. The US Forest Service conducted comprehensive consultation with 12 Arizona tribes and specific measures were adopted to accommodate concerns about public access, grazing and other protections for culturally important locations within the SMA. This allows us to make adjustments to our plans to ensure that Apache Leap is protected.

Progress on our Reconciliation Action Plan

Our 2016-2019 Reconciliation Action Plan (RAP) outlines how we will build deeper engagement between Indigenous communities and our Australian operations during this period. It sets stretch targets across Indigenous employment, education, training and business development areas.

We were the first resources company to obtain an Elevate RAP through Reconciliation Australia's RAP programme – the highest possible phase achievable. See right for some of our progress in 2017.
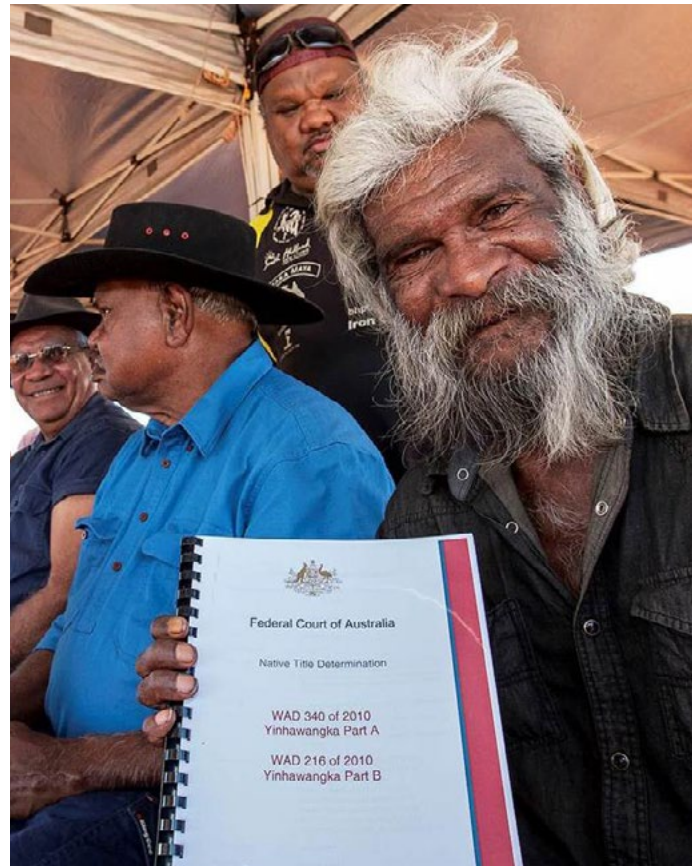
Image: Developing mutually beneficial relationships with Traditional Owners

A$162m

Indigenous business contracts throughout Australia in 2017

685 days

of cultural heritage surveys completed across the Pilbara

1,430+

full-time Indigenous employees, representing 8% of our Australian workforce

Protecting the environment
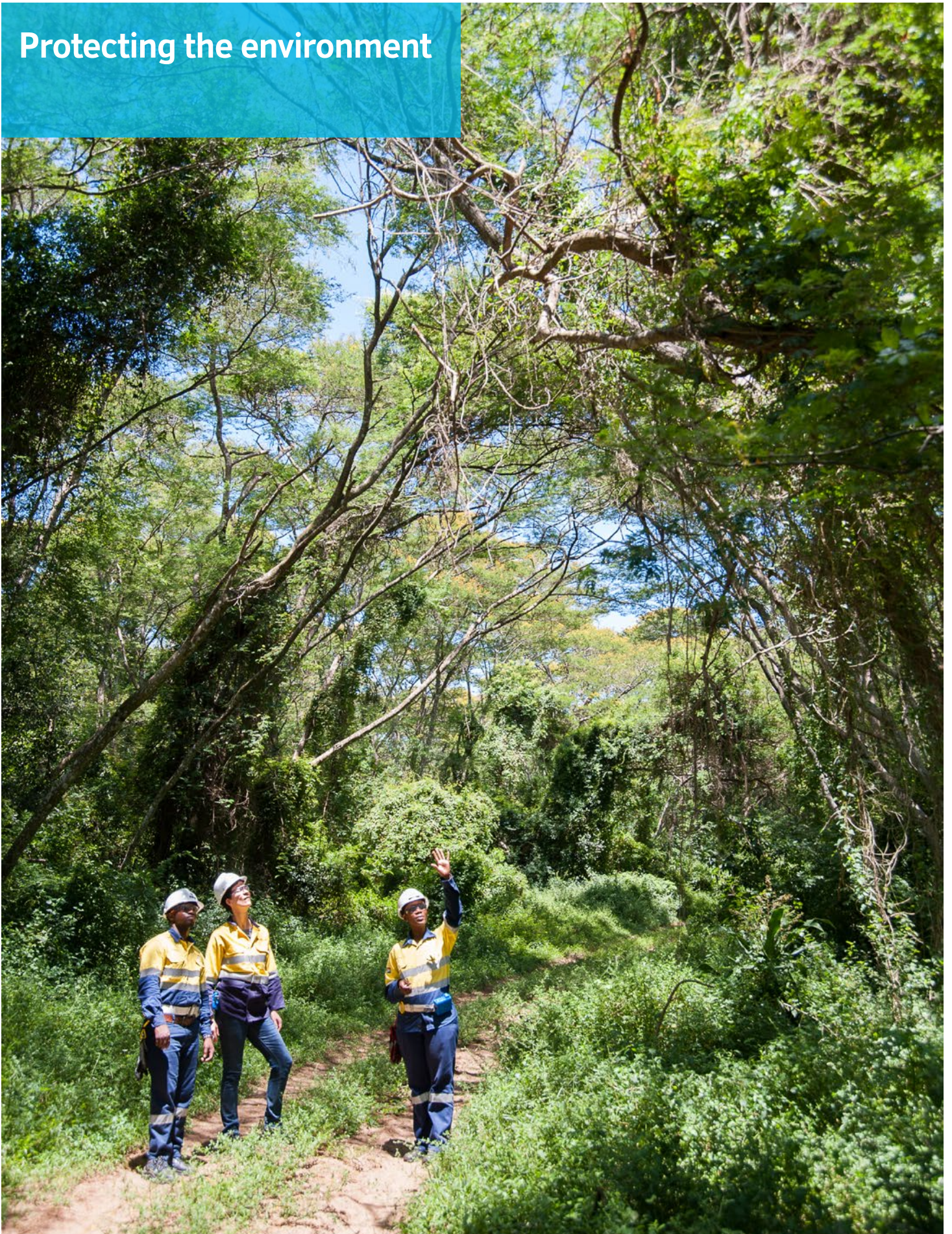
Image: Nhlabane forest rehabilitation, Richards Bay Minerals, South Africa

Protecting the environment

Image: Seawater vents and inland mangroves at Lake MacLeod, Dampier Salt, Western Australia

Environmental stewardship is essential to our relationships with host communities, regulators and others. We accept that we are responsible for managing risks and impacts associated with our operations. Where our impacts add to those from multiple operators, we seek to work with others to understand and manage cumulative impacts in a region.

In planning and operating our assets, we seek to minimise and remediate the environmental impacts of our activities. We work with our host communities and regulators to manage and monitor these and to comply with relevant regulations.

We work in accordance with the Rio Tinto management system standard as well as Group-wide and business-specific environmental standards and processes. We participate in industry reviews covering issues such as tailings management and water stewardship to share knowledge, learn from others and improve our management approaches and practices.

27%
reduction in our greenhouse gas emissions intensity since 2008

69%
of our electricity is sourced from renewable energy

Developed our new

biodiversity
protection and natural resource management standard

Preparing for a low-carbon future

We believe our mineral and metal products have a role in a low-carbon future. However, it takes a significant amount of energy to mine and process these materials. We are aiming for a substantial decarbonisation of our business by 2050 and are taking steps to manage our energy use, manage risk, build resilience to climate change and develop our role in a low-carbon future.

We acknowledge the changing global climate and support the intent of the Paris Agreement to limit global warming to less than 2°C above pre-industrial levels. We also support our 2016 shareholder resolution to include more information about our climate change approach in annual reporting. We support the Financial Services Board Task Force on Climate-related Financial Disclosures' (TCFD) recommendations for voluntary financial reporting on climate change risks. Our approach is supported by our climate change position statement.

Our climate change programme focuses on reducing the energy intensity of our operations and the carbon intensity of our energy. We expect the most significant changes to the energy intensity of our operations and therefore changes to our greenhouse gas (GHG) emissions to be attributed in the next few years to changes in the portfolio and asset sales.

We release GHG emissions through the energy used to power our operations, in the chemical processes used to produce metals, and via fugitive emissions and land management that occur as part of our mining activities. We also contribute to GHG emissions indirectly through the transportation and use of our products, such as the use of coal in steel production and electricity generation.

We investigate ways to mitigate emissions associated with the use of our products. For example, our Iron Ore team continues to examine ways of reducing the carbon footprint associated with processing our ores to iron and steel. In conjunction with a range of partners, we are undertaking a planned test programme to assess options for making iron from Pilbara fines with low carbon fuels and energy sources.

Our energy use, including use of reductants, contributes more than 90 per cent of our GHG emissions and provides our largest opportunity to reduce our footprint. The challenge, however, is great.

Our energy intensity faces headwinds due to the additional energy required to mine ore at greater depths, move more waste rock and transport materials over greater distances. Using more renewables is one way to reduce emissions and we are continually reviewing the opportunity for renewable energy options at our sites.

Rio Tinto takes a long-term approach to strategy development. We consider climate change and future energy scenarios in our strategic positioning of the business, which allows us to explore uncertainties and to understand business implications across possible future outcomes. We conduct climate change risk assessments for proposed new investments.

We are using scenarios based on the International Energy Agency's (IEA) 450 scenario to assess the resilience of the commodities we produce to market-related potential impacts. This work is a collaborative effort which includes input from a number of corporate functions, and also brings in work being done at the product group level to look at the impact of a 2°C scenario on our markets. Progress in 2017 will be built on in 2018, and further information will be included in future disclosures

Climate change requires long-term planning and presents complex challenges for companies, governments and society. We recognise some challenges are yet unknown. Partnerships with stakeholders help us understand the broader risks and opportunities of climate change, policy development and expectations for additional information about our work. For example, our Group executive for Health, Safety & Environment was co-chair of the B20 taskforce on Energy, Climate and Resource Efficiency which provides recommendations for action by G20 governments to address climate change. We participate with the International Emissions Trading Association, ICMM, the Minerals Council of Australia and the US-based Center for Climate and Energy Solutions (C2ES).

We monitor national and international policy developments to assess new carbon and climate change regulation and policy. We use carbon price projections to assess possible impact on costs and product prices. These price projections are calculated, with input from internal and external technical experts, using existing short-term market data and alternative price forecasts.

Image: Arvida Aluminium Smelter, AP60 Technology Centre, Jonquière, Quebec, Canada

Preparing for a low-carbon future

2017 performance

We achieved a two per cent reduction in our greenhouse gas emissions intensity. This furthered our emissions intensity reduction, from our 2008 baseline, to 27 per cent.

Our total GHG emissions were 30.6 million tonnes of carbon dioxide equivalent (CO_2–e), 1.4 million tonnes lower than in 2016. This was achieved in part by our divestment of coal assets in Australia.

Renewable energy from hydro, wind and solar power represented 69 per cent of our electricity sources, a similar level to previous years. Total energy use was 439 petajoules.

The three most significant sources of indirect (scope 3) emissions associated with our products were:

– 529 million tonnes of CO_2–e associated with customers using our iron ore to produce steel. These emissions are not all in addition to the coal-use emissions presented below, as some customers use both our iron ore and our coal to produce steel. This was a one per cent increase from 2016.

– 70 million tonnes of CO_2–e associated with customers using our coal in electricity generation and steel production, a 31 per cent decrease from 2016.

– 6.2 million tonnes of CO_2–e associated with third-party transport of our products and raw materials, a 2 per cent increase from 2016.

We continued to prepare our business for a low-carbon future. Building on our previous years' work on climate change risks, we completed an exposure assessment of our operations to the physical risks of climate change. This has provided us with a better understanding of exposure at the asset level to potential changes in climate variables such as temperature, sea level rise, water risk and climatic extremes in the regions where our assets are located. The next stage of this study will look at operational characteristics and current risk controls, to build up a Group-level view of the physical risks of climate change. There is still more we can do and in future reports, we will include more about our resilience to a 2°C climate change scenario.

We received recognition for some of our work. In Canada, we were honoured through the Canadian-American Business Council's Corporate Leadership Award for our C$6.4 billion modernisation of the Kitimat aluminium smelter. The award recognises our innovation in producing some of the world's lowest carbon aluminium, environmental benefits and our long-term partnership with the Kitimat community.

Greenhouse gas emissions intensity
(indexed relative to 2008)

73.0

2013	2014	2015	2016	2017
83.2	81.7	79.7	74.4*	73.0
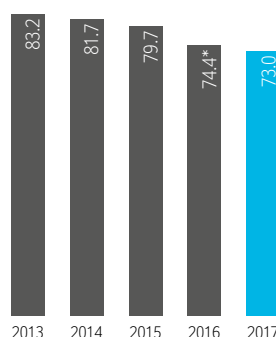
* Numbers restated from those originally published to ensure comparability over time.

Total greenhouse gas emissions
(million tonnes carbon dioxide equivalent)

30.6
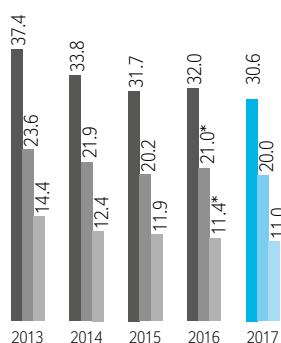
■ Total emissions
■ Scope 1 emissions
■ Scope 2 emissions

The sum of the categories may vary to the total figure show due to rounding.
* Numbers restated from those originally published to ensure comparability over time.

Preparing for a low-carbon future

Sources of total greenhouse gas emissions
(percentage)

- Net purchases electricity and steam: 34.6
- Fuel: 34.6
- Anodes and reductants: 22.7
- Process gases: 6.4
- Net land management: 1.7
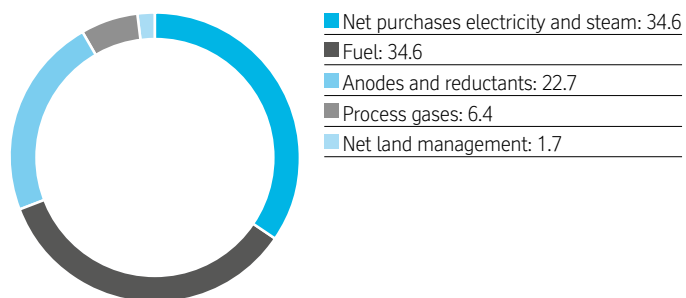
Primary sources of energy used
(percentage)

- Coal: 31.6
- Renewable hydro: 27.6
- Natural gas: 18.4
- Diesel: 12.7
- Nuclear: 7.1
- Fuel oil: 1.7
- Renewable other: 0.8
- Other: 0.0
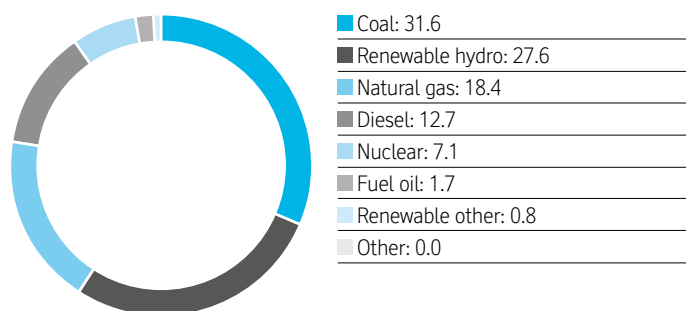
Sources of electricity used
(percentage)

- Renewable hydro: 67.5
- Coal: 16.0
- Nuclear: 5.2
- Natural gas: 8.3
- Renewable other: 2.0
- Other: 1.0
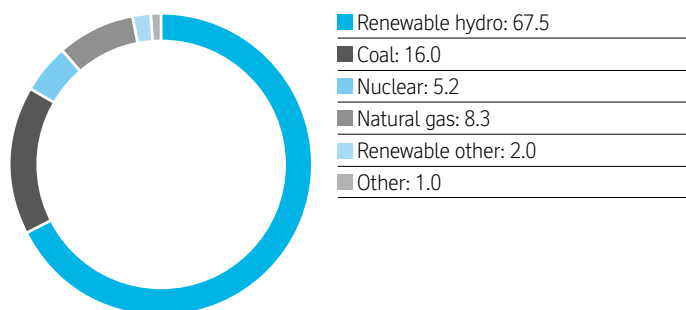
Preparing for a low-carbon future

Our work in meeting the TCFD requirements

In 2017, the Financial Services Board's Taskforce on Climate-related Financial Disclosure (TCFD) released its recommendations for voluntary financial reporting on climate change risks. Rio Tinto supports the TCFD's recommendations. The adoption of all of the recommendations will take time to implement. Our focus is on ensuring that the assessment of the impacts of climate change are clearly communicated internally and inform decision-making. In addition to understanding the resilience of our business to climate related impacts, currently focused on physical and financial climate-related risk, meeting TCFD recommendations requires us to reassess the way that climate change risk is integrated into relevant internal business processes. These efforts require collaboration across corporate functions, our businesses and operating assets.

There is uncertainty as to what the impacts of climate change, both positive and negative, will be for the commodities we produce. This presents a significant challenge to making accurate forward looking statements. We continue to engage with external stakeholders to help us improve the communication of information to ensure disclosures are relevant and timely. We recognise that our external disclosure will need to evolve over time.

Our progress to-date includes:

TCFD recommendation	Our progress
Governance	Rio Tinto's Sustainability Committee reviews the Group's approach for consistency with our purpose and values, for the effective management of material sustainability risks, and for our overall contribution to sustainable development. This includes climate change.
	The Committee reviews and approves our climate change position statement, updates to our GHG intensity target and has oversight of the actions being taken to align our disclosures with the TCFD framework. The Committee is a key internal stakeholder for our 2°C scenario resilience assessment.
	Management of the Group position and response to climate change is the responsibility of Joanne Farrell, Group Executive, Health, Safety and Environment.
Strategy	We support the intent of the Paris Agreement to limit global warming to less than 2°C above pre-industrial levels. We support market based mechanisms as the most efficient way to provide a price on carbon.
	We are using scenarios based on the International Energy Agency's (IEA) 450 scenario to assess the resilience of the commodities we produce to market-related potential impacts. This work is a collaborative effort with input from corporate functions and assessments of the impact of a 2°C scenario on our markets by each of our product groups. We will improve our understanding and management of the resilience of our portfolio in a 2°C scenario.
Risk management	Rio Tinto has used an internal price on carbon as an input for investment decisions since 1998. We use carbon price projections to assess the possible impact on costs and product prices. These price projections are calculated based on input from internal and external technical experts, and use existing short-term market data and alternative price forecasts.
	In 2017, we undertook an assessment of our operations to the physical risks of climate change. This has provided us with a better understanding of exposure at each asset to potential changes in climate variables such as temperature, sea level rise, water risk and climatic extremes in the regions where our assets are located. The next stage of this study will look at operational characteristics and existing risk controls, to build up a Group view of the physical risks of climate change.
	In the near term, we manage for physical risk impacts, such as extreme weather events, by monitoring our exposure using seasonal weather outlooks, and ensuring sites have a response plan for extreme weather events.
Metrics and targets	We have a greenhouse gas intensity target to achieve a 24 per cent reduction in total greenhouse gas emissions intensity between 2008 and 2020. Our performance is reported annually in our Annual report and Sustainable development report. By the end of 2017, we had achieved a 27 per cent reduction compared with 2008.
	Our long-term goal is for a substantial decarbonisation of our business by 2050. Since 2008 we have reduced our total GHG emissions by 38 per cent compared with our 2008 baseline, primarily through the divestment of more carbon intensive assets.
	Rio Tinto has a role to play supplying the minerals and metals that will enable that transition, whilst also playing our part by reducing our own emissions. We are currently looking a range of options for targets, including science based targets, to replace our current GHG intensity target when it finishes in 2020.
	We disclose our scope 1, 2 and 3 emissions in our Annual report and Sustainable development report.

