

# RioTinto

Sustainable development 2015

Working for  
**mutual benefit**



## Introduction

# Working for mutual benefit

Our commitment to sustainable development helps us remain a long-term business. It is central to our ambition to be our industry's trusted partner.

As we work to produce the metals and minerals that are essential to global development, we also focus on making a positive difference in areas such as stewardship of natural resources, climate change and local employment.

Focusing on sustainable development means we constantly challenge ourselves to do better, in every aspect of our business. While social, environmental and economic issues present challenges to Rio Tinto, we prefer to see them as source of opportunity and new value.

### Sharing risk to deliver mutual value

We seek to create mutual value by managing our own business risks and interests alongside those of our investment partners and host communities. Our aim is to deliver the best possible outcomes for our business, our shareholders and our many stakeholders.

At our Weipa bauxite operations in Australia, we are working in partnership with local Indigenous people to create positive economic, cultural, social and environmental outcomes for future generations.



[www.riotinto.com/sd2015/sharing-risk-to-deliver-mutual-value](http://www.riotinto.com/sd2015/sharing-risk-to-deliver-mutual-value)

### Collaborating to create trust

We listen carefully to our stakeholders' needs and understand what drives them, so that we create long-lasting solutions to shared challenges.

One example of this is Oyu Tolgoi in Mongolia, where we are focused on ensuring the project brings lasting benefits to the country and is sustainable over time. This means forging strong partnerships with communities that are built on trust, developing the local talent that can drive and support future growth, and stewarding the country's environmental resources with care.



[www.riotinto.com/sd2015/collaborating-to-create-trust](http://www.riotinto.com/sd2015/collaborating-to-create-trust)

### Leading through innovation

Innovation creates safer, smarter, sustainable ways to run our business and advance our industry.

Our business is energy intensive. Given the scale of our business, when we take steps to manage and reduce our energy use and emissions, Rio Tinto has an opportunity to make a sustainable impact on a large scale.

Today, we are applying innovation to the challenge of climate change in two areas – using less energy in our operations and cutting the carbon intensity of our energy mix.



[www.riotinto.com/sd2015/leading-through-innovation](http://www.riotinto.com/sd2015/leading-through-innovation)

Cover Image: Employees examine flora and fauna at Rio Tinto Kennecott's Inland Sea Shorebird Reserve (ISSR) on the Great Salt Lake, Utah, US.

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# Strategy



## Our commitment to sustainable development

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Image: Ship loading activities, Australia.



## Chief executive's message

Sam Walsh AO,  
chief executive



Making a positive difference,  
driving long-term success



## Chief executive's message

### Dear stakeholders

Our commitment to sustainable development helps us remain a long-term business. It is central to our ambition to be our industry's trusted partner. As we work to produce the metals and minerals that are essential to global development, we also focus on making a positive difference in areas such as stewardship of natural resources, climate change and local employment.

For Rio Tinto, sustainability requires that our interests are aligned with those of our stakeholders – with local communities and environments as well as global customers and investors. I would like to share with you some examples that illustrate how we contribute to sustainable development.

### Safety

Promoting a safe and healthy workplace is key to building a sustainable business, and we have made great strides in reducing the number of injuries occurring across our organisation. We measure this progress through our all injury frequency rate, which in 2015 was the lowest in our company's history at 0.44 per 200,000 hours worked. This and our lost time injury rate – which we brought down to 0.25 in the year as well – are significant achievements and indicate the strength of our safety processes and culture.

No matter how well we do keeping our people safe from injuries, our most important safety goal is to see a year without fatalities – and to keep repeating that year in, year out. The deaths of four people at our managed operations overshadowed the improvements we made to our injury metrics in 2015. These are unacceptable, tragic losses, and my thoughts and prayers are with the family and friends of those who died. Everyone deserves to return home to their loved ones, safe and sound, at the end of every shift.

Based on the successful approach at the Escondida copper mine in Chile, we have augmented our safety standards with the roll-out of critical risk management (CRM) across our business. CRM ensures that where people are exposed to a fatality risk, we have critical controls in place that are well designed and understood, and confirmed to be working before every job starts. Embedding CRM will be a powerful step on our journey to eliminate fatalities across our global operations.

### Performance

For many years, we have set ourselves clear, stretch targets to focus our efforts in areas such as safety, health, water, emissions, diversity and communities. These targets help us to improve performance and manage risk. We reached the end of the defined period for several of our targets in 2015, and we are moving to fresh targets that are designed to keep us on the path to greater improvement.

We reached our communities target, which is aligned with the Millennium Development Goals, ahead of time, and we did better than our targeted reductions in greenhouse gas emissions intensity.

Regardless of our success, we can never be complacent, and in some areas we have more work to do. While we exceeded our target for diversity in our graduate intake, both in terms of gender and nationality, and increased our gender diversity in senior management, we fell short of our overall target. Some of our sites are not currently on track to meet their local water targets by 2018 and require increased focus to do so over the next three years. But even where this is the case, we have found that the local targets are driving site discussion of water-related risks and positively influencing operational performance.

Where we have not reached our targets, we will make sure we have clear strategies in place to do better. In the area of diversity, for instance, I am personally taking a leadership role by heading up our Inclusion & Diversity Steering Committee. We have set this up to drive action within our product groups and functions.

“We constantly challenge ourselves to do better, in every aspect of our business”

### Sharing risk to deliver mutual value

We are acutely aware that we need to understand and manage both the risks to our business and the impact of our operations and products on the local and the global environment. We have an established set of standards for the most important risk areas.

The tragic events surrounding the tailings dam breach at the Samarco iron ore mine in Brazil, jointly owned by BHP Billiton and Vale, remind us of the consequences of failure of major facilities or assets. Our revised standard for tailings and water storage is designed to minimise the chance of serious failure in these facilities.

On a more positive note, we were pleased to support the new global climate agreement reached by governments in Paris last December. Climate change is a challenge to all businesses and the communities we work in, and we will continue to work with our communities to adapt to the impacts of change. It also represents an opportunity for growth, with many of our products essential to a low-carbon future. We have already started working with suppliers and customers to identify these opportunities, exemplified by the Aluminium Stewardship Initiative.

Sustainability is also about making a positive, lasting contribution to the places where we operate. In Mongolia, for instance, our Oyu Tolgoi operation is investing in the development of local talent. This includes a US\$126 million commitment over five years – the biggest-ever single investment in the Mongolian education and training sector.

### Collaborating to create trust

From the early work of our exploration teams to our rehabilitation and closure of a mine or processing site, we work closely with our stakeholders. For example, three agreements with Traditional Owners underpin our bauxite operations in Australia's Cape York Peninsula, including our US\$1.9 billion Amrun project. These agreements provide training and employment opportunities for local communities and ensure there are sustainable social, cultural and economic outcomes for local people.

At the Australian national level, Rio Tinto has formally joined the national “Recognise” campaign, which seeks to formally recognise Aboriginal and Torres Strait Islander peoples in the country's constitution. This is an important step in Rio Tinto's reconciliation journey, which began 20 years ago when the business broke with convention and sought to work in active partnership with Indigenous Australians.

Our contribution to sustainable development is often made in partnership with stakeholders. For example, our successful response to the Ebola outbreak in Guinea depended on working closely with others. We took a two-tier approach, tackling the situation locally – introducing hygiene protocols and sharing best practice – and globally, where we liaised with governments and international organisations to help keep the country open for business. I am very proud that our Guinea team won a “Team of the Year” award from *CIR Magazine* (*Continuity, Insurance and Risk*) for its response to this crisis.



## Chief executive's message

### Leading through innovation

In our industry we are faced with a huge range of opportunities to make our operations smarter, safer and more sustainable. The recent upgrade of our Kitimat aluminium smelter in Canada, which combines the use of hydropower with an advanced production process, has halved greenhouse gas emissions there. Also, at many of our operations in Australia's Pilbara region, autonomous trucks and drills are making production more efficient and safer for the people who work there.

### Strength based on inclusion and diversity

The constant in all of these examples is our people. I am proud to lead a company of people dedicated to the principles of sustainable development. We aim to respect and value our differences as it is not just the right thing to do, it makes us stronger and smarter because each of us brings a unique set of skills, knowledge and perspectives to our company.

Every day we face dilemmas in our workplace and how we respond to them is crucial to the long-term sustainability of our business. This is why all employees, contractors and suppliers adhere to our code of conduct,

*[The way we work](#)*.