Water quality protection and management

Water is a valuable resource and is crucial to our operations. We abstract groundwater to allow us to reach orebodies, and use water to process ore, manage dust emissions, supply drinking water and wastewater services, and generate hydroelectric power.

For Rio Tinto, water is not solely about constrained supply. Each of our operations has its own water context – while some operations are located in water-scarce environments, others must manage intense rainfall. At some sites, mining below the water table brings challenges as to how we manage dewatering and water disposal. Sites undertake appropriate management of the quality of water returned to the environment during operations and at closure. Many of our sites are also experiencing changes in their local water regimes due to climate change, which is a key water management consideration.

Our water resource management programme focuses on site-specific risks and impacts, such as security of water supply and managing the quality of water returned to the environment. We balance operational needs with those of local communities, Traditional Owners, and ecological and regulatory requirements.

We continue to strengthen our water governance and planning processes to improve water management across the business. We support the new ICMM position statement on water stewardship and will begin reporting our practices against the commitments in future reports.

To ensure we have appropriate focus on the issues that are relevant to water management at each site, we have established site-specific targets for 2013-2018 at 30 operational sites where water is a material risk. The targets address water supply, ecological impacts or surplus water management issues. We assess our performance against these targets annually to help focus effort to where water management improvements are required.

2017 performance

At the end of the year, 77 per cent of our managed operations were on track to meet their local water performance targets by 2018. The remaining operations will continue to focus on material water risk and on improving their performance against their water targets. We also commenced the process for establishing new water targets beyond 2018.

Rio Tinto's Richards Bay Minerals was recognised with a Certificate of Merit Water Conservation Award, Enviropaedia Eco-logic Awards for their water conservation and demand management programme during the current drought period.

Freshwater withdrawn
(billion litres)

584

Year	Freshwater withdrawn and used	Freshwater withdrawn and discharged without use
2013	436	80
2014	465	89
2015	460	104
2016	467	106
2017	465	120
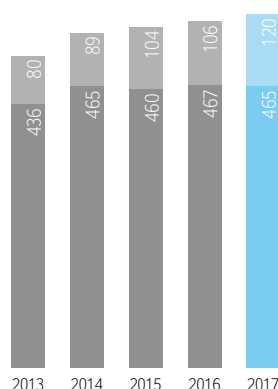
■ Freshwater withdrawn and used
■ Freshwater withdrawn and discharged without use

The sum of the categories may vary to the total figure due to rounding. Totals are provided in the "Performance data" section.

Water quality protection and management

Sources of water withdrawn
(billion litres)

791

	2013	2014	2015	2016	2017
Fresh	516	555	564	573	584
Poor	210	162	168	180	206
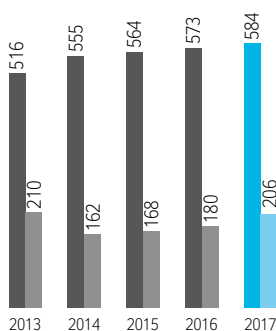
- Fresh
- Poor

The sum of the categories may be slightly different to the total figure due to rounding.

Water used and recycled
(billion litres)

1,187

	2013	2014	2015	2016	2017
Water recycled in process	265	264	287	282	304
Water use	815	834	841	870	883
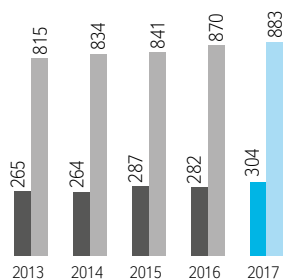
- Water recycled in process
- Water use

The sum of the categories may be slightly different to the total figure due to rounding.

2017 Total water balance

Water input = 154,353 GL

Diverted water used for generation of hydropower	153,096 GL
Diverted water around mining and processing sites	64 GL

Water withdrawn[a]	791 GL
Surface water	348 GL
Groundwater, including dewatering	304 GL
Sea water	109 GL
Imported freshwater (municipal)	30 GL

Third party water	34 GL
Transferred water	34 GL

Water in ore that is processed	369 GL

Water use onsite	
- Process water[b]	997 GL
- Recycled water[c]	304 GL
- Change in storage during year[d]	-1 GL

Water return[e]	564 GL
To surface water	275 GL
To groundwater and seepage	160 GL
To marine	133 GL

Evaporation and other losses	523 GL

Entrained in product or process waste	85 GL

Supply to third party	26 GL

Water supplied directly to others	48 GL

Water output = 154,354 GL

- Water input
- Water output
- Water supplied
- Water use

(a) Including onsite impounded/imported surface, onsite/impounded ground water (including dewatering) and marine water.

(b) Including mining (dewatering), milling, washing, power generation, dust suppression.

(c) Tailings, sewage or water contaminated in process that has been treated for re-use.

(d) The change in storage is the difference between total water input and total water output.

(e) Including process effluent and dewatering water discharged without use.

Managing tailings and structures

Tailings are residues created as part of mining, refining, smelting and water treatment processes. We operate tailings and large water storage facilities at 30 sites and have closed impoundments that we monitor at eight sites.

We continue to review and audit facilities (including independent external reviews) to ensure that practices at all managed tailings and major water storage facilities conform to our Management of tailings and water storage facilities standard. We align our approach to the ICMM position statement on tailings management. Assurance over these storage facilities by internal and independent third-party reviews remains a focus. We also work with our joint venture partners to minimise the environmental and social impacts and risks associated with tailings management at our non-managed operations.

We are working with mining and metals industry peers to better understand and implement best practices to manage risks associated with tailings and water storage facilities. We are collaborating on two research projects led by the University of Western Australia to understand static liquefaction in mine tailings and the placement of filtered tailings on top of conventional wet tailings.

2017 performance

During 2017, we improved our tailings governance and data reporting processes and we completed detailed analyses of practices at five operations. From these analyses we will adopt further improvements in 2018.

We paid a fine in 2017 for the partial failure in 2016 of a sediment dam at the Mount Thorley Warkworth mine in New South Wales. The incident did not result in any environmental harm. It was a breach of Warkworth Mining Limited's Environmental Protection Licence conditions that requires the carrying out of licensed activities in a competent manner. Learning from this incident is crucial to ensuring the impacts and risks associated with tailings management is embedded into our management practices.

Minimising our biodiversity impacts

We work to avoid and minimise biodiversity loss and land disturbance, while improving our biodiversity management practices. Our approach, which has been well established over many years, is consistent with the Cross-sector Biodiversity Initiative's (CSBI) guide for implementing the mitigation hierarchy of avoidance, minimisation and restoration, and applying offsets where appropriate.

We use the Integrated Biodiversity Assessment Tool before seeking tenure for exploration. The tool, accessed through the Proteus industry partnership, allows us to identify where operations might overlap with, or come close to, protected or other ecologically sensitive areas.

In a project's development phase we avoid significant or lasting impacts by seeking sympathetic mine and infrastructure designs, such as re-routing infrastructure, applying exclusion zones around significant ecological communities or excluding conservation priority areas from the mine plan area.

Our approach during the active mining phase includes rehabilitation and restoration and working in partnership to compensate for impacts through offsets.

Read more about how our operations contribute to the survival of species or the management of sensitive areas on riotinto.com/Spotlight.

2017 performance

During 2017, we developed a new standard for biodiversity protection and natural resource management which incorporates the lessons we learned from the now-retired commitment to achieving a net positive impact (NPI) on biodiversity across all our operations.

The standard has been designed to help our operations focus on minimising impacts to biodiversity by implementing the mitigation hierarchy. Embedded into our existing risk management framework, it retains aspects that worked well from our NPI commitment and includes our lessons from the challenges we faced during implementation. A key inclusion to the standard is the expectation for sites to involve local communities in participatory monitoring programmes, where appropriate.

The standard was developed in consultation with our partners, the International Union for Conservation of Nature (IUCN), with input from others including BirdLife International, Fauna & Flora International, the UN Environment World Conservation Monitoring Centre and the ICMM.

Managing our day-to-day responsibilities

Our other environmental responsibilities include managing risks and impacts from air emissions and non-mineral waste at our operations to prevent, or otherwise minimise and remediate, our effects on environments and communities. We have internal environmental standards and are subject to environmental regulations and voluntary codes of practice.

We work with neighbouring communities to understand our impact and improve practices. As required by our CSP standard, we have mechanisms to record and enable us to respond to complaints about issues such as noise, dust and water quality.

Use of fossil fuels, movement of ores and wastes and the smelting of metals release gases and particulates into the atmosphere. Our air quality protection standard is designed to prevent breaches under normal and worst-case weather conditions. It is focused on controlling and monitoring air emissions at their source and understanding any impacts on local airsheds. We also monitor particulate gas and vapour exposure in the workplace, in line with our internal standards and regulation.

The major air emissions from our operations are:

- Oxides of sulphur (SO_x) – mainly at our aluminium and copper smelters and our coal and fuel oil fired power stations.
- Oxides of nitrogen (NO_x) – from burning fossil fuels.
- Particulate and gaseous fluoride emissions from aluminium smelters and, to a lesser extent, from processes that use coke and coal.
- Particulate emissions less than ten micrometres in diameter (PM_{10}) – from our mining activities, metal manufacturing processes and power stations.

Our waste management approach involves characterising our waste types and predicting how each waste will behave over time. Where waste reuse and recycling are not possible, we manage it in purpose-designed facilities while minimising disposal costs and future liabilities, and avoiding potential adverse impacts.

About one-fifth of our mineral waste has the potential to react with air and water or break down to create potentially harmful contaminants, such as acidic and metalliferous drainage (AMD). Our controls are designed to prevent or minimise risks of AMD across all stages of the mining process. They include:

- Identifying reactive mineral potential during exploration and evaluating risk in project developments.
- Identifying mining areas containing reactive wastes and applying controls such as avoidance and segregation during mine operations.
- Selecting appropriate areas for permanent storage of reactive waste rock.
- Applying strategies during operation and at closure that isolate reactive waste to minimise AMD generation and collect drainage.
- Regularly monitoring the performance of our mineral waste disposal programmes, including post-closure monitoring to demonstrate conformance with closure criteria.
- Completing independent, external reviews of our site-level strategies and performance.
- Providing support to non-managed operations in the responsible management of mineral waste through participation in technical committees and sharing of good practice.

2017 performance

In 2017, we paid environmental fines totalling US$89,502, including US$38,330 assessed against the 2016 significant environmental incident at the Mount Thorley Warkworth mine. The balance was paid against the following that were not significant environmental incidents: in Australia, a sump overflowing into a creek, water leaking from pump infrastructure, and pH exceedance in discharge water; in Canada, non-compliance with dust emissions and water discharge limit exceedance during a rain event; and, in Mongolia, two wildlife incidents.

We reviewed all our environmental standards as part of the process of continuous improvement and added participatory environmental monitoring from local community members.

Managing our day-to-day responsibilities

Particulate (PM$_{10}$) emissions
(thousand tonnes)

66.6

	2013	2014	2015	2016	2017
Fugitive sources	104.0	94.0	88.0	85.0	60.0
Other point sources	0.7	0.6	0.6	0.6	0.6
SRRC point sources	9.0	8.0	6.0	6.0	6.0

- ■ SRRC point sources
- ■ Other point sources
- ■ Fugitive sources
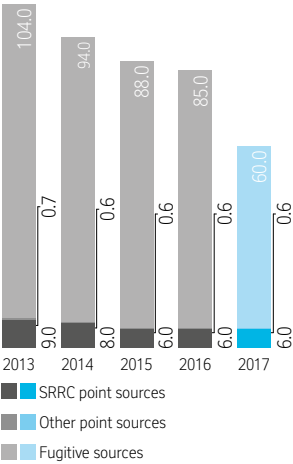
Due to rounding, the sum may not equal the total figure shown.

Mineral waste by disposal location
(percentage)

- ■ In pit backfill: 26
- ■ Rock dumps: 47
- ■ Tailings dams: 19
- ■ Storage: 5
- ■ Ocean/river/lake: 2
- ■ Others: 1
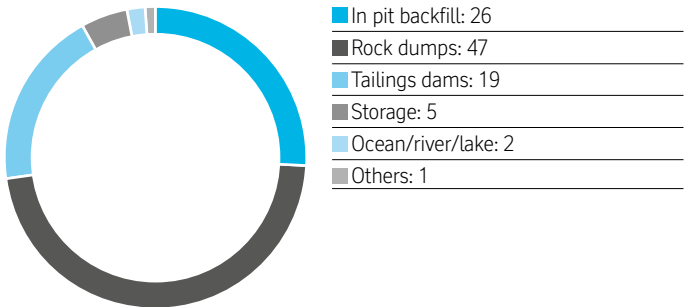
Due to rounding, the sum may not total 100 per cent.

Non-mineral waste by disposal location
(percentage)

- ■ Landfill off site: 32
- ■ Landfill on site: 29
- ■ Storage: 27
- ■ Incineration: 2
- ■ In pit backfill: 2
- ■ Other: 8
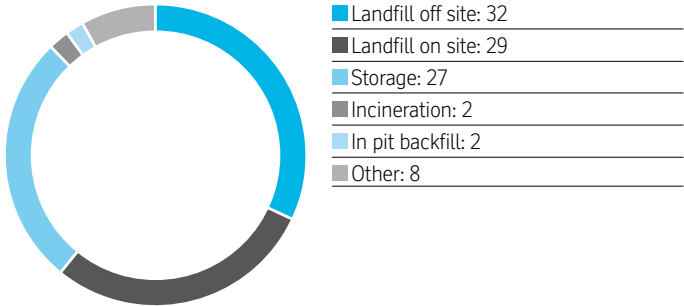
Due to rounding, the sum may not total 100 per cent.

Image: Water sprinklers are used to cool down slag, Richards Bay Minerals, South Africa

Governance integrity

Image: Amrun project, Cape York Peninsula, Queensland, Australia

Governance integrity

Image: Oyu Tolgoi, Mongolia

The global nature of our operations and the inherent risks associated with our industry mean there are social, economic, political and cultural matters that we need to manage to maintain our licence to operate.

Our stakeholders have high expectations of us. They look to us and our industry peers to improve the way we engage with stakeholders and local communities, and our approach to human rights risks and legacy management, among other issues.

We are committed to doing business with the highest level of integrity, transparency and accountability and with business partners who share our values. We actively adopt approaches to prevent and resolve specific and systematic incidents and constantly seek ways to improve. To help manage the risks and expectations, it's important we have good governance and integrity systems in place.

Published our
2nd
slavery and human trafficking statement

25%
of disturbed land* has been rehabilitated
*Excluding hydroelectricity dams

Launched
Talk to Peggy
campaign

Maintaining integrity and compliance

We are firmly committed to operating with integrity and being accountable for our actions. The key principles that guide our behaviour in *The way we work* are supported by standards that cover antitrust, bribery and corruption, conflicts of interest, benefits, sponsorships and donations, data privacy, fraud and third-party due diligence. All these are reinforced annually through workforce training both online and face to face, which we continue to review to keep fresh and relevant.

We maintain a strict stance against bribery and corruption, which is prohibited in all forms. Any Rio Tinto employee found to be not complying with anti-bribery and anti-corruption laws will face disciplinary action, up to and including termination.

Our business integrity compliance programme is aligned with the risk-based approach included in our business integrity standard. Our approach is driven by our corporate values. The programme meets Group-wide and business-specific requirements and aims to address concerns in our host communities. We conduct quarterly audit forums to monitor and oversee the implementation and effectiveness of the business integrity compliance programmes across our business. Our training programme and materials are updated to ensure they remain engaging and relevant to the risks employees encounter. During the year, we provided additional training to targeted audiences on specific areas of our programme.

Speak-OUT, the Group's confidential and independently-operated whistleblowing programme, enables employees, suppliers, contractors, community members and anyone in the public to report anonymously, subject to local law, any concerns about the business, or behaviour of individuals. This could include business integrity issues in general or issues relating to safety violations, environmental procedures, human rights, financial reporting, harassment and bullying, or retaliation for reporting.

We are committed to a culture of transparency and encourage employees to speak up about their issues and concerns, whether through their management, human resources team or through *Speak-OUT*. Our case management tool for whistleblowing reports is a single, secure repository for management of all cases and related investigations, including reporting capabilities.

We remain dedicated to open and transparent dealings with our stakeholders. Information on the Group's operational, financial and sustainable development performance is issued on time through a number of channels, such as media releases and regulatory filings. We communicate views to governments and others on matters affecting our business interests.

We participate in global initiatives such as the Extractive Industries Transparency Initiative, which aims to strengthen governance by improving transparency and accountability in the extractive sector. We also engage constructively with governments and the Organisation for Economic Co-operation and Development (OECD) on new and emerging tax reporting codes and policies to ensure consistency in our reporting procedures. Where appropriate, we provide submissions to government enquiries and take an active role in our industry associations on matters affecting our business interests.

2017 performance

During the year we launched our new company purpose and promoted the stated values of safety, teamwork, respect, integrity and excellence. This was supported by face-to-face sessions using real scenarios to promote discussion and understanding.

In 2017, 712 incidents were reported through *Speak-OUT*, compliance managers or management, representing an increase of approximately six per cent on last year. The increase is mainly due to a higher volume of incidents raised outside of the hotline. Thirty three per cent of cases raised this year were substantiated, resulting in corrective and preventative actions, representing an increase of seven points on 2016.

As part of our efforts to continually improve our *Speak-OUT* programme, we launched our Talk to Peggy campaign during 2017. The campaign gives *Speak-OUT* a human face that engenders trust and confidence that reports are taken seriously and we respond to the facts. This is helping us to create a safe environment in which to report.

We have also centralised our reporter management process and improved engagement with whistleblowers through regular and personalised contact. This has resulted in better quality of investigations and improvement in case cycle time. These actions have contributed to an increase in reporting rate and changed the feedback received from reporters, from negative and demonstrating lack of confidence in the process, to positive, including reporters interacting more openly with investigators. We are also seeing employees raising concerns face to face, outside of the hotline, as well as using *Speak-OUT* to seek advice on an emerging issue.

Details of Rio Tinto regulatory matters can be found in our *2017 Annual report.*

Personnel **50**%

Business integrity **24**%

Safety, health, environment, community concerns **12**%

Other **3**%

Finance **1**%

Data privacy violations **10**%

712
Speak-OUT
cases for 2017
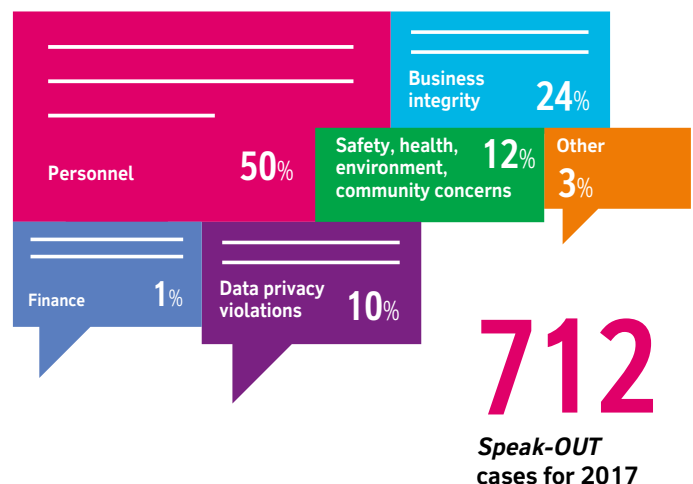
Maintaining integrity and compliance

Employees at Grande-Baie aluminium smelter, Saguenay, Quebec, Canada

"

Integrity is one of Rio Tinto's five core values and is fundamental to everything we do. It is difficult to establish and maintain trust without integrity.

The role of our Ethics & Integrity team is to make sure our people have the tools and advice to help them make the best decision in any situation. Ultimately, success comes from guiding and influencing people to make the right choices rather than by simply telling them what they must do.

For me it is all about creating the discussion, bringing teams together to talk about dilemmas and real life scenarios, to see how the values and our standards and procedures can help people come to the right choice. Our training courses have to engage, be memorable and contain personal messages that are designed to stay with them. And through our Talk to Peggy programme, we have to give our people an avenue for reporting concerns where they feel heard, and know that they are being taken seriously.

I believe that by helping people find the path that resonates with their own personal values, we keep integrity at the heart of our business and nurture a positive culture."

Hugh Bigwood
Head of Ethics & Integrity

Respecting human rights

Wherever we operate, we respect and support human rights consistent with the Universal Declaration of Human Rights. We have a human rights policy and procedures and have made voluntary commitments to the OECD Guidelines for Multinational Enterprises, the UN Global Compact and the Voluntary Principles on Security and Human Rights (VPSHR). Our human rights approach is consistent with the United Nations Guiding Principles on Business and Human Rights (UNGPs). Where our standards and procedures are stricter than local laws, we apply our own standards.