This code covers a wide range of areas, including health and safety, human rights, bribery and corruption, and environmental accountability. In 2015, in response to employee feedback, we updated *The way we work* to make it clearer and more concise. The new document symbolises what we stand for as a business, making clear how we behave according to our values of respect, integrity, teamwork and accountability.

Focusing on sustainable development means we constantly challenge ourselves to do better, in every aspect of our business. While social, environmental and economic issues present challenges to Rio Tinto, we prefer to see them as source of opportunity and new value. I am proud of the efforts of all our employees in making a positive contribution to the world in everything we do.



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Sam Walsh AO  
Chief executive



## Our approach

# Managing risks, creating opportunities

At Rio Tinto, we are committed to operating our business in a way that delivers lasting benefit to the communities and environments where we work, as well as to our shareholders and employees.

Metals and minerals are the foundation of global development. They are integral to the infrastructure and technologies that enable societies to advance and improve. In homes, offices and cities, there are thousands of products that originate from a mine.

Yet while our products are essential to modern life, we operate in a complex, interconnected world. Issues such as climate change, local employment, biodiversity and regional development present both risk and opportunity to our business.

Our principles help us manage these risks – and take advantage of the opportunities. In so doing, we maximise our contribution to sustainable development.

**Creating mutual value by sharing risk.** We can only build value if we work collaboratively with all of our stakeholders. This means managing risks and opportunities together and aligning our interests and the needs and motivations of the communities that host us. By doing this, we do more than just create jobs. We stimulate economic growth and enable local education and skills development. We also spread the benefits of investments in infrastructure – from new roads to clean drinking water. At the Argyle diamond mine in Australia, for example, it is now over ten years since we signed a groundbreaking agreement that gives Traditional Owners an active role in how the mine is run. Among the benefits it brings, [the agreement](#) includes protections for Indigenous heritage sites, and training and employment programmes to ensure Traditional Owners have real opportunities to compete for site-based contracts.

**Collaborating to create trust.** This means being honest about our impacts and clear on our contributions. Rio Tinto is a founding member of the Extractive Industries Transparency Initiative (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 lead the industry in being transparent about the taxes and royalties we pay – publishing an annual [Taxes paid report](#) since 2010.

**Leading through innovation.** We constantly look for smarter, safer and more sustainable ways to manage every stage of our business cycle, from exploration through to rehabilitation. Our Pilbara iron ore operations have set world-class standards for efficient, automated mining operations to improve productivity. At our decommissioned smelter site in Anglesey, UK, a [new biomass power station](#) will provide the energy for food production, including hydroponics and aquaculture, while other parts of the site have been earmarked for tourism development.

### Our values

Rio Tinto's values of respect, integrity, teamwork and accountability support these sustainable development principles. Our code of conduct, [The way we work](#), puts them into practice. It holds everyone at Rio Tinto – and its subsidiaries and related companies – to clear and strong principles relating to the workplace, human rights, communities, the environment and business integrity. We are proud of our values and the commitment that our people around the world show to them.

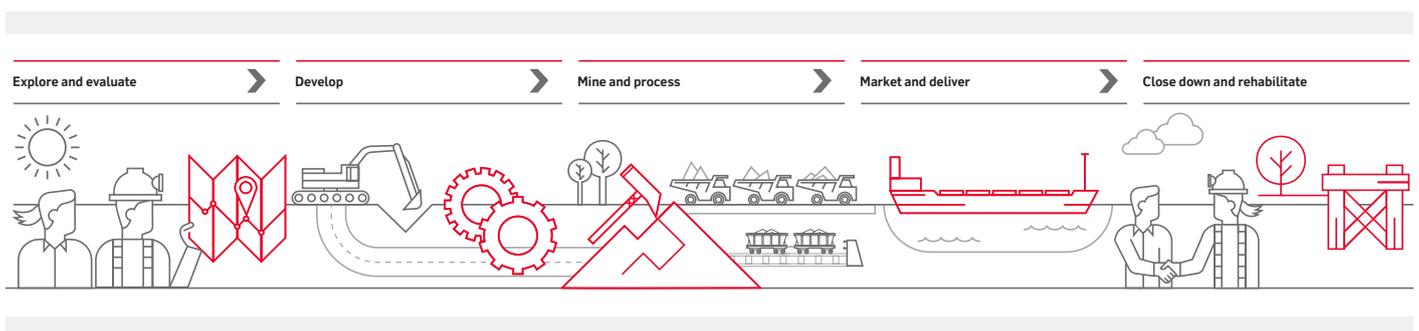
Ultimately, as one of the world's largest mining and metals companies, we understand that having a sustainable business depends on our ability to deliver long-term value to everyone our activities touch. This means seeing the challenges of sustainability as opportunities to continuously improve the way we work.



# Contributing to sustainable development at every stage

Our business has a clearly defined life cycle that stretches – often over decades – from exploration to rehabilitation and closure. From the outset, we think long term and integrate our approach to sustainable development into every stage, evaluating the opportunities and challenges our work will create, and finding ways to address them.

## How we create value



## Explore and evaluate



We look for new resources all over the world, largely using an in-house team. This means we keep control over the safety, environmental and community aspects of exploration.

Our exploration teams are often our first point of contact with people we may subsequently be working alongside for decades. To make sure their interests are aligned with ours, we go to great lengths to establish trust and engage with communities. In this way, exploration projects can benefit everyone involved.

### Open doors

The Copper Cliff project in Montana presents our exploration team with a long list of challenges: land ownership issues, a worsening local economy, sensitive flora and fauna, a wide range of interest groups and a long list of environmental issues left by others' operations. In response, the team has taken a proactive approach based on transparency. Extending an invitation to local people to visit the site has changed perceptions, helping to build trust and community engagement.



Image: Copper Cliff project, US.

## Develop



During the development phase of new projects we continue to engage closely with local communities, in some cases building infrastructure and local market capacity that brings permanent value to the regions in which we operate. In developing regions, we endeavour to work with local suppliers, providing long-term benefits to local economies. And we work with our customers to ensure our products meet their requirements.

### Local opportunity, national impact

Bauxite from Cape York in Australia is the source of over ten per cent of the world's aluminium. Rio Tinto is investing US\$1.9 billion to build a new mine and port to the south of our Weipa operations in this area, at a site called Amrun. At its peak, the project is expected to employ 1,100 people. This initiative is underpinned by a strategy to provide access to opportunities for local and Indigenous businesses. At the request of Traditional Owners, the project has been named Amrun, the Wik-Waya name for the area. When operational, Amrun is estimated to contribute A\$1.3 billion annually to the Queensland economy.

Rio Tinto is investing

US\$ **1.9** billion

to build a new mine and port to the south of Weipa

The project is expected to employ

**1,100** people



## Business life cycle

### Mine and process



It is in everyone's interest that we carry out our mining and processing operations in the most sustainable manner possible. Our global operating model is a source of particular strength at this phase in our business life cycle, because it gives us access to world-class processes and technologies that help us run efficient, state-of-the-art operations.

#### Major contribution

In 2016, our Pilbara iron ore business will mark 50 years of operations. During this time it has grown to become a benchmark for efficient, high-tech mining that makes a significant contribution to the local economy and communities. The recent infrastructure and mine development project employed more than 10,000 people and today, our Pilbara operations employ around 1,000 Indigenous Australians. In the last five years alone, Rio Tinto and our joint venture partners have paid around A\$10 billion in royalties to the Western Australian Government and tens of billions more in company taxes to the federal government.

In the last five years alone Rio Tinto and our JV partners have paid around

# A\$10 billion

in royalties to the Western Australian Government

### Market and deliver



Our business is based on the supply of high-quality products that have been developed to meet our customers' needs. The minerals and metals we supply – mostly to industrial companies that process them further – are the building blocks of value-added goods. Rio Tinto's marketing teams work with our operations to align our resource management with market needs and to make sure we improve our products and services in a way that maximises value to customers.

#### Innovative applications

We work closely with our customers, providing solutions to their problems by offering them exactly the products they need. We also try to identify new ways in which our products can be used. In Australia, for instance, our Diamonds & Minerals product group is working with the University of Wollongong to find innovative uses for borates, which have been mined in California for over 100 years. New boron-based compounds have potential applications in hydrogen storage and advanced batteries.

### Close down and rehabilitate



Closure planning is part of every asset's life cycle, from the earliest stages of development. We aim to progressively rehabilitate as much land as possible before closure. And when a resource reaches the end of its life, we seek to minimise its financial, social and environmental impact by finding sustainable and beneficial future land uses. We identify post-closure options that take into account stakeholders' concerns and priorities.