Our most salient human rights issues include those relating to security, land access and resettlement, Indigenous people's rights including cultural heritage, environment including access to water, labour rights and in-migration-related impacts on local communities such as access to health services.

During the year we engaged investors, civil society and community members on land access, cultural heritage, environment, labour rights, and modern slavery issues. We also engaged externally to support policy development and benchmarking.

We undertake due diligence activities in line with the UNGPs to identify, prevent and mitigate adverse human rights impacts of our operations. Human rights considerations are included in our social risk analysis and impact assessment processes. We conduct human rights studies and programmes at high-risk sites when required.

To support our Communities and Social Performance target for 2016-2020, operations collect data on the effective capture and management of community complaints. All operations are required to have a complaints, disputes and grievance mechanism in line with the effectiveness criteria for operational-level grievance mechanisms in the UNGPs. We strive for the free, prior and informed consent of Indigenous communities as defined in the 2012 International Finance Corporation Performance Standard 7 and the ICMM position statement on Indigenous Peoples and Mining.

We provide training for security personnel and conduct security and human rights analysis in support of our security arrangements. Our online VPSHR training is mandatory for all security personnel at high risk sites and elsewhere it is strongly recommended.

2017 performance

We rolled out our human rights training for all employees. The introductory module is compulsory for all employees. Function-specific modules around communities, procurement, security and inclusion and diversity are also available. Training sessions on modern slavery were also conducted on a targeted basis with our procurement, ethics and compliance teams.

We continued to incorporate human rights considerations into our risk and incident management framework. Such as, for a specific development project, including a human rights annex in the construction tender and human rights information in the project's social and environmental impact assessment.

We made changes to our incident reporting procedure at the operations level such that employees are now asked if a health, safety, environment, communities or security incident had human rights implications. Supporting guidance explains the indicators that may suggest an incident had human rights implications.

We published our second annual slavery and human trafficking statement in compliance with the UK Modern Slavery Act 2015, which outlines the steps taken during the year to ensure that slavery and human trafficking are not taking place in any of our operations or supply chains. The statement is published online at riotinto.com.

Rio Tinto made a formal submission to the Australian Parliament's Joint Standing Committee on Foreign Affairs, Defence and Trade in 2017 regarding its inquiry into establishing a Modern Slavery Act in Australia. Further information on our support of the introduction can be found on riotinto.com.

We progressed a pilot embedding human rights considerations in tender documentation for major construction projects, and we further included human rights into our risk and incident management framework.

During the year we conducted VPSHR and use-of-force training at five of our locations in South Africa, Madagascar, Namibia and Jamaica. As a participant in the Voluntary Principles Initiative we also contributed to the design of a VPSHR training package for private security personnel and public security forces.

Our human rights policies and performance was globally recognised by the 2017 Corporate Human Rights Benchmark, ranking Rio Tinto in the top three of 98 companies included in the assessment.

Mine closure

The metals and mining industry is entering a new stage in its life cycle, with Rio Tinto and many of our peers developing detailed planning to enable the closure of a number of large operations over the next decade. Rio Tinto's planning and cost provisioning for closure of mines and facilities starts during project development and extends across the asset life cycle to ensure that post-closure outcomes are achievable and that impacts and risks are minimised. The work is governed by our Closure Steering Committee.

We work with local communities and regulators to evaluate potential post-closure land uses, to develop closure objectives that are achievable, and to ensure that adverse risks are minimised cost effectively.

We manage a range of non-operational legacy sites, including those inherited through acquisitions and mergers. During the year, 11 of the sites progressed to the point where we can relinquish them.

In many jurisdictions we maintain long-term responsibility for monitoring and managing closed sites. We are also learning from the commitments and expectations associated with operations we have relinquished. We recently conducted a post investment review of the Holden mine remediation in Washington State, US and are now applying the lessons learned when planning future closures. Read more about our work at Holden on page 46.

In many jurisdictions where we operate, regulatory frameworks for large mine closure remain undeveloped or untested. In collaboration with our peers, we are improving our understanding of opportunities, seeking solutions to challenges and engaging governments to establish good closure policies and regulations.

2017 performance
During 2017, we reviewed our closure strategy so that our approach to closure is consistent and effective across the full life of each asset. A result of the review is the establishment of a dedicated centralised closure group to support our businesses and sites to manage closure activities across the life of all assets and to manage post-production decommissioning and deconstruction, rehabilitation, remediation and any long-term management obligations.

We continued detailed closure planning for a number of large operations that will reach the end of their commercially viable life over the next ten years. Ninety six per cent of the Group's operations now have closure plans. At the end of the year, total close-down, restoration and environmental obligations amounted to US$9,983 million.

In 2017, 25 per cent of our disturbed land (excluding land disturbed for hydroelectricity dams) had been rehabilitated.

Supporting non-managed operations and joint arrangements

We hold interests in companies and joint ventures we do not manage, across a range of commodities, the two largest being the Grasberg copper-gold mine in Indonesia and the Escondida copper mine in Chile. Details of other non-managed joint ventures are included in our *2017 Annual report*.

We actively engage with our partners in these larger joint ventures through formal governance structures and technical exchanges to learn and improve performance. We endeavour to ensure that the principles in *The way we work* are applied and we encourage our partners to embed a strong safety, security and human rights culture in their workforces.

PT Freeport Indonesia (PTFI), a subsidiary of Freeport-McMoRan, owns and operates the Grasberg mine. We have a joint venture interest attributable to the 1995 mine expansion. We engage with PTFI through five forums: the Operating, Technical, Exploration and Sustainable Development committees and the Tailings Management board.

The largest of these, the multidisciplinary Technical Committee, enables discussion of joint venture activities such as environmental management, orebody knowledge, project execution, worker health and safety, communities, mine planning, processing and tailings management. Rio Tinto is represented by a senior environmental manager on the PTFI tailings management board, which meets twice a year at Grasberg and includes third-party experts. A Rio Tinto senior safety professional based in Indonesia also works closely with PTFI on issues of strategic significance such as fatality prevention programmes.

Rio Tinto has a 30 per cent interest in Escondida, which is managed by BHP Billiton. Our seats on the Owners' Council enable us regular input on strategic and policy matters.

2017 performance
During 2017, construction of the Escondida Water Supply desalination project was completed, and the system became fully operational. By utilising seawater, the plant will significantly reduce demand on fresh groundwater resources around the mine which is located in an extremely arid climate.

Tragically, there were three fatalities at the operations of our non-managed joint arrangements in 2017. Two fatalities occurred at PTFI: one contractor died in a landslide resulting from heavy rains and flash flooding; and one contract employee died when preparing a mine area for production activities. One employee working at the Alumar alumina refinery in Brazil died from burns while working on a washer tank in the refinery. Rio Tinto has a 10 per cent interest in Alumar, which is managed by Alcoa.

We continue to work with our partners to share fatality prevention initiatives, including CRM and learning critical lessons, to ensure the circumstances leading to incidents are not repeated. The exchange is two-way, as we learn from their efforts as well.

What's possible when the mining stops

Image: The Holden copper mine operated in Washington State, US until 1957

The Holden mine was one of the largest operating copper mines in the US, producing over 90,000 tonnes of copper and by-product metals through its life. When the mine closed in 1957, its tunnels extended for 100km and 7.6 million tonnes of tailings were left on nearby US National Forest land.

Although Rio Tinto never operated Holden, it assumed responsibility for the disused copper mine through acquisition. In the mid-1990s, the US Environmental Protection Agency (EPA) identified a company that was a successor to the mine's operator – and was then owned by aluminium producer Alcan – as responsible for the clean-up at Holden.

In 2007, Rio Tinto acquired Alcan, and stepped up to take responsibility for the Holden reclamation – demonstrating its commitment to what is known as "legacy management".

Describing what happened when the Holden copper mine in Washington State closed in 1957, Dave Cline, general manager, Legacy Management at Rio Tinto notes that: "As was common at the time, the operators just shut down the mine, and walked away from the site."

Sixty years later, with a huge remediation project finally completed, Holden stands as an exemplar of what's possible when the mining stops. It's an extraordinary story of complex logistics, community engagement and technical expertise. When the hundreds of thousands of trees and shrubs planted on the site are fully grown, the only evidence that this was once a sprawling mine will be a water treatment plant. As Mario Isaias-Vera of the US Forest Service says: "In 20, 30, 40 years I'm hoping to see this area restored, to see wildlife coming back and bears fishing in Railroad Creek."

What happens when an operator walks away

Getting from 1957 to the present-day state of the Holden site has been a long, arduous journey. To get a sense of why, consider what happens when an operator just "walks away".

First, the jobs go, affecting not only those directly employed at the mine but also the many other jobs and the communities that depend on them.

Then, there's the environmental legacy. At Holden, for example, acidic water with heavy metals leached from the mine and through tailings piles (waste from the operation), contaminating Railroad Creek, which flows into the 65-kilometre-long Lake Chelan. And the tailings themselves, dumped in steep, unstable piles, presented a further hazard.

Combine this with decaying infrastructure, and what's left is a site that has the potential to be both a social and environmental problem for many years.

Life after operation

Every mine has a finite lifespan. Planning for closure and legacy management helps to address the social and environmental consequences when a site shuts down. When Rio Tinto's Lynemouth aluminium smelter in north-east England stopped production, the closure plan helped ensure that most of the skilled workforce were re-employed with local businesses, and the site itself became home to a wide range of businesses producing everything from pre-cast concrete to confectionery.

What's possible when the mining stops

Working within a remote community

Holden presented particular challenges to the clean-up project. Not least was access. Because of its northerly location in Washington State and its 983-metre altitude, snow means that the mine site is only accessible for six to seven months of the year. Even then, it's a 65-kilometre boat journey up Lake Chelan and 15 kilometres on a gravel road before anyone heading to Holden finally gets there. But remoteness was only part of the challenge. The project – with its many workers, heavy equipment and infrastructure – also had to take place amidst an established village community.

Not long after the closure in 1957, the Holden site was taken over by the Lutheran Bible Institute, which gradually transformed the former mining town at Holden into a religious retreat, described as "a vibrant place of education, programming, and worship". Up to 100 people live year-round at the remote site, welcoming around 5,000 visitors over each summer.

During the five-year remediation project, rather than vacating the site, the community chose to stay and get involved, closing Holden to visitors and instead renting out accommodation to Rio Tinto's contractors and employees.

"We were living with our local community partners as opposed to next door to them, which was unique," says Dave Cline.

Balancing act

So the clean-up project became much more than just an engineering task. It meant balancing the strict requirements of the US Forest Service and the US Environmental Protection agency with the needs of the Holden community and other stakeholders such as the Yakama Nation and the Washington Department of Ecology.

As Dave Cline admits, "It's been a huge challenge for us to answer to many different parties and make sure they are all satisfied with the work we are doing, that we are complying with the law as well as fulfilling Rio Tinto's standards for working effectively with communities."

Despite these challenges – and a two-month interruption in 2015 by the first major wildfire in the area for over 100 years – the remediation project went ahead on schedule.

Engineering challenge

Earthmoving and construction projects on a huge scale were needed to make sure the old mine would no longer pollute the surrounding wilderness. Engineers plugged the tunnel openings, inserting valves that piped water to a plant where it is treated to water quality standards before being released back into Railroad Creek. The plant will run for decades to come. To stop water from the tailings piles leaching into the creek, engineers built a 1.6-kilometre-long concrete barrier wall that extends up to 30 metres underground to collect the groundwater, so it too can be treated at the plant.

The tailings piles themselves were regraded from an unstable 1:1 ratio (with steep 45-degree slopes), to much more stable 3:1 slopes. And to stop the piles from failing even under a maximum credible earthquake scenario, cement grout was injected into the underlying foundations. Finally, 335 metres of Railroad Creek were rerouted around contaminated areas, creating habitat suitable for fish to return to these sections of the stream.

Native shrubs and trees are now being planted on top of the waste rock and tailings piles so that over time, what was once visible from the air as a huge scar on the land will eventually blend in with the wilderness that surrounds it.

Surviving wildfire

In 2015, lightning sparked a wildfire that went on to engulf more than 280km[2] of wilderness around the Holden site. The fact that the village survived the destructive "Wolverine Fire" intact was seen by some as little short of miraculous. Land cleared around Holden helped to buffer the village from the fire. But it was a combination of controlled burning and community effort – coupled with the fact that the fire started just after powerful sprinklers had been installed as part of the remediation programme – that saved the village from the flames.

What's possible when the mining stops

For closure, planning is key

It's taken five years and US$500 million to remediate Holden. In fact, the costs have been estimated to exceed the income that Holden generated for its original operators the Howe Sound Mining Company. Matthew Bateson, Rio Tinto's head of Environment & Legacy Management, says: "The closure of old sites can be more complex and costly than the industry has internalised. It's an issue that all mining companies have to face. Many mines opened and operated at a time when regulations were lighter, and practices different. As more mines approach the end of their lives, closure is going to become a bigger issue for the industry."

Matthew points out that while the remediation requirements for Holden are exceptionally strict, regulations and practices around the world mean closure is becoming generally more complex and expensive. In today's environment, planning is key to controlling costs and getting successful outcomes, says Matthew. "Ignoring closure issues during operations stores up problems for the future. If, on the other hand, sites plan actively for it – for example being clear about what the final closure landforms will look like – this will both reduce future costs and make them more predictable." Rio Tinto's acquisitions mean the company has a significant portfolio of legacy sites to manage, providing a learning platform for when the company has to close its own operations. Matthew cites Rio Tinto's Diavik operation in Canada's Northwest Territories as an example of a site that puts knowledge like this into practice: "Diavik has planned for closure from the outset, so the costs and scope have been well understood and remained more consistent over the life of the mine."

An important lesson from Holden, according to Matthew, is that the skillset of a mining company makes it well suited to manage a large-scale closure project: "In essence, we have had to blend regulatory and partnership skills and delivery of environmental and social objectives with an engineering project management mind-set. And we're proud of what's been achieved at Holden: there are few examples of success on this scale in the mining industry."

Secure future

While the process has been an enormous challenge, it's brought many benefits to the area. The remediation project contributed around US$240 million to the economies of Chelan and Douglas counties, as people and equipment were sourced locally. It has also removed a source of long-term pollution from the environment. Up to eight people will be permanently employed operating the water treatment plant, and a full-time Rio Tinto employee will manage the remediated site from a base in Chelan.

And as Dave Cline concludes, it has secured the future of an important community: "It's turned out to be a very positive relationship between Holden Village and Rio Tinto. And while it's been hard for us to rehabilitate this legacy that was left by the Howe Sound Mining Company, we're both very focused on what the end game is: re-establishing this area into its natural habitat and beauty, so the community can continue their existence in the next 50 years and beyond in a place that's been healed by the remediation process."

Holden milestones

1896	First ore discovered by prospector James Henry Holden
1938	Howe Sound Mining Co. delivers first shipment of ore concentrate
1957	Holden copper mine closed
1958	Lutheran Bible Institute acquires Holden village
2007	Rio Tinto inherits mine site as part of Alcan acquisition
2011	Remediation begins
2015	Wildfire, first in 100 years, interrupts project
2017	Remediation and revegetation completed; summer visitors return to Holden Village for the first time since 2012

Holden remediation by numbers

100 km
of tunnels closed

9 million tonnes
of tailings and 250,000 tonnes of waste rock piles regraded

335 metres
of Railroad Creek re-aligned

US$240 million
contributed to the local economy

290
construction workers living on site during 2016

Image: Employees in the warehouse at the Rio Tinto Metal Powders Facility in Suzhou, China

Image: Sunset at Dampier port operations, Western Australia

We are committed to responsible business practice in our own operations and throughout our value chain.

Sharing part of the wealth created from our operations with communities, regions and countries associated with our purchases, operations and sales provides long-term opportunities. Governments and communities want assurance we are sharing the value we create through taxes, employment, procurement opportunities and local investments.

Responsible supply practices are vital to our partner-to-operate approach, establishing sustainable supply chains for our customers and meeting the increasing expectations for greater transparency about our supply chain.

We take responsible mining seriously, seeking to achieve high industry standards and expecting this of our value chain partners too. We remain committed to delivering lasting benefits.

US$41.8bn
Group's direct economic contribution

US$4.5bn
in capital invested in new projects

33,100+
Rio Tinto suppliers

Sharing the benefits of the world's natural resources

Natural resources are an important source of value for us and for the countries that have them. As a mining and metals company, accessing these resources brings responsibility and it's important we share the benefits with our host communities in a fair and equitable manner.

We create value in many ways. Our metals and minerals are transformed into end-products that contribute to higher living standards and human progress. We support economic growth as a major employer, taxpayer and buyer of goods and services where we operate. And we help build communities by investing in education and training initiatives, local services and civil infrastructure.

Our contribution is often made in partnership with stakeholders. These take different forms – from governments investing in our operations, such as at Oyu Tolgoi, to community agreements that clearly outline expectations in areas such as employment and local procurement. This approach helps us align our interests to the goals of our host communities.

Where possible, we buy goods and services locally. However, often our operations are in remote regions and the skills, goods and standards we require may not be readily available. This means we must set up new supply chains. We offer training and development programmes to help local communities take advantage of employment and procurement opportunities.

Our economic contributions are part of the lasting benefit we make to the countries and communities where we work. This includes the payment of tax to local and national governments, dividends to shareholders, the direct and indirect employment we generate, procurement opportunities and investment in community programmes. The payments we make to our suppliers represent a significant part of our global economic contribution.

We are a major employer and tax contributor to local, state and national jurisdictions. We promote governance over the benefits of mining that flow through to host communities and governments by being transparent in the payments we make and by providing local employment and procurement opportunities. Details of the payments (including corporate income tax, royalties and other taxes) we made to governments will be published in our *Taxes paid in 2017* report.

2017 performance

Globally, the Group's direct economic contribution was US$41.8 billion in 2017. This includes the Group's share of joint ventures and associates. The contribution comprises:

– US$27.7 billion in value add, made up of payments to employees (wages), payables to governments (taxes and royalties), returns on capital invested in operations, non-government payments and community contributions.

– US$14.1 billion as payments to suppliers for goods and services.

Our capital investment was US$4.5 billion, attributed to growth projects in Australia and Mongolia.

We officially opened Silvergrass, the 16th mine in our Pilbara iron ore operations, and continued to build the Amrun bauxite project and the underground copper mine expansion at Oyu Tolgoi. Read more about how the Amrun bauxite project will provide jobs, support business development and contribute to socio-economic growth in the region on page 54. Details of these and other developments can be found in the *2017 Annual report*.

Our Iron Ore business introduced a local procurement programme, including an online portal for local businesses to register their interest and view upcoming procurement opportunities.

Direct economic contribution
(US$ million)

41,857

31,818	29,178	18,888	20,065*	27,734
26,054	21,370	17,896	15,253*	14,123
2013	2014	2015	2016	2017
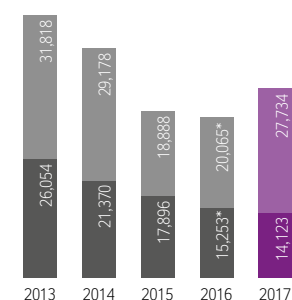
■ Payments to suppliers
■ Value add

* Numbers restated from those originally published to ensure comparability over time.

Distribution of economic contribution
(percentage)

■ Payments to suppliers: 34
■ Reinvested: 25
■ Payables to governments: 16
■ Wages and employee benefits (excluding Payroll Tax): 11
■ Dividends and finance items: 13
■ Royalties: 1
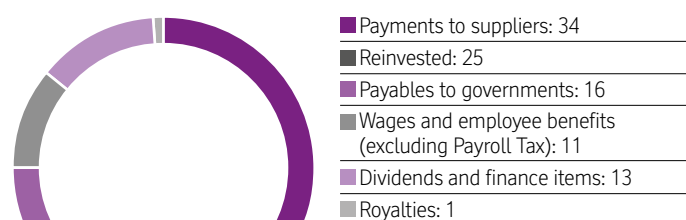
Sharing the benefits of the world's natural resources

Image: Local company Bayan-Uul supplies bags to Oyu Tolgoi for copper concentrate export

Distribution of economic value (US$ million)

	Local	Regional	National	International	Total
Salaries [a]	2,259	393	1,918	90	4,660
Payables to government	513	2,094	3,953	77	6,637
Royalties	299	N/A	N/A	N/A	299
Community contribution	176	N/A	N/A	N/A	176
Payments to providers of capital	5,568	N/A	N/A	N/A	5,568
Payments to suppliers [a]	4,134	2,888	5,463	1,638	14,123
Total (US$ million)	12,949	5,376	11,334	1,805	31,463

The sum of the categories may be slightly different to the total figure due to rounding.

(a) Estimate based on business unit financial information.

Promoting responsible practices from mine to market

In our globally connected world of widespread trade, materials pass through many hands before reaching the end consumer. One of the challenges we face is implementing effective control and assurance systems across our global supply chain.

One way to achieve this is by seeking suppliers whose values are consistent with ours and communicating clearly our policies. Our Supplier code of conduct outlines our human- and labour-rights, safety and environment expectations of suppliers, their subsidiaries and sub-contractors. In remote and less-developed parts of the world we share tools and knowledge with local suppliers to increase supply chain reliability and encourage good social and environmental practices.

Our Know your supplier procedure establishes our process to understand legal, ethical and reputational risks arising from use of a supplier. We conduct regular training with our internal teams and all procurement employees are required to complete human rights training. Our human rights policy and *The way we work* help us prevent financing or supporting conflict either directly or through our supply chain.

We have established a dedicated third-party due diligence team within our Ethics & Integrity function to facilitate risk-based due diligence assessments on our commercial relationships. The assessments cover bribery, corruption, human rights, money-laundering, trade sanctions, denied parties risks and other areas which may result in reputational concerns.

Our product stewardship strategy and programmes guide our approach to managing regulatory, life cycle and sustainability risks and opportunities in delivering our product to market. Our programmes address the regulatory requirements of both our host countries and end markets, and during transport.

We play an active role in industry stewardship programmes such as the Aluminium Stewardship Initiative, Responsible Jewellery Council and the World Diamond Council. We work with our supply chain partners and industry associations to conduct life cycle assessments of our products. The assessment methods are aligned to international standards. We look for opportunities to make improvements to our products, in relation to areas such as GHG emissions, product quality and safety.

The focus on responsible production and supply is an opportunity for us to innovate and improve performance. Our aluminium business has one of the lowest carbon footprints in the industry, and we have also introduced RenewAl™, the world's first certified low carbon dioxide aluminium. Rio Tinto's Australian Diamonds™ programme in the US, China and India is an independently audited chain of custody system developed with authorised diamond and jewellery manufacturers and retailers. The system provides consumers with the assurance that their Argyle diamonds are traceable, from the mine to the market. We continue to explore other opportunities.

Read more about how we are exploring innovative ways and practices from mine to market on riotinto.com/Spotlight.

2017 performance

During 2017, we continued improvements to our Know your supplier procedure and continued with our Supplier code of conduct. Work progressed on our third party risk-based due diligence assessments on our commercial relationships.

We continued to drive improvements in the safe shipping of our products by working with other producers to increase our knowledge on how cargoes behave in the holds of vessels.

We have been actively involved in developing a new schedule and test for bauxite to determine unsafe moisture limits. The outcome of this work will be included in future versions of the International Maritime Solid Bulk Cargoes Code once it is approved by the International Maritime Organisation. We have also been working with ICMM and other industry associations on a suitable test protocol to test corrosivity of bulk materials. This will help businesses around the world to properly characterise their materials prior to shipping to ensure the protection of vessel holds.

1 Exploration
2 Mining
3 Processing and production
4 Transport to customers
5 Customers manufacturing
6 End users
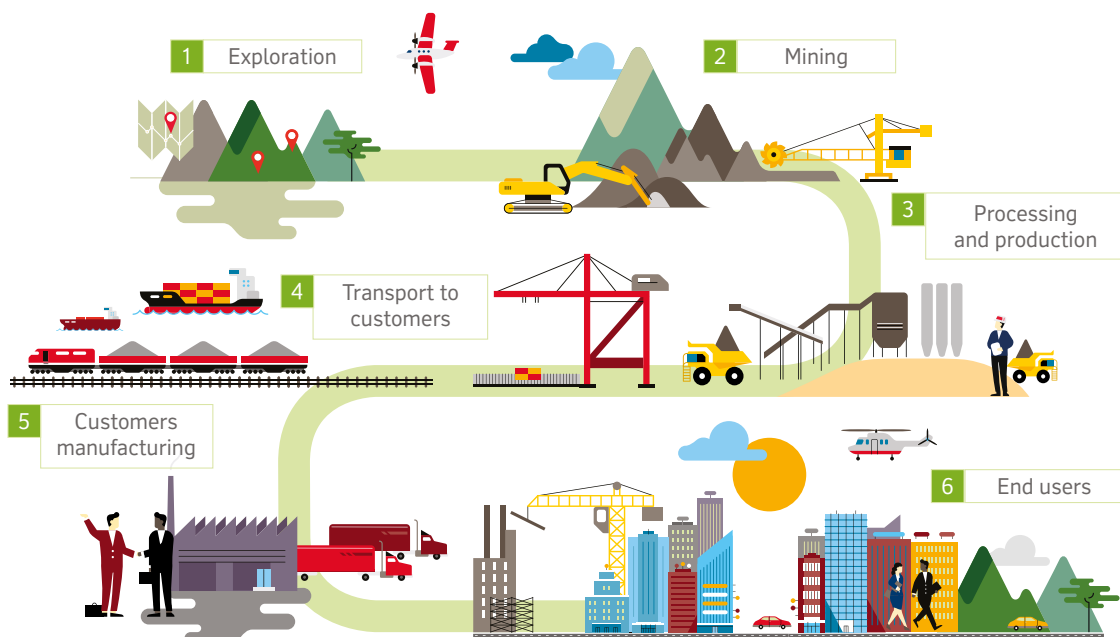
Mining for a sustainable future

Image: Katrina Savo, project supervisor of an Indigenous-owned business

In far north Queensland, Australia, a wedge of land extends into the Torres Strait and on its western lip there is a sandy point at Boyd Bay. It's a significant area for Wik-Waya Traditional Owners and, in traditional language, it's called Amrun.

Amrun is also the name given by the Wik-Waya Traditional Owners to the new A$2.6 billion world-class bauxite mine, currently under construction, south of Rio Tinto's East Weipa and Andoom mines on the Cape York Peninsula. Production and shipping is expected in the first half of 2019 with planned initial output being 22.8 Mt/a and options to expand up to 50 Mt/a in the future.

The Amrun Project includes a mine, processing facilities, power station and a port.

"Amrun is an opportunity to build a mine of the future, using some of the latest techniques in fabrication and construction of the wharf and the processing plant," said Stephen McIntosh, Group executive, Growth & Innovation.

Australia is the world's largest bauxite producer, accounting for about one-third of global output with some of the world's highest grade deposits found in north Queensland. There is growing demand globally for bauxite, the main raw material used in the production of alumina and aluminium metal, and Rio Tinto is establishing Cape York bauxite as the product of choice.

The dynamic of the project has more layers than the reddish brown bauxite pebbles that will be mined from the surface. There is rich cultural heritage, biodiversity and unique geophysical conditions. There are shared aspirations, new ways to enable local participation and innovative construction.

Amrun will provide jobs, support business development and contribute to socio-economic growth in the region for the next 50 years. So far, A$1.92 billion has been spent on Australian suppliers and, at peak in December 2017, the on-site construction workforce was 1,250.

Like all mines though, it will not be there forever. Half a century is a long time to plan ahead, but Rio Tinto is doing just that – planning for the end in the beginning.

"As part of planning for closure, we work with stakeholders to understand the community's priorities, set closure objectives, manage risks and identify sustainable, beneficial future land uses," says Marcia Hanrahan, project director of the Amrun Project.

"The work we've done together with the Wik-Waya people through the life of construction has laid the foundations for the positive legacy this project will leave."

Connection to country and culture

The project extends mining activities on part of Rio Tinto's existing lease between Weipa and Aurukun that encompasses the land of the Wik-Waya people. The Rio Tinto Weipa mining lease covers an area of 380,000 hectares – almost five and a half times the size of Singapore.

Rio Tinto has a long history of partnering with Traditional Owners on Cape York through three Aboriginal Agreements, and has developed strong relationships with host communities. Together, Rio Tinto and Wik-Waya Traditional Owners developed the Communities, Heritage and Environment Management Plan (CHEMP).

This plan captured shared aspirations for land, sea and cultural heritage management for the Amrun area. It identified opportunities for a greater degree of Traditional Owner participation and decision-making in land management and, in particular, management of land with cultural significance.

Many of the flora and fauna species have cultural value, and strategies have been developed with Traditional Owners to ensure sites are managed in a culturally appropriate way.

To implement the CHEMP, a Land and Sea Management Programme was established whereby Wik-Waya people are employed to undertake land management activities in line with meeting CHEMP commitments. These include managing cultural heritage, flora and fauna and the marine environment.

Mining for a sustainable future

Keeping it local

The ethos of the Amrun Project and the future operation is to employ local, buy local and grow local businesses. This has been done in new and innovative ways to deliver benefits directly into the heart of the region. This supports the focus on sustainable development with a long-term future in mind.

Almost 80 per cent of the on-site construction employees are Queenslanders, including more than 200 Aboriginal people and Torres Strait Islanders. Rio Tinto focused on increasing Aboriginal and Torres Strait Islander employee representation on the project by visiting local communities and hosting a series of recruitment roadshows. More than 260 people attended these roadshows, resulting in more than 150 expressions of interest.

Some of the work that would normally be contracted out was self-performed by Amrun so that a greater level of Indigenous employment could be achieved. The Amrun Project partnered with community organisations that work with unemployed people to help them into full-time employment.

It's not business as usual

Usually, with projects the size of Amrun, there is a general services contract awarded to a major company and the work is typically a bulky list of diverse services.

But, it is not business as usual on this project. Rio Tinto found a new way to make space for smaller businesses and structured the work into boutique services. The general services work, with its mix of skilled, semi-skilled and unskilled positions, was the area with the most potential to maximise Aboriginal and Torres Strait Islander business and employment opportunities.

This work was structured into contracts that included local services, road maintenance, temporary facilities, and building maintenance. This enabled local businesses to benefit from the work opportunities, and, through skills transfer to local Aboriginal people, it will position these businesses well for future regional opportunities.

There is a mixture of mature and newer businesses delivering services and, together, they provide a capability that maximises local involvement and sustains safe, efficient and effective service delivery.

"Being part of the team delivering this unique and grass-roots approach to construction general services has been rewarding," says Michael Rees, area manager, Growth & Innovation.

"While we experienced challenges with the size of the labour pool, the talent and capability in the region continues to impress us, and through training and mentorship, we are proud to see this programme adding value and making a sustainable difference".

Northern Haulage and Diesel Services

A 100 per cent Indigenous-owned business recently created 25 jobs for local Aboriginal people through a contract awarded at the Amrun Project.

Northern Haulage and Diesel Services (NHDS) from Weipa was awarded a contract to perform general services including administrative, labour and construction support at the site. NHDS is owned by the Savo family with deep connections to the Cape York area.

NHDS co-owner, Darrin Savo, said "While completing work for the existing Rio Tinto mines on Western Cape York we were approached to extend our services to Amrun.

"This is an exciting opportunity because it is a chance to grow our business and because of the focus on employment opportunities for local Aboriginal people.

"It would have been easy for Rio Tinto to wrap up the work we are doing on the project into the scope of a bigger contractor. By working as a partnership we've been able to develop a scope that works for us, the project and the local community. This really demonstrates Rio Tinto's support of local Aboriginal business and employment."

The Savo family history is intertwined with the region and with mining.

Ken Savo started as a 17-year-old steel fixer on the Humbug Wharf in the 1970s, a facility that served Weipa. He went on to work for the mine until his retirement. Ken encouraged his children Darrin, Craig and Katrina to always do their best.

"We continue to aspire to our father's vision for us to be working together in a business that is successful," says Katrina, project supervisor at NHDS working on the Amrun Project.

"Our extended family is also involved. We want to show our people that they can do the same as we have done."

The Savos have also been a family of groundbreakers. Ken Savo led teams during his working career, something that was not common in those times.

Katrina was one of the first Aboriginal females to complete the year-long training programme with Rio Tinto in the 1980s, and Darrin and Craig founded NHDS, a 100 per cent Aboriginal-owned business.

Ken, his children, and grandchildren have all worked at Rio Tinto over the years and said that their employment and business ownership enabled them to build their future.

Mining for a sustainable future

Looking after the land

Rehabilitation of mined land back to productive native ecosystems forms a critical part of biodiversity management at Rio Tinto and the intent is to restore the land at Amrun as close as possible to its natural state.

Improvements in the quality of land rehabilitation produced at Weipa have evolved throughout the history of mining in the region, which dates back to the 1960s. By progressively establishing successful rehabilitation the site is restoring environmental values and in the process is reducing its closure liability.

"We set up a Rehabilitation Advisory Panel in 2013 to manage environmental risks associated with rehabilitation through planning and technical advice," says Brad Warner, specialist land and rehabilitation, Weipa Operations.

"We've seen a marked improvement and in 2017 the success rate of first year rehabilitation reached 95 per cent. The low failure rate dramatically reduces rework costs."

"These learnings will be applied to our Amrun mine once it's operational and mined land is available for rehabilitation."

And, with the long history here, there is a plethora of learnings, for example what the right mix of native seed is and which can be applied to the rehabilitation in the southern areas of the lease, including the Amrun mine.

Land no longer required for mining is rehabilitated on a continuous basis with rehabilitation activities and efforts monitored annually to determine the quality and success rates.

Ethnobotanical work

The ethnobotanical study, "Deriving cultural value", undertaken by Rio Tinto in the region provided a source of knowledge that influences land rehabilitation programmes.

The study identified plant species that had cultural value for the Traditional Owner groups. By engaging with Traditional Owners, Rio Tinto was able to prioritise plants to be collected and sown into rehabilitation areas to maintain culturally important plant species.

As operations expand into Amrun, this work will also expand. The programme has driven improvements in species selection for rehabilitation and subsequently the seed collection programme.

Community seed collection

Rio Tinto Weipa's community seed collection programme enables Traditional Owners to have a leading role in the land rehabilitation process. Since 2010, Rio Tinto has engaged a local Indigenous business to facilitate the community programme. This sees Traditional Owners register as pickers to collect native seed required for land revegetation.

Seed collected through the programme is sourced ethically and safely. The quality of land rehabilitation has been improved through the diversity and quality of native seed collected each year by the communities.

This stable supply of seed has also enabled the business to reinvigorate its rehabilitation nursery. Here seedlings are propagated by local Aboriginal trainees and later planted by hand, also contributing to higher quality land rehabilitation.

The seed collection programme continues to grow year-on-year, with 51 active pickers in 2010 to 154 pickers in 2017, all making an income, across the three communities of Napranum, Mapoon and Aurukun.

Image: Amrun Project, Cape York Peninsula, Queensland, Australia

Regional employment

Through the Weipa operations and the Amrun Project, Rio Tinto generates employment for more than 550 Indigenous people from Cape York.

At Weipa the permanent Indigenous workforce is more than 350 strong of which 174 are local Aboriginal people from the surrounding signatory communities.

Mining for a sustainable future

Image: Amrun Chith export facility, Queensland, Australia

Amrun Project by numbers

Project commitments

A$1.92bn

with Australian suppliers

A$1.37bn

with Queensland businesses

99%

of direct project spend on Australian companies

Businesses engaged

Australian

878

Queensland

704

Western Cape York

71

Aboriginal and Torres Strait Islander

16

Innovative construction

Due to its sheer size and scale, marine infrastructure is traditionally constructed on site or near to the project. But spotting the benefits of an alternative approach, in 2016 the Amrun Project engaged a China-based group to construct components of its export facility separately and ship them to Weipa for assembly at site. These components included an innovative, modular approach to wharf jacket construction.

This new approach to fabricating major port infrastructure at Rio Tinto's Amrun Project in Weipa improved on-site workplace safety removing 300,000 hours of high-risk work over water.

The Amrun export facility, approximately 1km long, comprises a 650m access jetty and a 350m ship loading and wharf area.

Rio Tinto's commitment to safety did not stop at the project site as the team worked with the suppliers in China to share knowledge about safe workplace practices. This included a social media group to share real-time safety-related information.

The export facility is known as Chith, the Wik-Waya language name for the red and white eagle (Brahminy kite) that visits and inhabits the area surrounding the facility.

On-site construction workforce at peak, December 2017

— Aboriginal and Torres Strait Islander employees: 204
— Local Aboriginal people: 69
— 1,250 construction employees

Sustainability fundamentals
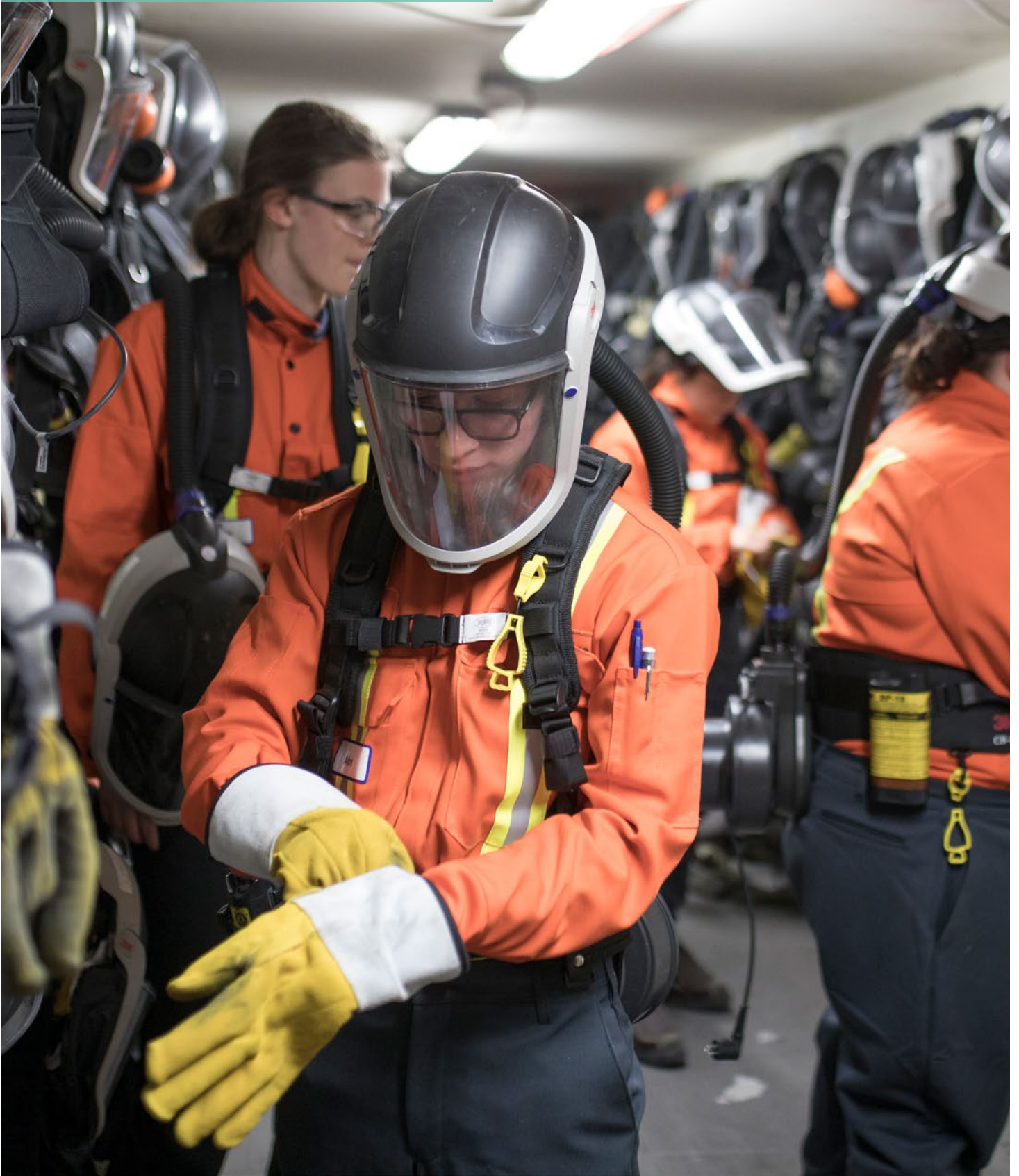
Image: Employees at Kitimat aluminium smelter, British Columbia, Canada

2017 Sustainable development report
riotinto.com/sd2017

Goals and targets

We set targets to communicate across the company the areas where we need to improve in sustainability performance, and to stretch our thinking as to what is possible and acceptable. Our performance against these targets is summarised below. Actions to maintain or improve performance in these areas are described throughout this report. Information on the risk framework we apply to identify these metrics can be found in our Annual report.

Targets	Outcomes in 2017
Our goal is zero harm, including, above all, the elimination of workplace fatalities. Performance against this goal is measured by the number of fatalities and a year-on-year improvement in our all injury frequency rate (AIFR) per 200,000 hours worked.	One safety fatality and one health fatality at managed operations in 2017. AIFR of 0.42, representing a five per cent improvement from 2016. AIFR has improved 37 per cent over the last five years.
A year-on-year improvement in the rate of new cases of occupational illness per 10,000 employees annually.	43 per cent decrease in the rate of new cases of occupational illness compared with 2016.
By the end of 2018, all managed operations will be effectively controlling exposure to all identified critical fatality health risks by verifying that critical controls are controlling harmful exposure.	95 per cent of managed operations on track to achieve our target of verifying controls for critical fatality health risks. The remaining five per cent of operations are being provided additional assistance to implement the critical control verification process.
Our diversity goal is to employ people based on job requirements who represent the diversity of our surrounding communities. We are targeting: – The increased representation of women in senior management positions by 2 per cent year-on-year. – Women to represent 50 per cent of our 2017 graduate intake.	Women represented 22.4 per cent of our senior management in 2017, up from 19.2 per cent in 2016. Women represented 27.3 per cent of our Executive Committee in 2017. Women represented 41 per cent of our 2017 graduate intake. 29 per cent of our 2017 graduate intake were nationals from regions where we are developing new businesses. Women represented 18 per cent[a] of our total workforce.
From 2016, all operations will locally report on an annual basis, and by 2020 will demonstrably achieve: – Progress against a locally defined target that demonstrates the local economic benefits of employment and procurement of goods and services. – Effective capture and management of community complaints with year-on-year reduction in repeat and significant complaints.	42 per cent of managed operations are on track to meet their 2020 targets. The remaining operations are being provided additional assistance to resolve any barriers to achieving their targets.
24 per cent reduction in total greenhouse gas emissions intensity between 2008 and 2020.	We are on track to meet our 2020 target. 2 per cent reduction in greenhouse gas emissions intensity in 2017 versus 2016. 27 per cent reduction in greenhouse gas emissions intensity since 2008.
All managed operations with material water risk will have achieved their approved local water performance targets by 2018.	77 per cent of managed operations are on track to meet their approved local water performance targets. Operations will continue to focus on material water risk and improving performance against their water targets during 2018.

(a) Gender distribution for our total workforce is based on managed operations (excludes non-managed operations and joint ventures) as of 31 December 2017. Less than one per cent of the workforce is undeclared.

Engaging with our stakeholders

Our stakeholders are vital to our success. We consider any person or organisation that has an interest in our activities to be a stakeholder, including those who are potentially affected by our activities and those influential to our business decisions.

The nature of our business means we operate and conduct our business in complex and challenging geographies and markets, which attracts a diversity of stakeholders with a range of interests and concerns. We recognise that our stakeholders are increasingly interested in our activities and their expectations and concerns change over time.

Engagement with our stakeholders offers us an opportunity to create value for shareholders and society. To remain competitive, manage the unique risk profiles of our businesses and secure access to new sources of essential materials, we partner with a range of external stakeholders, including customers, suppliers, investors, governments and local communities. Partnerships impact every stage of the value chain and mining life cycle, and are critical in helping us secure and maintain our licence to operate. The strength of our partnerships allows us to create mutually beneficial opportunities and solutions with stakeholders, helping us create positive impact for the benefit of many.

Information from our engagement allows us to identify opportunities, helps us to manage risk and provides essential input to our annual materiality assessment.

While specific stakeholders, their interests and concerns, and the frequency of engagement vary across the business, our approach is globally consistent – we expect ethical, honest and constructive engagement with all our stakeholders. We also engage across all phases of our business life cycle. We forge targeted relationships with select organisations and universities that share common interests in areas such as climate change, community development and health.

Stakeholder engagement is essential to the role of many of our employees. We ensure our people are skilled in consultation and engagement and have access to Rio Tinto's Stakeholder Engagement Academy.

The following table contains the key methods for engagement in 2017, the key interests which were identified, and where we have reported on these.

Examples of key topics and areas of interest	Engagement methods and how we address topics and areas of interest
Employees	
Safe and healthy work environment	*The way we work*, policies and standards
Workplace inclusion and diversity	Collective bargaining/contract negotiations
Wages, benefits and recognition	Conversations between leaders, managers and employees
Workplace conditions and agreements	Performance feedback process, employee engagement surveys
Career development	Employee communication channels (Rio Tinto Yammer, intranet), town hall meetings
Strategic direction of the business	Rio Tinto College training and development programmes
Governance and business integrity practices	Refer to "Our people" (page 15) and "Governance integrity" (page 40) sections for more information.
Host communities	
Safe and healthy operations	*The way we work,* policies and standards, publications, communities and social performance guidance
Agreements, Indigenous people's rights, land access, cultural heritage	Community forums, committees, meetings, personal communications
Employment and procurement opportunities	Participation in social and environmental assessments, socio-economic programmes, site visits, surveys
Community investment and infrastructure	Partner-to-operate investments
Environment, closure and legacy management	Negotiated agreements
Security	Complaints and grievance mechanisms, *Speak-OUT* programme
Transparent distribution of direct and indirect contributions	Refer to "Community relationships" (page 24), "Governance integrity" (page 40) and "Our value chain" (page 49) sections for more information.
Business integrity and human rights practices	

Engaging with our stakeholders

Examples of key topics and areas of interest	Engagement methods and how we address topics and areas of interest
Suppliers and contractors	
Safe and healthy operations	*The way we work*, policies and standards
Supplier and contractor management	*Supplier code of conduct*, Know your supplier procedure
Employment and procurement opportunities	Contract negotiations
Financial and operating performance	Contractor safety programmes, participation in continuous improvement and safety initiatives
Responsible sourcing	Local content agreements
Business integrity and human rights practices	Meetings and personal communications
	Refer to "Our people" (page 15), "Governance integrity" (page 40) and "Our value chain" (page 49) sections for more information.
Customers	
Product reliability, quality and regulation	Site visits, meetings and personal communications
Pricing and contracts	Contract negotiations
Logistics	Questionnaires and assessments linked to collective initiatives, certification schemes
Environment and resource stewardship	Refer to "Governance integrity" (page 40) and "Our value chain" (page 49) sections for more information.
Responsible sourcing	
Research and development	
Governments and regulators	
Taxes and royalties	Annual, biannual and quarterly reports and disclosures
Employment and procurement opportunities	Regular meetings and communications
Contribution to national and regional development priorities	Regulatory filings, responses to requests for information
Government regulations, permits, licences and agreements	Participation in legislation and policy development
Regulatory and legal compliance	Submissions to government enquiries
Legislation and policy development	Business conformance audits
Closure	Tours of operations and site visits
	Community and social performance initiatives
	Refer to "Governance integrity" (page 40) and "Our value chain" (page 49) sections for more information.

Engaging with our stakeholders

Examples of key topics and areas of interest	Engagement methods and how we address topics and areas of interest
Shareholders, investors and analysts	
Financial and operating performance	Annual, half yearly and quarterly reports, sustainability reports, market announcements, investor seminars, annual general meetings, site tours, road shows
Returns	
Reserves and resources	Regular meetings and communications
Government regulations and permits	Participation in sustainability and ethical indices surveys, disclosure questionnaires and benchmarking
Mergers, acquisitions and divestments	
Safety, health, environmental and community performance disclosures	Refer to "Protecting the environment" (page 29), "Governance integrity" (page 40) and "Our value chain" (page 49) sections for more information.
Governance, business integrity practices and human rights performance	
Non-government organisations, special interest groups and civil society	
Safety, health and environmental performance	Annual, half yearly and quarterly reports, sustainability reports
Human rights including the rights of Indigenous peoples	Regular meetings and communications
Employee and community relations and development	Participation in multi-stakeholder initiatives, forums, conferences, working groups
Responsible sourcing	Partnerships and memberships
Business integrity practices and transparency	Refer to "Governance integrity" (page 40) and "Our value chain" (page 49) sections for more information.
Research and development	
Partnership and investment opportunities	
Peers and industry associations	
Safety, health, environmental and operational performance	Active participation as members of global, national and regional organisations and industry associations and their initiatives
Community engagement	
Environment and resource stewardship, closure	Regular meetings and communications
Technology and innovation	Participation in industry forums, conferences, working groups
Sharing lessons, opportunities and best practice	Refer to "Voluntary commitments, external benchmarking and accreditation" (page 63) section for more information.
Policy trends, positions and development	
Business integrity and human rights practices	
Industry reputation and legacy	
Media	
Financial and operating performance	Press releases, interviews, regulatory filings, presentations, publications
Safety, health, community and environmental performance	Regular communications
Government regulations	
Mergers, acquisitions and divestments	
Governance, business integrity practices and transparency	

Voluntary commitments, external benchmarking and accreditation

Rio Tinto participates in a number of relevant global, national and regional organisations and initiatives to inform our sustainability standards, management approaches and improve performance. Our performance is also assessed and recognised by external organisations and initiatives, and we participate in industry accreditation programmes for some of our products. These include:

International Council on Mining & Metals (ICMM)

As a corporate member, we commit to implementing and reporting on ICMM's 10 Principles for Sustainable Development, which cover corporate governance, environmental stewardship and community engagement. Rio Tinto's chief executive is a member of the ICMM Council and we are an active participant in various working groups.

United Nations Global Compact (UNGC)

As a signatory to the UNGC since 2000, we commit to the 10 principles relating to core values of human rights, labour standards, environmental practice and anti-corruption.

We report our implementation of the ten principles in our annual Communication on Progress. We are actively involved in the UNGC Local Networks and participate in the advisory groups such as in the UK and Australia. We are also a member of the UN Global Compact's Human Rights Working Group.

Voluntary Principles on Security and Human Rights (VPSHR)

The Voluntary Principles are the only human rights guidelines designed specifically for extractive sector companies. Participants including governments, companies and non-government organisations agree to proactively implement or assist in the implementation of the Voluntary Principles.

OECD Guidelines for Multinational Enterprises

The OECD Guidelines for Multinational Enterprises are recommendations addressed by governments to multinational enterprises operating in or from adhering countries. They provide non-binding principles and standards for responsible business conduct in a global context consistent with applicable laws and internationally recognised standards. The Guidelines are the only multilaterally agreed and comprehensive code of responsible business conduct that governments have committed to promoting.

Universal Declaration of Human Rights (UDHR)* and the UN Guiding Principles on Business and Human Rights (UNGPs)*

The UDHR is a milestone document in the history of human rights which sets out, for the first time, fundamental human rights to be respected. Rio Tinto respects and supports all internationally recognised human rights consistent with the UDHR. The UNGPs are a global reference point for preventing and addressing the risk of adverse impacts on human rights linked to business. Rio Tinto's human rights approach is consistent with the UNGPs.

Extractive Industries Transparency Initiative (EITI)

Rio Tinto is a founding member of the EITI and has played an active role in this global standard since 2003. The EITI promotes open and accountable management of natural resources, to ensure that the fruits of our activity benefit the many, not the few. We are transparent about the taxes and royalties we pay – publishing an annual Taxes paid report since 2010.

Global Reporting Initiative (GRI)*

GRI is an international independent organisation that has established an international framework and standards for sustainability reporting. Rio Tinto's Group-level sustainable development report is prepared in accordance with the GRI Standards (Core option) and the GRI Mining and Metals Sector Supplement.

United Nations' Sustainable Development Goals (SDGs)

The SDGs are a set of 17 goals and 169 targets endorsed by the UN in 2015 that present a broad sustainability agenda focused on the need to end poverty, fight inequality and injustice and respond to climate change by 2030. In 2016, Rio Tinto's chief executive signed a public statement of support for the SDGs. For Rio Tinto, the SDGs provide an important framework that helps us show how our work with communities and other stakeholders produces tangible, long-term benefits on the ground. We have identified eight SDGs where, by the nature of the business we are in, we feel we can maximise our impact on a global scale. We will provide details of our work against these goals in future reports.

*   Logos were not available for inclusion in this report.

Voluntary commitments, external benchmarking and accreditation

Dow Jones Sustainability Indices (DJSI)

The Dow Jones Sustainability World Index is a global sustainability benchmark offered by RobecoSAM and S&P Dow Jones Indices. It tracks the stock performance of the world's leading companies in terms of economic, environmental and social criteria and serves as a benchmark for investors. Rio Tinto has been included in the DJSI series since 2002. Our 2017 result meant we maintained our position in the Metals & Mining Sustainability Leaders Group and were included in the RobecoSAM's 2017 Yearbook.

FTSE4Good Index

The FTSE4Good Index Series is designed to measure the performance of companies demonstrating strong environmental, social and governance (ESG) practices. FTSE4Good indexes are used by a wide variety of market participants when creating or assessing sustainable investment products. Rio Tinto has been a constituent member of the FTSE4Good Index since becoming eligible for assessment in 2007. In 2017, we achieved an ESG rating absolute score of 4.2/5.

The CDP

The Carbon Leadership index is compiled by the CDP, an independent, non-profit organisation that encourages companies worldwide to measure, manage and reduce their greenhouse gas emissions. Rio Tinto has participated in the annual questionnaire since 2010.

Corporate Human Rights Benchmark (CHRB)

The CHRB ranks 98 of the world's largest publicly traded companies on human rights policies and performance by conducting an open-source evidence based assessment. Rio Tinto ranked in the top three in the 2017 CHRB and were ranked 2nd of ten mining companies included in the assessment.

Responsible Jewellery Council (RJC)

The RJC is an international not-for-profit organisation committed to promoting transparent and responsible ethical, human rights, social and environmental practices throughout the jewellery industry from mine to retail. Rio Tinto is a founding member and the first mining company to be certified in 2012. We were recertified in 2015 against the RJC Code of Practise Standard. RJC certification covers operations or activities of Rio Tinto's businesses that produce diamonds, gold or gold in concentrates that contribute to the jewellery supply chain. This includes our diamond mines – Diavik in Canada and Argyle in Western Australia – and our Rio Tinto Kennecott copper mine in Utah for gold. Rio Tinto Kennecott also renewed its Chain of Custody certificate for gold in 2017.

London Bullion Market Association (LBMA)

The LBMA has renewed Rio Tinto Kennecott's responsible gold certificate, which guarantees that the precious metal produced from Rio Tinto Kennecott's refinery can be sold and traded globally. The certificate is one of the requirements for a gold refinery to get on the LBMA's Good Delivery List, which is universally acknowledged as the international standard for quality and responsible production. Many precious metal exchanges will accept gold bars only from refineries who appear on the list.

World Diamond Council

The World Diamond Council represents the international diamond industry and civil society organisations in the development and implementation of regulatory and voluntary systems to control the trade in diamonds or embargoed by the United Nations or covered by the Kimberley Process Certification Scheme. Rio Tinto is a member of the World Diamond Council and also has Board representation. In 2017 Australia was Chair of the Kimberley Process and Rio Tinto played a major role in hosting the World Diamond Council at two intersessional and plenary Kimberley Process sessions.

Aluminium Stewardship Initiative (ASI)

The ASI aims to foster greater sustainability and transparency throughout the aluminium industry. It has developed the world's first global responsible aluminium standard, used to assess environmental, social and governance practices across the aluminium supply chain for responsible sourcing. Rio Tinto is a founding member since 2010 and we hold active positions on the ASI Board and the Standards Committee.

Voluntary commitments, external benchmarking and accreditation

We were also honoured in 2017 by a range of organisations for our performance across the regions in which we operate. These include:

In Africa:

– Enviropaedia Eco-logic Awards. Rio Tinto's Richards Bay Minerals was recognised with a Certificate of Merit Water Conservation Award for their water conservation and demand management programme during the current drought period.

In the Americas:

– The Canadian-American Business Council's Corporate Leadership Award for our C$6.4 billion modernisation of the Kitimat aluminium smelter. The award recognises our innovation in producing some of the world's lowest carbon aluminium, environmental benefits and our long-term partnership with the Kitimat community.

– A Leadership Award from the Mining Association of Canada for our ranking in the Toward Sustainable Mining® (TSM) programme. The award recognised our work at Diavik diamond mine because it met or exceeded Level A ranking in its results across TSM's protocols.

– Quebec Transport Association's Excellence Awards. Our Iron Ore Company of Canada was recognised for its interactive database for geotechnical risk management along the Quebec North Shore and Labrador (QNS&L) railway when it won the grand prize in the railway transport category.

– Utah Safety Council's prestigious Award of Merit for outstanding achievements in corporate safety programmes. Rio Tinto's commitment to achieving the highest possible workplace safety standards was recognised with the Rio Tinto Projects' East Waste Rock Extension team being given this award.

In Asia:

– Women in Mining and Resources Singapore Inclusion & Diversity Awards. The awards recognise individuals, groups and companies that have catalysed positive change in the mining industry in Singapore. The Rio Tinto Inclusion & Diversity Network Singapore was named the winner in the Dynamic Catalyser category.

In Australia:

– Luxury Briefing Awards finalist. Our Argyle Diamonds business in Australia was shortlisted in the "Commitment to Positive Change" category for the Argyle Participation Agreement with Traditional Owners in Western Australia's east Kimberley region.

– Finalists in the Chamber of Minerals and Energy of Western Australia's 2017 Women in Resources Awards and the Queensland Resources Council/Women in Mining and Resources Queensland Resources Awards for Women. Employees from Rio Tinto are leading the charge for higher female participation in the resources industry.

– Queensland Resources Council Indigenous Awards recognised our Weipa bauxite mine in northern Australia for its Indigenous employment and training initiatives with the Best Company Indigenous Employment and Training Initiative Award.

– Austmine Miners Innovation Award went to our Growth & Innovation group for our Mine Automation System (MAS) and RTVis™ 3D software. Both technologies have resulted in significant cost savings and productivity gains at Rio Tinto mining operations around the world.

– Western Australian Department of Mines, Industry Regulation and Safety Awards for Excellence. We had six finalists across three award categories that focused on safety and health, environmental excellence and community partnership.

  – Our work innovating a rail-mounted platform that eliminates risks associated with working at heights won the engineering category in the Safety and Health Resources Sector awards.

  – We were honoured with two nominees for the 2017 Golden Gecko Award for Environmental Excellence. Our development of a drilling waste removal system was awarded a certificate of merit. And our work in the Pilbara protecting northern quolls was also recognised as a finalist for the Golden Gecko award.

  – Our partnership with The Graham (Polly) Farmer Foundation for supporting Indigenous students was awarded a special commendation for the 2017 Community Partnership Resources Sector award.

Image: Rössing Uranium Mine, Swakopmund, Namibia

People performance

The following data are reported for calendar years and unless stated otherwise represent 100 per cent of the parameters at each managed operation even though Rio Tinto may have only partial ownership.

Data reported in previous years may be modified if verification processes detect material errors, or if changes are required to ensure comparability over time. Where data has been restated, a footnote to the data has been provided.

Wherever possible, data for operations acquired prior to 1 October of the reporting period are included. Divested operations are included in data collection processes up until the transfer of management control.

See more about our performance in the interactive charts on riotinto.com.

Safety, health and employee overview

	2017	2016	2015	2014	2013
Employees (average)[a]	47,000	51,000	55,000	60,000	66,000
Fatalities from safety incidents[b]	1	1	4	2	3
Fatalities from health incidents[b]	1	-	-	-	-
All injury frequency rate (AIFR) (per 200,000 hours worked)[b]	0.42	0.44	0.44	0.59	0.65
Number of lost time injuries	199	206	220	381	500
Lost time injury frequency rate (LTIFR) (per 200,000 hours worked)[b]	0.25	0.26	0.25	0.37	0.42
New cases of occupational illness (per 10,000 employees)[c]	27	47*	32*	17	16
Fines and prosecutions – safety (US$'000)	29.2	62.0	23.5	95	145.5
Fines and prosecutions – health (US$'000)	7.1	0.0	0.0	0.0	0.0

(a) Includes the Group's share of joint ventures and associates (rounded to the nearest thousand).

(b) Data relating to fatalities, all injury frequency rate and lost time injury frequency rate include all employee and contractor exposure hours and incidents.

(c) New cases of occupational illness are reported for employees only.

* Numbers restated from those originally published to ensure comparability over time.

2017 Employees by employment type[a]

	Female	Male
Executive management	23	85
Senior management	93	328
Regular employees[b]	6,307	29,714
Students/interns	92	148
Total permanent employees	6,515	30,275
Temporary	340	914
Total[c]	6,855	31,189

(a) Gender distribution for our workforce is based on managed operations (excludes non-managed operations and joint ventures) as of 31 December 2017. Excludes non-executive directors and contractors. Less than one per cent of the workforce gender is undeclared.

(b) Includes graduates.

(c) Includes temporary employees.

2017 Workforce profile by region

	Employees[a]	Female[b]	Male[b]	Fatalities[c]	AIFR (per 200,000 hours worked)	Occupational illnesses (per 10,000 employees)[d]	Absenteeism rate[b] [e] Female	Absenteeism rate[b] [e] Male
Africa	5,000	9%	9%	-	0.17	14.74	65	63
Asia	5,000	16%	8%	-	0.16	0	42	34
Americas	15,000	27%	37%	1	0.42	59.17	50	47
Australia/New Zealand	20,000	42%	42%	1	0.51	16.40	90	86
Europe	2,000	6%	4%	-	0.45	2.53	3	0.44
Total	47,000	18%	82%	2	0.42	27.05	64	63

(a) Includes the Group's share of joint ventures and associates (rounded to the nearest thousand).

(b) Gender distribution of our total workforce is based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as of 31 December 2017.

(c) Fatalities at managed operations resulting from fatal safety or health incidents.

(d) Estimates based on internal health and employee databases.

(e) Absenteeism includes sick, disability, family and maternity leave, and other unpaid leave.

People performance

2017 Employee hiring and turnover rates[a]

	Gender		Age group				Region				
	Female	Male	Under 30	30-39	40-49	Over 50	Africa	Asia	Americas	Australia	Europe
Employee hiring rate	17%	11%	45%	12%	7%	4%	6%	17%	15%	11%	13%
Employee turnover rate[b]	18%	16%	30%	14%	12%	17%	8%	11%	11%	22%	23%

(a) Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as of 31 December 2017. Less than one per cent of the workforce gender is undeclared. Excludes non-executive directors and contractors. Rates have been calculated over average monthly headcount in the year.

(b) Turnover rate includes the reduction of employees due to business divestment.

2017 Employee performance reviews[a]

	Gender		Employee category				
	Female	Male	Executive management	Senior management	Regular employees[b]	Operator/trade/ technical	Apprentice[c]
Employees receiving regular performance and career development reviews	98%	99%	90%	100%	100%	99%	N/A

(a) Includes employees who are managed according to the global performance process. There are various other local site-based performance processes that cover the remaining workforce population. Excludes non-executive directors and contractors. Gender distribution of our total workforce is based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as of 31 December 2017. Less than one per cent of the workforce gender is undeclared.

(b) Includes graduates.

(c) Apprentices are not covered under the global review process.

Environmental performance

Operational environment

	2017	2016	2015	2014	2013
Significant environmental incidents	0	1	0	12	15
Fines and prosecutions – environment (US$'000)	89.5[a]	57.6	130.4	319.5	190.3
Total energy use (petajoules)	439	458*	433	450	484
Greenhouse gas emissions intensity (indexed relative to 2008)	73.0	74.4*	79.7	81.7	83.2
Greenhouse gas emissions – scope 1 (million tonnes CO_2 equivalent)	20.0	21.0*	20.2	21.9	23.6
Greenhouse gas emissions – scope 2 (million tonnes CO_2 equivalent)	11.0	11.4*	11.9	12.4	14.4
Greenhouse gas emissions – total (million tonnes CO_2 equivalent)	30.6	32.0	31.9	33.8	37.4
Freshwater withdrawal (billion litres)	584	573	564	555	516
Freshwater used (billion litres)	465	467	460	465	436
Land footprint – disturbed (square kilometres)	3,616	3,696	3,629	3,592	3,556
Land footprint – rehabilitated (square kilometres)	497	541	533	502	472
Mineral waste disposed or stored (million tonnes)	1,317	1,781	1,746	1,737	1,950
Non-mineral waste disposed or stored (million tonnes)	0.33	0.53	0.28	0.42	0.53
SO_x emissions (thousand tonnes)	86	88	87	118	128
NO_x emissions (thousand tonnes)	66	69	67	75	78
Fluoride emissions (thousand tonnes)	2.5	2.5	2.3	3.2	3.1
Particulate (PM_{10}) emissions (thousand tonnes)	67	91	95	102	113

(a) In 2017, we paid environmental fines totalling US$89,502, including US$38,330 assessed against the 2016 significant environmental incident at the Mount Thorley Warkworth mine. The balance was paid against the following that were not significant environmental incidents: in Australia, a sump overflowing into a creek, water leaking from pump infrastructure, and pH exceedance in discharge water; in Canada, non-compliance with dust emissions and water discharge limit exceedance during a rain event; and, in Mongolia, two wildlife incidents.

*   Numbers restated from those originally published to ensure comparability over time.

2017 Greenhouse gas emissions by product group

(million tonnes of CO_2 equivalent)	Scope 1 greenhouse gas emissions	Total greenhouse gas emissions
Aluminium	10	16.3
Copper & Diamonds	1.4	3.4
Energy & Minerals	5.2	7.6
Iron Ore	3.1	3.1
Growth & Innovation	0.0	0.0
Other*	0.2	0.2
Rio Tinto total	20	30.6

Due to rounding, sum may not equal the total shown.

*   Includes corporate offices.

2017 Greenhouse gas emissions by location

(million tonnes of CO_2 equivalent)	Scope 1 greenhouse gas emissions	Total greenhouse gas emissions
Australia	9.7	15.9
Canada	6.4	6.4
France	0.6	0.9
South Africa	0.6	2.5
United States	1.3	1.9
Other: Rest of Africa	0.1	0.2
Other: Rest of Europe	0.3	0.3
Other: Asia, New Zealand, Central and South America	1.1	2.3
Rio Tinto total	20	30.6

Due to rounding, sum may not equal the total shown.

Environmental performance

2017 Water withdrawal by product group

(billion litres)	Marine	Surface water	Groundwater	Municipal water	Total
Aluminium	98	31	34	13	176
Copper & Diamonds	0	32	33	1	67
Energy & Minerals	4	285	32	11	332
Iron Ore	0	0	188	5	193
Growth & Innovation	0	0	16	0	17
Other*	7	0	0	0	7
Rio Tinto total	109	348	304	30	791

Due to rounding, sum may not equal the total shown.

*　　Includes corporate offices.

2017 Water withdrawal by location

(billion litres)	Marine	Surface water	Groundwater	Municipal water	Total
Australia	102	51	216	17	385
Canada	0	265	24	5	293
France	0	0	0	0	1
South Africa	0	16	0	4	19
United Kingdom	7	0	0	0	7
United States	0	15	33	2	50
Other: Rest of Africa	0	1	4	3	8
Other: Rest of Europe	0	0	10	0	10
Other: Asia, New Zealand, Central and South America	0	0	17	0	17
Rio Tinto total	109	348	304	30	791

Due to rounding, sum may not equal the total shown.

Economic performance

Economic contributions

	2017	2016	2015	2014	2013
Gross sales revenue (US$ million)	41,857	35,318	36,784	50,041	54,575
Net cash generated from operating activities (US$ million)[a]	13,884	8,465	9,383	14,286	15,078
Underlying earnings (US$ million)	8,627	5,100	4,540	9,305	10,217
Underlying earnings per share (US cents)	482.84	283.8	248.8	503.4	553.1
Profit/(loss) after tax for the year (US$ million)	8,851	4,776	(1,719)	6,499	1,079
Net debt (US$ million)	3,845	9,587	13,783	12,496	18,055
Capital expenditure (US$ million)[b]	4,482	3,012	4,685	8,162	13,001
Employment costs (US$ million)	4,765	4,881	5,446	6,659	7,568
Payables to governments (US$ million)[c]	6,637	4,025	3,666	8,938[f]	9,414[f]
Value add (US$ million)[d] [e]	27,734	20,065*	18,888	29,178	31,818
Payments to suppliers (US$ million)[e]	14,123	15,253*	17,896	21,370	26,054
Community contributions (US$ million)	176	168*	187*	264	332

(a) Data includes dividends from equity accounted units, and is after payments of interest, taxes and dividends to non-controlling interests in subsidiaries.

(b) Capital expenditure is presented gross before taking into account any disposals of property, plant and equipment.

(c) Total payables to governments include:

	2017	2016	2015	2014	2013
Amounts paid by Rio Tinto (US$ million)	n/a[g]	3,984	4,523	7,099	7,470
Amounts paid by Rio Tinto on behalf of its employees (US$ million)	n/a[g]	1,416	1,569	1,839	1,944

(d) Value add is the sum of labour, payables to governments, returns on capital invested in operations and non-government payments. This figure includes the community contribution total for the calendar year.

(e) These figures include the Group's share of joint ventures and associates.

(f) The amounts reported in 2013 and 2014 were based on the total payments to governments as reported in our Taxes paid reports for those years.

(g) *Taxes paid in 2017* report will be published later this year on riotinto.com.

* Numbers restated from those originally published to ensure comparability over time.

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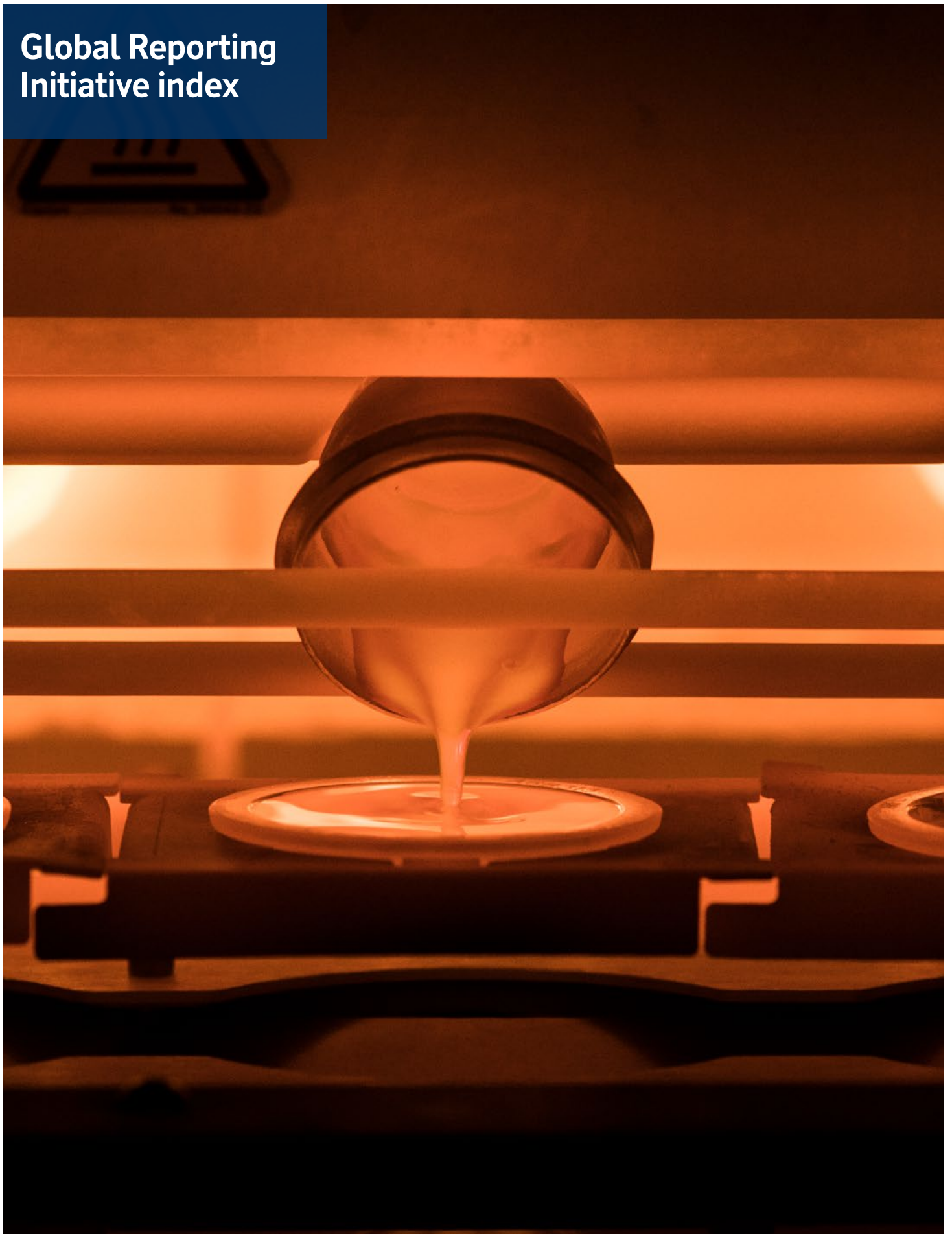
Image: Testing at East Weipa Mine Centre, Weipa, Queensland, Australia

2017 Sustainable development report
riotinto.com/sd2017

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General disclosures

Disclosure number	Disclosure title	Location or explanation
102-1	Name of the organisation	Rio Tinto 2017 Annual report riotinto.com/ar2017
102-2	Activities, brands, products and services	2017 Annual report – Group overview (page 2)
102-3	Location of headquarters	2017 Annual report – Shareholder information (page 258)
102-4	Location of operations	2017 Annual report – Group overview (page 2)
102-5	Ownership and legal form	2017 Annual report – Group overview (page 2)
102-6	Markets served	2017 Annual report – Group overview (page 2)
102-7	Scale of the organisation	2017 Annual report – Group overview (page 2)
102-8	Information on employees and other workers	2017 Annual report – Sustainable development (page 28), Inclusion and diversity (page 36)
		Performance data (page 66)
102-9	Supply chain	2017 Annual report – Group overview (page 2), Business model (page 12)
		Our value chain – (page 49)
102-10	Significant changes to the organization and its supply chain	2017 Annual report – Chairman's letter (page 4)
102-11	Precautionary principle or approach	Sustainability fundamentals – Voluntary commitments, external benchmarking and accreditation (United Nations Global Compact) (page 63)
102-12	External initiatives	Sustainability fundamentals – Engaging with our stakeholders (page 60), Voluntary commitments, external benchmarking and accreditation (page 63)
102-13	Membership of associations	Sustainability fundamentals – Voluntary commitments, external benchmarking and accreditation (page 63)
102-14	Statement from the most senior decision-maker	2017 Annual report – Chief executive's statement (page 5)
		Overview – Chief executive's message (page 4), Message from the chair of the Sustainability Committee (page 6)
102-15	Key impacts, risks and opportunities	2017 Annual report – Key performance indicators (page 14), Risk management (page 18), Principal risks and uncertainties (page 20), Sustainable development (page 28)
		Reporting what matters (page 12)
102-16	Value, principles, standards and norms of behaviour	Overview – Our business (page 8), Governance integrity (page 40)
102-18	Governance structure	2017 Annual report – Governance report (page 49)
102-19	Delegating authority	2017 Annual report – Governance report (page 49)
102-20	Executive-level responsibility for economic, environmental, and social topics	2017 Annual report – Governance report (page 49)
102-21	Consulting stakeholders on economic, environmental, and social topics	Sustainability fundamentals – Engaging with our stakeholders (page 60); Voluntary commitments, external benchmarking and accreditation (page 63)
102-22	Composition of the highest governance body and its committees	2017 Annual report – Governance report (page 49)
102-23	Chair of the highest governance body	2017 Annual report – Governance report (page 49)
102-24	Nominating and selecting the highest governance body	2017 Annual report – Governance report (page 49)
102-25	Conflicts of interest	2017 Annual report – Governance report (page 49)
102-26	Role of highest governance body in setting purpose, values, and strategy	2017 Annual report – Governance report (page 49)

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Disclosure number	Disclosure title	Location or explanation
102-27	Collective knowledge of highest governance body	2017 Annual report – Governance report (page 49)
102-28	Evaluating the highest governance body's performance	2017 Annual report – Governance report (page 49)
102-29	Identifying and managing economic, environmental, and social impacts	2017 Annual report – Risk management (page 18), Principal risks and uncertainties (page 20), Sustainable development (page 28), Governance report (page 49)
		Reporting what matters (page 12), Sustainability fundamentals – Engaging with our stakeholders (page 60)
102-30	Effectiveness of risk management processes	2017 Annual report – Key performance indicators (page 14), Risk management (page 18), Principal risks and uncertainties (page 20), Sustainable development (page 28)
102-31	Review of economic, environmental, and social topics	2017 Annual report – Risk management (page 18), Sustainable development (page 28), Governance report (page 49)
102-32	Highest governance body's role in sustainability reporting	2017 Annual report – Sustainable development (page 28), Governance report (page 49)
102-33	Communicating critical concerns	2017 Annual report – Risk management (page 18), Governance report (page 49)
102-35	Remuneration policies	2017 Annual report – Rio Tinto's commitment to pay equity (page 37), Remuneration report (page 70)
102-36	Process for determining remuneration	2017 Annual report – Remuneration report (page 70)
102-40	List of stakeholder groups	2017 Annual report – Business model (page 12)
		Sustainability fundamentals – Engaging with our stakeholders (page 60)
102-41	Collective bargaining agreements	Rio Tinto's Human rights guidance is applicable at all sites and covers freedom of association in relation to union membership. In 2017, approximately 45 per cent of Rio Tinto employees are covered by collective bargaining agreements.
102-42	Stakeholder identification and selection	2017 Annual report – Business model (page 12)
		Sustainability fundamentals – Engaging with our stakeholders (page 60)
102-43	Approach to stakeholder engagement	2017 Annual report – Relations with stakeholders (page 69)
		Sustainability fundamentals – Engaging with our stakeholders (page 60)
102-44	Stakeholder topics and concerns	Sustainability fundamentals – Engaging with our stakeholders (page 60)
102-45	Entities in consolidated financial statements	2017 Annual report – Financial statements (page 111)
102-46	Defining report content and topic boundaries	2017 Annual report – Sustainable development (page 28)
		Reporting what matters (page 12)
102-47	List of material topics	Reporting what matters (page 12)
102-48	Restatements of information	Performance data (page 66)
102-49	Changes in reporting	No significant changes have been made from the previous reporting period
102-50	Reporting period	1 January 2017 to 31 December 2017
102-51	Date of most recent report	2016
102-52	Reporting cycle	Annual reporting cycle for the period 1 January 2017 to 31 December 2017
102-53	Contact for questions regarding the report	About this report (page 02)
102-54	Claims of reporting in accordance with GRI Standards	About this report (page 02)
102-55	GRI content index	This GRI index
102-56	External assurance	2017 Annual report – PwC Independent limited assurance (page 35)
		About this report (page 02)

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Management approach disclosures

Wherever possible our approach is to minimise any negative impacts associated with our activities on people, communities and the environment, and seek opportunities to share the wealth and benefits our business creates.

An overview of the process used to determine our material topics together with the underlying reason why they have been deemed material for our business is provided in "Reporting what matters" section on page 12. Further detail, including our approach to managing the underlying issues associated with these topics is discussed in the relevant pages referenced within this section. Information on our current activities, including performance against targets are detailed throughout this report, the GRI table and the *2017 Annual report*.

More specific information, including publicly available copies of the relevant information can be found online at riotinto.com where indicated for each GRI aspect below.

Disclosure number	Disclosure title	Location or explanation
103-1	Explanation of the material topics and its Boundary	Reporting what matters (page 12)
Economic performance		
103-2	Management approach on economic contributions	Our value chain (page 49) 2017 Annual report Rio Tinto Taxes paid in 2016 report
201-1	Direct economic value generated and distributed	Our value chain (page 49), Performance data (page 66)
201-2	Financial implications and other risks and opportunities of climate change	Protecting the environment – Preparing for a low-carbon future (page 31) ICMM principle 6
201-3	Defined benefit plan obligations and other retirement plans	2017 Annual report – Governance report (page 49)
201-4	Financial assistance received from government	No significant financial assistance has been received from governments during 2017.
Market presence		
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	All Rio Tinto operations comply with local laws and regulations. We ensure our entry level wages are equal to minimum wages of the local regulations.
202-2	Proportion of senior management hired from the local community	Our people – Engaged, inclusive and capable workforce (page 20), Performance data (page 66)
Indirect economic impacts		
203-1	Infrastructure investments and services supported	Community relationships (page 24), Our value chain (page 49), Performance data (page 66) ICMM principle 9
203-2	Significant indirect economic impacts	Community relationships (page 24), Our value chain (page 49)
Procurement practices		
204-1	Proportion of spending on local suppliers	Our value chain – (page 49)
Materials		
301-1	Materials used by weight or volume	Protecting the environment – Managing our day-to-day responsibilities (page 38)
301-2	Recycled input materials used	Protecting the environment – Managing our day-to-day responsibilities (page 38)
Energy		
103-2	Management approach on energy	Protecting the environment - Preparing for a low-carbon future (page 31) Sustainability fundamentals – Goals and targets (page 59) ICMM principle 6 Climate Change Position Statement Climate change report
302-1	Energy consumption within the organization	Protecting the environment - Preparing for a low-carbon future (page 29) Performance data (page 66)

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Disclosure number	Disclosure title	Location or explanation
302-3	Energy intensity	Protecting the environment - Preparing for a low-carbon future (page 31)
		Performance data (page 66)
302-4	Reduction of energy consumption	Protecting the environment - Preparing for a low-carbon future (page 31)
		Performance data (page 66)
302-5	Reductions in energy requirements of products and services	Protecting the environment - Preparing for a low-carbon future (page 31)
		Climate change report
Water		
103-2	Management approach on water	Protecting the environment – Water quality protection and management (page 35)
		Sustainability fundamentals – Goals and targets (page 59)
		ICMM principle 6
		Rio Tinto management system standard
		Health, safety, environment and communities policy
303-1	Water withdrawal by source	Protecting the environment – Water quality protection and management (page 35)
		Performance data (page 66)
303-2	Water sources significantly affected by withdrawal of water	Protecting the environment – Water quality protection and management (page 35)
303-3	Water recycled and reused	Protecting the environment – Water quality protection and management (page 35)
		Performance data (page 66)
Biodiversity		
103-2	Management approach on biodiversity	Protecting the environment - Minimising our biodiversity impacts (page 37)
		ICMM principles 2,7
		Health, safety, environment and communities policy
		Rio Tinto's approach to environmental management
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Protecting the environment - Minimising our biodiversity impacts (page 37)
304-2	Significant impacts of activities, products, and services on biodiversity	Protecting the environment - Minimising our biodiversity impacts (page 37)
304-3	Habitats protected or restored	Protecting the environment - Minimising our biodiversity impacts (page 37)
MM1	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated	Performance data (page 66)
		In 2017, 25 per cent of Rio Tinto's disturbed land (excluding land disturbed for hydroelectricity dams) had been rehabilitated.
MM2	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place	Protecting the environment - Minimising our biodiversity impacts (page 37)
Emissions		
103-2	Management approach on climate change	Protecting the environment - Preparing for a low-carbon future (page 31)
		Sustainability fundamentals – Goals and targets (page 59)
		ICMM principle 6
		Climate Change Position Statement
		Climate change report

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Disclosure number	Disclosure title	Location or explanation
305-1	Direct (Scope 1) GHG emissions	Protecting the environment - Preparing for a low-carbon future (page 31)
		Performance data (page 66)
305-2	Energy indirect (Scope 2) GHG emissions	Protecting the environment - Preparing for a low-carbon future (page 31)
		Performance data (page 66)
305-3	Other indirect (Scope 3) GHG emissions	Protecting the environment - Preparing for a low-carbon future (page 31)
		Performance data (page 66)
305-4	GHG emissions intensity	2017 Annual report - Key performance indicators (page 14), Principal risks and uncertainties (page 20), Sustainable development (page 28), Governance report (page 49)
		Protecting the environment - Preparing for a low-carbon future (page 31)
		Performance data (page 66)
305-5	Reduction of GHG emissions	Protecting the environment - Preparing for a low-carbon future (page 31)
		Performance data (page 66)
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Protecting the environment - Managing our day-to-day responsibilities (page 31)
		Performance data (page 66)
Effluents and waste		
306-2	Waste by type and disposal method	Protecting the environment - Managing our day-to-day responsibilities (page 38)
		ICMM principle 6
306-3	Significant spills	Protecting the environment - Managing our day-to-day responsibilities (page 38)
		Performance data (page 66)
103-2	Management approach on tailings and structures	Protecting the environment - Managing tailings and structures (page 37)
		ICMM principle 7
		Rio Tinto management system standard
		Health, safety, environment and communities policy
MM3	Overburden, rock, tailings and sludges and their associated risks	Protecting the environment - Managing tailings and structures (page 37)
		ICMM principle 7
Environmental compliance		
307-1	Non-compliance with environmental laws and regulations	2017 Annual report – Directors' report (page 106)
		Protecting the environment - Managing our day-to-day responsibilities (page 38)
		ICMM principle 6
Supplier Environmental Assessment		
308-1	New suppliers that were screened using environmental criteria	Our value chain – Promoting responsible practices from mine to market (page 53)
		Supplier code of conduct
308-2	Negative environmental impacts in the supply chain and actions taken	Our value chain – Promoting responsible practices from mine to market (page 53)
		Supplier code of conduct

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Disclosure number	Disclosure title	Location or explanation
Employment		
103-2	Management approach on employee relations	Our people – Engaged, inclusive and capable workforce (page 20)
		Sustainability fundamentals – Goals and targets (page 59)
		Employment Policy
		Diversity and inclusion policy
		Why gender matters
401-1	New employee hires and employee turnover	Performance data (page 66)
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	2017 Annual report – Rio Tinto's commitment to pay equity (page 37), Remuneration report (page 70)
		Employment Policy
		Diversity and inclusion policy
401-3	Parental leave	Our people – Engaged, inclusive and capable workforce (page 20)
		Employment Policy
		Diversity and inclusion policy
Labor/management relations		
402-1	Minimum notice periods regarding operational changes	We provide the minimum notice periods required by local legislation in the regions where we operate. It is typically two to four weeks and up to three months' notice. In cases where employees are represented by labour unions, notice periods are provided by local legislation or in collective bargaining agreements.
		ICMM principle 3
MM4	Strikes and lock-outs exceeding one week's duration	Nil at Rio Tinto managed operations
Occupational health and safety		
103-2	Management approach on health and safety	2017 Annual report – Key performance indicators (page 14), Principal risks and uncertainties (page 20), Sustainable development (page 28), Governance report (page 49)
		Reporting what matters (page 12)
		Our people – Safe and healthy operations (page 17)
		Sustainability fundamentals – Goals and targets (page 59)
		ICMM principle 5
		Rio Tinto management system standard
		Health, safety, environment and communities policy
		H06 Radiation exposure control standard
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Our people – Safe and healthy operations (page 17)
		Sustainability fundamentals – Goals and targets (page 59)
		Performance data (page 66)
403-3	Workers with high incidence or high risk of diseases related to their occupation	Our people – Safe and healthy operations (page 17)
		Sustainability fundamentals – Goals and targets (page 59)
Training and education		
103-2	Management approach to employee relations	Our people – Engaged, inclusive and capable workforce (page 20)
		ICMM principle 3, 5
404-1	Average hours of training per year per employee	During 2017, we recorded 477,896 attendances for training in leadership, professional development, technical and safety skills across the business.
		Performance data (page 66)
404-2	Programs for upgrading employee skills and transition assistance programs	Our people – Engaged, inclusive and capable workforce (page 20)

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Disclosure number	Disclosure title	Location or explanation
404-3	Percentage of employees receiving regular performance and career development reviews	Performance data (page 66)
Diversity and equal opportunity		
103-2	Management approach to employee relations	2017 Annual report – Sustainable development (page 28), Rio Tinto's commitment to pay equity (page 37), Remuneration report (page 70)
		Our people – Engaged, inclusive and capable workforce (page 20)
		Sustainability fundamentals – Goals and targets (page 59)
		The way we work
		Employment Policy
		Diversity and inclusion policy
		Why gender matters
405-1	Diversity of governance bodies and employees	2017 Annual report – Sustainable development (page 28), Rio Tinto's commitment to pay equity (page 37), Governance report (page 49)
		Our people – Engaged, inclusive and capable workforce (page 20)
		Sustainability fundamentals – Goals and targets (page 59)
		Performance data (page 66)
405-2	Ratio of basic salary and remuneration of women to men	2017 Annual report – Sustainable development (page 28), Rio Tinto's commitment to pay equity (page 37), Remuneration report (page 70)
Non discrimination		
406-1	Incidents of discrimination and corrective actions taken	Governance integrity – Maintaining integrity and compliance (page 42)
Freedom of association and collective bargaining		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	We recognise the right of all employees to choose to belong to a union and seek to bargain collectively is recognised. During 2017, we successfully negotiated enterprise agreements at Rio Tinto Kennecott, Kitimat, Havre-Saint-Pierre and Gove Aluminium, and with the European Works Council. In France, agreements with unions were reached regarding salary policy, profit sharing and health care benefits. We also continued dialogue with union representatives at Richards Bay Minerals, QIT Madagascar Minerals and Rössing Uranium operations.
Child, forced or compulsory labor		
408-1	Operations and suppliers at significant risk for incidents of child labor	Governance integrity – Respecting human rights (page 44)
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Governance integrity – Respecting human rights (page 44)
Security practices		
410-1	Security personnel trained in human rights policies or procedures	Governance integrity – Respecting human rights (page 44)
		ICMM principle 3

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Disclosure number	Disclosure title	Location or explanation
Indigenous rights		
411-1	Incidents of violations involving rights of indigenous peoples	Rio Tinto business units have mechanisms in place for managing complaints, disputes and grievances. These efforts are supported by Group-level detailed guidance, which is consistent with the requirements set out in the UNGPs. Where an Indigenous agreement is in place, all such agreements have detailed requirements for the management of complaints and disputes, including external facilitation, if required. We have also made changes to our incident reporting procedures so that employees will be asked if a health, safety, environment, communities or security incident had human rights implications. This includes specific prompts relating to Land Access and Religion and Culture which include reference to various rights of Indigenous Peoples. This should enable us to better capture any incidents of violations relating to these rights.
		In 2017 we reported five significant community incidents through our CSP complaints and incidents management system, two of which related to cultural heritage impacts of Indigenous communities in Australia and for which mitigation actions were taken including consultation with the relevant communities.
		ICMM principle 3
		Communities and Social Performance Standard
		Human rights policy
		Why agreements matter
		Why human rights matter
MM5	Operations taking place in or adjacent to Indigenous peoples' territories, and number and percentage of operations or sites where formal agreements with Indigenous peoples' communities	Indigenous Peoples are impacted by 20 Rio Tinto business units (excluding exploration and evaluation projects). Of these, 13 business units have reached agreements with the affected Indigenous Peoples. As a number of business units have more than one agreement, there are a total of 30 Indigenous agreements in place across Rio Tinto.
		Community relationships (page 25)
		ICMM principle 3, 10
Human rights assessments		
103-2	Management approach on human rights	Governance integrity – Respecting human rights (page 44)
		Human rights policy
		Why human rights matter
		Annual slavery and human trafficking statement
		United Nations Global Compact: Communication on Progress
412-2	Employee training on human rights policies or procedures	Governance integrity – Respecting human rights (page 44)
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Governance integrity – Respecting human rights (page 44)
Local communities		
103-2	Management approach on communities	Community relationships (page 25)
		Sustainability fundamentals – Goals and targets (page 59)
		ICMM principle 9, 10
		Communities and Social Performance Standard
		Human rights policy
		Why agreements matter

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Disclosure number	Disclosure title	Location or explanation
413-1	Operations with local community engagement, impact assessments, and development programs	Community relationships (page 25)
413-2	Operations with significant actual and potential negative impacts on local communities	Community relationships (page 25)
MM6	Significant disputes relating to land use, customary rights of local communities and Indigenous peoples	Community relationships (page 25)
MM7	Grievance mechanisms used to resolve disputes relating to land use, customary rights of local communities and Indigenous peoples	All our sites are required to have complaints mechanisms and grievance procedures in place to resolve disputes including on land use and customary rights of local communities and Indigenous peoples.
Anti-corruption		
103-2	Management approach on business integrity	2017 Annual report – Sustainable development (page 28), Governance report (page 49)
		Governance integrity – Maintaining integrity and compliance (page 42)
		ICMM principle 1
		2017 Annual report
		The way we work
		Antitrust standard
		Business integrity standard
		Rio Tinto Speak-OUT contact options and phone numbers
205-2	Communication and training about anti-corruption policies and procedures	Governance integrity – Maintaining integrity and compliance (page 42)
		The way we work
		Antitrust standard
		Business Integrity Standard
205-3	Confirmed incidents of corruption and actions taken	2017 Annual report – Governance report (page 49)
Supplier social assessment		
414-1	New suppliers that were screened using social criteria	Our value chain – Promoting responsible practices from mine to market (page 53)
		Supplier code of conduct
414-2	Negative social impacts in the supply chain and actions taken	Our value chain – Promoting responsible practices from mine to market (page 53)
		Supplier code of conduct
Public policy		
415-1	Political contributions	Rio Tinto does not make political contributions.
Socioeconomic compliance		
419-1	Non-compliance with laws and regulations in the social and economic area	2017 Annual report – Governance report (page 49)
		ICMM principle 4
Artisanal and small-scale mining		
MM8	Number (and percentage) of company operating sites where artisanal and small-scale mining takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks	Nil
Resettlement		
MM9	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process	There were no new resettlement sites in 2017. We are currently monitoring the outcomes from the resettlement of communities at our Oyu Tolgoi operations. The resettlement at Richards Bay Minerals is nearing completion.
		ICMM principle 3, 10
		Communities and Social Performance Standard

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Disclosure number	Disclosure title	Location or explanation
Closure Planning		
103-2	Management approach on closure	Governance integrity – Mine closure (page 45)
		ICMM principle 6, 9
		Rio Tinto management system standard
		Health, safety, environment and communities policy
		Rio Tinto's approach to closure
MM10	Number and percentage of operations with closure plans	Governance integrity – Mine closure (page 45)
Product Responsibility		
MM11	Programs and progress relating to materials stewardship	Our value chain – Promoting responsible practices from mine to market (page 53)
		Product stewardship strategy
Other		
103-2	Management approach on value chain	Reporting what matters (page 12)
		Our value chain (page 49)
		Supplier code of conduct
103-2	Management approach on non-managed operations	2017 Annual report – Sustainable development (page 28), Product groups (page 38)
		Governance integrity – Supporting non-managed operations and joint arrangements (page 45)

Glossary

Term	Definition
All injuries	All injuries refer to the sum of lost time injuries and medical treatment cases.
Biodiversity	Biodiversity refers to the variety of life on Earth – the different animals, plants and micro-organisms, their genes and the ecosystems of which they are a part.
Brownfield exploration	Brownfield exploration is directed at sustaining or growing existing Group businesses. With processing infrastructure already in place, capital expenditure requirements for developing brownfield orebodies are usually lower than in a greenfield setting.
Contractor	Contractor is a person or organisation providing services to an employer at the employer's workplace in accordance with agreed specifications, terms and conditions. For the purposes of Rio Tinto's health, safety and environmental standards, contractors are classified into three categories: – Category 1: Individuals engaged on temporary contracts to work within existing operations. – Category 2: Companies or individuals engaged for a discrete project which will be carried out in a designated area separate from existing operations. – Category 3: Companies or individuals engaged under contract to carry out specific tasks or provide specified services within existing operations areas.
Direct economic	Direct economic contribution refers to the total value of all sales made to third parties during the year.
Emission (air) incident	Emission (air) incident applies to an environmental incident in which material and/or energy is ejected in an uncontrolled manner to the atmosphere or emissions that are not compliant with agreed licences, including dust, noise, vibration and blasting incidents.
Employee	Employee is a person in full or part-time employment at a Rio Tinto business and listed on the payroll.
Energy use	Energy use includes energy associated with the combustion of fuels and use of electricity and other energy sources such as steam and hydropower. Energy use for anodes and reductants is evaluated from a carbon balance used to evaluate the resultant carbon dioxide emissions. Under Rio Tinto's reporting guidelines, any individual operation that is not expected to consume 40,000 gigajoules (GJ) of energy in any year over the next three years can be excluded from our data collection processes. It is recognised that reporting trivial quantities of fuels and emissions may result in a significant workload. Thus operations may omit or estimate individual emission or energy sources from their inventories subject to the following rules: – for non-Australian operations: Individual sources that can be excluded should be less than 10,000 GJ. The total of these excluded sources should be less than five per cent of the operation's complete inventory; – for Australian operations: The National Greenhouse and Energy Reporting Act 2007 requires all sources to be included. However, some incidental sources can be estimated. An incidental source is any source that is less than 30,000 GJ of the facility's energy use or energy produced. The total of these incidental sources must be less than 120,000 GJ; and – energy conversion factors are consistent with Australian National Greenhouse and Energy Reporting Measurement Determination 2008 and for non-Australian operations default factors from the Intergovernmental Panel on Climate Change (IPCC) and International Energy Agency (IEA) are used unless a more suitable factor is available from local suppliers or government.
Environment	Environment refers to the surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation.
Fatal injury or occupational illness	Fatal injury or occupational illness refers to when one or more person(s) die/s as a result of a work-related injury or occupational illness occurring during their employment. Lost and restricted days are not calculated for fatalities.
Freshwater withdrawn	Freshwater withdrawn includes: – imported surface water (water provided by a third party for Rio Tinto use); – on-site impounded water used in process applications; – imported and on-site groundwater; and – freshwater withdrawn for use as cooling water, that is chemically, physically or biologically modified at the final point of discharge and/or is returned to the environment with a temperature change of greater than five degrees. Freshwater withdrawn does not include: – poor quality water; – overflow of water in heavy rain conditions from impoundments that has not had the quality significantly altered by inputs and seepage; – water diverted to avoid contamination but not subsequently withdrawn or intercepted for use; – water withdrawn and directly supplied to others, such as (i) for use in agricultural or pastoral properties; (ii) for export to third parties or (iii) for town use; and – freshwater withdrawn and used for hydropower generation.

Glossary

Term	Definition
Freshwater withdrawn and not used	Freshwater withdrawn and not used includes on-site groundwater which is extracted for ground control (dewatering) and discharged without use in the process.
Freshwater withdrawn and used	Freshwater withdrawn and used includes: – imported surface water (water provided by a third party for Rio Tinto use); – on-site impounded water used in process applications; – imported groundwater; – on-site groundwater, except that which is extracted for ground control (dewatering) and discharged without use; and – freshwater withdrawn for use as cooling water, that is chemically, physically or biologically modified at the final point of discharge and/or is returned to the environment with a temperature change of greater than five degrees Celsius.
Frequency rates	Frequency rates measure performance for each of the metrics of injury or illness, for example: – All injury frequency rate (AIFR) = number of all injuries x 200,000/hours of exposure. – Lost time injury frequency rate (LTIFR) = number of lost time injuries x 200,000/hours of exposure. – Rate of new cases of occupational illness (NCOI) = number of all new cases of occupational illnesses x 10,000/number of employees (based on average monthly statistics). Rio Tinto uses AIFR to assess performance against the goal of zero safety injuries and zero safety fatalities. This assessment includes employees and all categories of contractors. Rio Tinto's health target (rate of new cases of occupational illness) is evaluated using employee data only, as relevant. Whilst diagnosed occupational illnesses are recorded for contractors, this data is not included in the evaluation of performance against our health targets. Developing operations and acquisitions after 31 December in the previous reporting year are excluded when assessing performance against these targets. Divested and closed operations are removed from the baseline when assessing performance against these targets.
Freshwater	Freshwater refers to potable water or good quality water with total dissolved solids less than 1,500 milligrams per litre, pH 5-9, and individual dissolved constituents (eg metals, anions) at concentrations suitable for agricultural, livestock or irrigation use based on local, regional or national guidelines.
Greenfield exploration	Greenfield exploration aims to establish completely new operating business units, involving geographic or commodity diversification away from existing Group operations.
Greenhouse gas emissions	Greenhouse gas emissions Rio Tinto reports the emissions of six groups of greenhouse gases included in the Kyoto Protocol: carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorinated carbon compounds and sulphur hexafluoride. Under Rio Tinto's reporting guidelines, individual operations that are not expected to exceed 3,000 tonnes of carbon dioxide equivalent (t CO_2-e) emissions in any year over the next three years can be excluded from our data collection processes. It is recognised that reporting trivial quantities of fuels and emissions may result in a significant workload. Thus operations may omit or estimate individual emission sources from their inventories subject to the following rules: – for non-Australian operations: individual sources that can be excluded should be less than 1,000t CO_2-e. The total of these excluded sources should be less than five per cent of the operation's complete inventory. – for Australian operations: the Australian National Greenhouse and Energy Reporting Act 2007 requires all sources to be included. However, some incidental sources can be estimated. An incidental source is any source that is less than 3,000 tCO_2-e of scope 1 emissions and less than 3,000 tCO_2-e of scope 2 emissions for the facility. The total of these incidental sources must be less than 12,000 tCO_2-e of scope 1 emissions and less than 12,000 tCO_2-e of scope 2 emissions for the facility. The global warming potential (GWP) emission factors for all greenhouse gasses are consistent with the IPCC Fourth Assessment Report (AR4 – 100 year).
GRI	GRI refers to the Global Reporting Initiative, an independent organisation that has established an international framework and standards for sustainability reporting on an organisation's economic, environmental and social performance. The GRI Standards include mandatory requirements for disclosure. An organisation preparing a report in accordance with the GRI Standards can choose one of two options (Core or Comprehensive), depending on the degree to which the GRI Standards have been applied.
HIV/AIDS	HIV/AIDS Acquired immune deficiency syndrome or acquired immunodeficiency syndrome (AIDS) is a disease of the human immune system caused by the human immunodeficiency virus (HIV).
Hours of exposure	Hours of exposure refers to the total number of actual hours worked by employees and contractors at a facility where one or more employees/contractors are working or are present as a condition of their employment and are carrying out activities related to their employment duties. – for employees: This can be determined by either "Planned time + overtime – all absences" or actual time (collected via gate pass or timesheet systems) or represent reasonable estimates made by a Rio Tinto company supervisor. – for contractors: Hours worked are provided by either the vendor or represent reasonable estimates made by a Rio Tinto company supervisor. These hours are recorded by month, vendor, work area and organisation unit, they reflect the total time spent by contractors on Rio Tinto sites.

Glossary

Term	Definition
Incident	Incident is a single event or continuous/repetitive series of events that results in, or could have resulted in, one or more of the following impacts: – an occupational injury or illness; – damage to physical assets (eg plant and equipment), the environment, process, product or reputation; – disruption to a community; – exposure to legal liability; and – security threat. It is evaluated both by its Actual Consequence and its Maximum Reasonable Outcome for each area of impact.
Injury	Injury refers to any injury such as a cut, fracture, sprain or amputation, which results from a work-related event during a single shift. All occupational injuries are to be reported as safety incidents with safety impact. All occupational injuries must be recorded for employees and contractors regardless of contractor category.
Key products	Key products are those products from which major business revenue is obtained (>10 per cent of revenue per product). This includes major products sold by businesses from which >10 per cent net revenue is gained and/or waste or by-products from which major revenue is gained. Examples of key products include iron lump, iron fines, copper cathode, gold, borates, uranium oxide, steel powder and molybdenum oxide.
Life cycle assessment	Life cycle assessment is a technical analytical procedure or method that includes the collation of the environmental inputs and outputs related to a production process (life cycle inventory), followed by a scientific assessment of the potential environmental impacts of a product (life cycle impact assessment). Described by ISO 14040 series.
Lost day injury or occupational illness	Lost day injury or occupational illness refers to an injury or occupational illness that result in one or more days/shifts away from work, excluding the day of the incident. The number of lost or restricted calendar days and shifts reported for lost day injuries/illness must be counted until the person is cleared by a medical practitioner and (i) returns in a full time unrestricted capacity to their pre-injury/illness role or (ii) (in the case of a recordable work injury) the person is permanently redeployed into another role.
Lost time injury or occupational illness	Lost time injury or occupational illness refers to the sum of fatal, lost day and restricted work day injuries or illnesses.
Land footprint	Land footprint refers to land that has been disturbed for mining, processing and related activities including infrastructure (whether currently disturbed or rehabilitated), as at 31 December of the current reporting period.
Local water performance targets	Local water performance targets are set by managed operations with water risk and approved by the operation's managing director or general manager. These local targets are set to reflect specific operational circumstances, and aim to improve site-specific water performance under three defined areas: water supply, ecological impacts, and water surplus management. Targets are established for the Group water target performance period of 2014-2018 and annual water target trajectories are established for assessing annual performance. Changes to targets and/or internal water target trajectories, which are used for water target performance tracking, may be considered in certain circumstances as described below. A local water performance target may be changed to ensure that it remains relevant within the context of the local water risk that is being managed, and ensure that it drives performance in managing the water risk. A change is one that alters the level of performance necessary to meet a local water performance target or internal water target trajectory. A change in local target or trajectory may be considered only when a substantial change in production, conformance/compliance, reputation, community or environment circumstances occurs that was not planned at the commencement of the target period and that renders the current target inappropriate for an operation. A change requires approval from the relevant product group chief executive and the head of Environment and Legacy Management before adoption. An administrative change is one that adjusts the way a target or trajectory is stated or premised without changing the level of performance necessary to meet the local water target or trajectory. Such changes may be considered only when necessary to add clarity to the intent of the target or correct the calculation of baseline or trajectory. An administrative change to a target and/or trajectory requires approval from the head of Environment and Legacy Management.
Managed operation	Managed operation is defined as an operation where: – Rio Tinto wholly owns the operation; or – a management agreement is in place which names Rio Tinto as the manager; or – Rio Tinto management systems and processes are fully implemented.

Glossary

Term	Definition
Managed operations with water risk	Rio Tinto initially identified managed operations with water risks for the 2014-2018 performance target period based on a Group-wide water risk assessment conducted in 2011. This risk assessment assigned managed operations a priority ranking from 1 to 4 based on a number of objective criteria. Priority 1 operations were defined as those that need urgent actions to focus on critical water risks, and priority 2 operations were defined as those that need to focus on high water risk. All managed operations assessed through this evaluation as priority 1 or priority 2 operations were defined as having a water risk unless, at the commencement of the target performance period on 1 January 2014: – the operation was a project that had not reached operation stage; or – the operation had been divested; or – the operation was included within an active divestment or closure process; or – the operation had not been managed by Rio Tinto for at least three years. In addition, any managed operations with an initial categorisation of priority 1 or priority 2 where the operation had, to the satisfaction of Rio Tinto Group Environment, sufficiently reduced the inherent water risk exposure that led to the initial categorisation prior to the commencement of the target performance period, were excluded from the population of managed operations with water risks.
Materiality	Materiality is the threshold at which an issue or topic becomes sufficiently important that it should be reported. Beyond this threshold, not all material topics will be of equal importance and the emphasis should reflect the relative priority of these material topics and indicators.
Medical treatment case injury or occupational illness	Medical treatment case injury or occupational illness refers to a work-related injury or occupational illness which is not classified as lost time, but which results in loss of consciousness or medical treatment other than first aid. Medical treatment includes, but is not limited to: – administration of prescription medication. – use of wound closing devices such as sutures, staples, or wound adhesives (glue). Where glue is used to protect a wound (that does not require sutures) as a precaution against infection in wet environments and in place of an adhesive dressing, this may be considered a first aid treatment if supported in writing by a doctor or registered nurse. – use of devices with rigid stays or other systems designed to immobilise parts of the body. – use of eye patches (except for use as a precautionary measure, and not extending into the next shift). Medical treatment does not include: – visits to a physician or other licensed health care professional solely for observation or counselling, or conduct of diagnostic procedures, such as x-rays, blood tests, and the administration of prescription medications used solely for diagnostic purposes (eg eye drops to dilate pupils) or as a single dose administered on first visit for a minor injury or discomfort. – injuries where the original or first treating doctor used sutures but is prepared to document that sutures were not necessary to treat the injury. This might occur, for instance, if steri-strips or butterfly bandages were not available.
Mineral waste	Mineral waste includes waste rock, tailings and slag: – Waste rock is composed of soils or bedrock that must be removed to uncover or access ore during mining. – Tailings consist of ground up rock mixed with process water that remains after the minerals of economic interest have been removed from the ore. – Slag is generated by smelting operations and is the glassy material that remains after metals, such as copper, have been removed from the ore concentrate. Mineral waste is typically produced in very large volumes. Their handling and storage can directly impact the land. Mineral waste is usually permanently stored on site where it is used as in pit backfill or held in engineered repositories. Most mineral waste is inert, but some are chemically reactive and must be appropriately handled to protect people, wildlife and water quality.
Mobile sources	Mobile sources emission release points that move, such as haul trucks. Compare with "stationary sources".
Musculoskeletal illness	Musculoskeletal illness refers to a condition of the musculoskeletal system associated with repetitive work-related trauma and/or exposure over time, lasting more than one shift (see also definition for occupational illness). A case is reportable where a medical practitioner diagnoses musculoskeletal disease that meets defined diagnostic criteria, and it is due to repeated workplace exposure (other than due to vibration) and it results in medical treatment, restricted work days, lost days or permanent damage. Includes recurring musculoskeletal conditions, which are counted as a new case and reported only if the medical practitioner considers that the worker had fully recovered from the previous condition. Can include repetitive strain injuries, also known as occupational overuse syndrome.
New case/recurrence	An injury or illness is considered as a new case if the employee has not previously experienced an injury or illness of the same type, or the employee has completely recovered from the previous case and a new incident has caused the condition to reappear. If not then additional time lost is linked back to the original injury or illness and is considered a recurrence of the original injury or illness.

Glossary

Term	Definition
Noise-induced hearing loss (NIHL)	Noise-induced hearing loss (NIHL) To be diagnosed as being related to noise exposure requires the assessment of an occupational physician, an audiologist or other equivalent qualified professional. Audiometric tests must be pure tone, air conduction, hearing threshold examinations, including the test frequencies 0.5, 1, 2, 3, 4, 6 kHz and 8 kHz as a minimum. A loss without recovery plus a history of noise exposure should also be regarded as NIHL. For cases meeting the above criteria the following steps are required to determine whether or not a case of NIHL meets Rio Tinto's reporting criteria: 1. occupationally exposed to noise (e.g. > 85 dB(A) TWA); and 2. has sustained a standard threshold shift (see definition); and 3. non-age-corrected average hearing loss over 2, 3 and 4 KHz of the audiogram, in one or both ears, of greater than or equal to 25 dB as compared to audiometric zero. If it meets these criteria it should be recorded as a PDOI. If the hearing loss is due to age factors alone, then it is not work related and should be excluded. Hearing loss due to a one-time high exposure is considered an injury. Excludes contractors of category 2 or 3.
Non-mineral waste	Non-mineral waste is primarily composed of the auxiliary materials that support our mining and mineral processing operations. This includes familiar materials such as used oil, tyres, old batteries and office waste, as well as more specialised waste streams such as spent pot liners from aluminium smelters. Non-mineral waste is produced in much smaller volumes than mineral waste, and is most commonly managed through recycling, off-site treatment and disposal, or placement in on-site engineered landfills.
Occupational asthma	A case is reportable if a medical practitioner following the International Council on Mining & Metals (ICMM)/International Aluminium Institute (IAI) occupational asthma definition diagnoses the patient as an asthmatic due to the occupational exposures such as those in aluminium smelting, resulting in medical treatment, restricted work days, lost days or permanent damage. Contractors of category 2 or 3 are not included.
Occupational exposure	Occupational exposure refers to exposure to chemical, physical, biological or ergonomic hazards under controlled conditions, in the course of and intrinsic to the nature of their work, of a population consisting of adults who are trained or informed to be aware of potential risks and to take appropriate precautions. The duration of occupational exposure is limited to the duration of the working day or duty shift per 24 hours and the duration of the working lifetime.
Occupational exposure limit (OEL)	Occupational exposure limit (OEL) refers to the level of an agent in workplace air, which it is believed is low enough to protect nearly all workers from adverse health effects over a series of eight-hour shifts for a working lifetime. OELs should be used as guidelines only, rather than not safe/safe limits. Rio Tinto has defined a number of OELs that apply across all of its operations.
Occupational illness	Occupational illness refers to an illness or disease is distinct from an injury. One event cannot be both. An illness or disease results from a workplace related exposure of more than one shift; such as noise-induced hearing loss (NIHL) or carpal tunnel syndrome. A person can only be diagnosed once with the same occupational illness or disease unless there has been a complete recovery from the original case. All occupational illnesses are reported as health incidents with health impact.
Occupied building	Occupied building refers to a building, whether permanent or temporary (portable) that is intended to be occupied. This is typically a building within which at least two people do a significant portion of their work or where people may congregate, even for a short duration (eg crib rooms). Buildings where personnel come infrequently to complete brief tasks or monitor the process are not typically defined as an occupied building.
On-site greenhouse gas emissions	On-site greenhouse gas emissions refers to scope 1 greenhouse gas emissions, such as direct greenhouse gas emissions that are owned or controlled by the company and include fuel use, on-site electricity generation, anode and reductant use, process emissions, land management and livestock.
Operational land holdings	Operational land holdings are categorised into two categories: – All land disturbed for mining, processing and related activities, including rehabilitated land. This is known as our operational footprint. – Land outside our operational footprint area, which may be used in the future for mining, processing and related activities as well as other land uses. This is known as our land holding balance.
Permanent damage injury or illness	Permanent damage injury or illness refers to greater than 30 per cent body impairment as per the American Medical Association (AMA) Guidelines, 5th edition, with a timeframe which is likely to be one year or greater.
Plague	Plague is an infectious disease caused by the bacteria *Yersinia pestis*, usually found in small mammals and their fleas. It is transmitted between animals through fleas. Humans can be infected through: – the bite of infected vector fleas; – unprotected contact with infectious bodily fluids or contaminated materials; or – the inhalation of respiratory droplets/small particles from a patient with pneumonic plague.

Glossary

Term	Definition
Process safety incidents with a major or catastrophic consequence	Process safety incidents with a major or catastrophic consequence is a process safety incident of actual or potential unplanned or uncontrolled loss of primary containment of hazardous process material or process energy that could result in: – chemical and physical explosions; – fires involving process material; – loss of containment of toxic, asphyxiant, corrosive, reactive, hot materials in bulk; and – engulfment or physical impact from failure of bulk storage and process tankage. Such an incident resulting in a single fatality or severe permanent impairment to a person (>30 per cent) e.g. loss of hand or lower limb (at knee), paraplegia or multiple fatalities or severe permanent impairment to multiple people (<5 people) are termed as Process safety incidents with a major or catastrophic consequence respectively.
Process	Process refers to the activities associated with the process of mining or refining. This includes mining, milling, slurrying, washing ore, dust suppression, wastewater/sewerage treatment, power generation, bathhouse, camp, canteen, offices, irrigating rehabilitated land and wash down.
Restricted work day injury or occupational illness	A restricted work activity occurs when the employee, because of the job-related injury/illness, is physically or mentally unable to perform all or any part of his or her normal assignment during all or any part of the normal workday or shift, after which the injury/illness occurs.
Rio Tinto management system	Rio Tinto management system supports standardisation of corporate and business health, safety, environment and communities management processes. The system is designed on the principles of leadership and planning, management of risk through operational control and continuous improvement through performance review as is the intent of common international standards such as ISO14001:2004, ISO9001:2001.
Scope 1 greenhouse gas emissions	The World Resource Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol: A Carbon Reporting and Accounting Standard, March 2004 defines three scopes of greenhouse gas emissions for reporting purposes. Scope 1 emissions are direct greenhouse gas emissions that are owned or controlled by the company and include fuel use, on-site electricity generation, anode and reductant use, process emissions, land management and livestock (on-site emissions). Scope 1 emission factors are consistent with the Australian National Greenhouse and Energy Reporting Measurement Determination 2008 and for non-Australian operations from the IPCC Guidelines for National Greenhouse Gas Inventories (2006). Scope 1 emissions are presented on a managed operations basis.
Scope 2 greenhouse gas emissions	Scope 2 greenhouse gas emissions are greenhouse gas emissions from the imports of electricity, heat or steam from third parties (indirect emissions). Scope 2 emission factors are consistent with the Australian National Greenhouse and Energy Reporting Measurement Determination and for non-Australian operations, where possible, factors sourced from electricity retailers are used. Scope 2 emissions are presented on a managed operations basis.
Scope 3 greenhouse gas emissions	Scope 3 greenhouse gas emissions are other indirect greenhouse gas emissions. Scope 3 emission factors are derived from life cycle analysis and various research studies. This work systematically assessed scope 3 emissions and their materiality to the Group. Based on this assessment scope 3 emissions deemed to be material at the Group level are reported as part of Rio Tinto disclosures in the Annual report, Sustainable development report and Rio Tinto's submission to CDP. All other sources are immaterial to the group inventory.
Senior management	Senior management are employees in the business unit or in functional leadership roles who are direct reports of Rio Tinto Executive Committee members, and those at general manager, Group adviser and chief adviser levels.
Significant environmental incident	Rio Tinto measures and rates incidents according to their actual environmental and compliance impacts using five severity categories: minor, medium, serious, major, or catastrophic. A significant environmental incident is one with an actual consequence rating of major or catastrophic. Major and catastrophic environmental incidents are of a nature that they typically result in notification to the relevant product group head and Rio Tinto chief executive as soon as practicable after the incident occurring.
Similar exposure group (SEG)	Similar exposure group (SEG) are employee/contractor groups who have similar responsibilities, common hazards and similar exposure profiles that are identified by similar substance and exposure factors. Rio Tinto uses SEGs as the basis for assessing workplace exposure to hazardous agents with chronic effect.
Stationary sources	Stationary sources refers to emission release points that do not move, such as power stations, smelters, refineries and concentrators. Compare with "mobile sources".
Sustainable development	Sustainable development is commonly defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[1] [1] *Our Common Future, Report of the World Commission on Environment and Development, World Commission on Environment and Development, 1987. Published as Annex to General Assembly document A/42/427, Development and International Co-operation: Environment August 2, 1987. Available at: www.undocuments.net/wced-ocf.htm*

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Term	Definition
Tier 1 resources	Tier 1 resources are low-cost, expandable resources that are profitable at all parts of the natural price cycle and deliver a sustainable competitive advantage.
Total greenhouse gas emissions	Total greenhouse gas emissions are scope 1 emissions plus scope 2 emissions minus emissions associated with electricity and steam exported to others minus net carbon credits voluntarily purchased from, or sold to, recognised sources.
Total greenhouse gas emissions intensity index	Total greenhouse gas emissions intensity index is a measure of the change in emissions per unit of product compared with a baseline intensity, evaluated for each of our commodities. Commodities are products sold to the market from operations of comparable scope. Examples include bauxite mined, smelter grade alumina refined from bauxite, primary aluminium smelted from alumina, copper concentrate from mine to concentrator, and copper cathode from mine to refinery. Rio Tinto's total greenhouse gas emissions intensity target is evaluated as the percentage difference between actual total greenhouse gas emissions in the target year and the equivalent emissions expected from the target year production at the baseline year emissions intensity for each commodity. Any business or operation, such as Rio Tinto Exploration, that does not produce a saleable product is excluded from the target assessment. Developing operations are included in the assessment once production exceeds 60 per cent of nameplate production within a reporting year. We index our performance relative to 2008 as a baseline year.
Value add	Value add refers to the value that a business adds to the materials and services it has bought. It is equivalent to the sum of all labour payments, payables to governments, returns to capital invested in operations – including interest payments, profits paid out to shareholders, and money retained in the business for future investment and to replace depreciated assets and non-government payments. This figure includes the community contribution total for the calendar year.
Water target performance tracking	A managed operation with water risk is "on track" to meet its 2014-2018 local water performance target if it can demonstrate that it has met its internal water target trajectory in the current reporting year.
Water risk	Water risk is one that has the potential to have a high or critical impact on a managed operation with consequences on production, conformance/compliance, reputation, community or environment. Water risks require proactive management by the specific managed operation.
Wellbeing/wellness programme	Wellbeing/wellness programme is a proactive, preventive approach of helping people change their lifestyle to move toward a state of optimal health, a balance of physical, emotional, social, spiritual, and intellectual health. It is an active process of enhancing awareness and skills, changing behaviour and values, and creating an environment that supports good health practices and increase a person's ability to enjoy a balanced and fulfilling life.

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