#### Clean-up creates opportunity

Our clean-up work at the Holden Mine site in Washington State, US, garnered the American Exploration & Mining Association's 2015 Environmental Excellence Award. Closed in 1957, the site – which Rio Tinto inherited through acquisition – has had an impact on water and soil in the immediate area. Our work at Holden involves burying and capping the historic mining materials as well as collecting and treating impacted water. This work will not only clean up the site – it will also give a boost to the local economy and community. The project will employ more than 500 people over its life, generating more than US\$8.0 million in wages and injecting US\$60 million into the local economy.

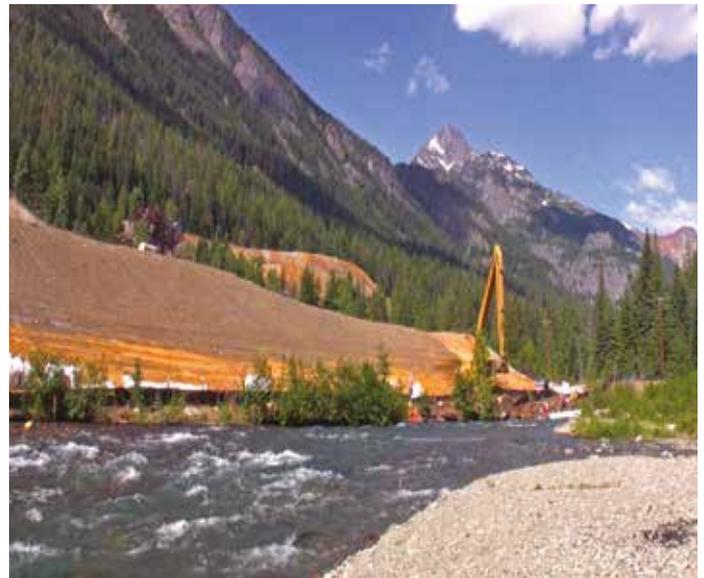


Image: Holden Mine, US.



Find out more:  
[riotinto.com/our-business](http://riotinto.com/our-business)



## Engaging with our stakeholders

Building and maintaining strong relationships with our stakeholders is core to our business success. We consider anyone who has an interest in our activities to be a stakeholder. Our stakeholders include people who are affected by our decisions (such as local community members) as well as people who influence our decisions (for example governments).

The nature of our business means we often operate and conduct our business in complex and challenging geographies and markets. This makes it even more important for us to be credible and listen to our stakeholders' views.

### Our approach

Throughout project planning, development, operation and closure, we identify our stakeholders, and strive to understand their concerns and interests. We spend time sharing and explaining information about our activities. All these actions help us to improve our decision-making.

We engage with our stakeholders to identify opportunities for mutual value and to help us manage risks. For example, we:

- develop strong and lasting relationships with our local communities, working on issues such as employment and cultural heritage;
- engage with governments on policy and legislation and to develop education and training programmes;
- discuss our approach to business and sustainable development with our investors; and
- partner with non-government organisations on environmental, health and human rights issues.

We engage ethically, honestly and constructively with all our stakeholders. We seek to understand their points of view so that we can adapt to changing expectations and generate long-term value for our shareholders.

### Our stakeholders

Mining is a heavily regulated industry and our operations are directly affected by government legislation and policy, which is constantly evolving. To understand government views and aims, as well as to present our views to government on relevant legislation, policy and issues, we strive to develop constructive relationships and maintain regular dialogue with national, regional and local governments in all countries where we operate.

In dealing with governments, we conduct ourselves according to high ethical standards. We do not, directly or indirectly, participate in party politics, nor make payments to political parties or individual politicians. We provide useful and accurate information and share our experience to help governments develop sound and appropriate policy and legislation. For example, we have been proactively and constructively engaging with EU institutions and government officials on the EU Emissions Trading Scheme Regulation in order to understand and address the scheme's impact on our assets and spur European industry competitiveness.

We also engage actively with civil society organisations where common interests and concerns exist, whether these are broad issues of policy with a global or national reach, or local issues that affect smaller communities around our operations.

Our approach to engaging with civil society reflects the risks identified. In key risk areas, we develop deeper and targeted relationships and programmes with selected civil society organisations that have common interests and are willing to engage with us. These include environmental NGOs such as the International Union for Conservation of Nature, BirdLife International and Fauna & Flora International. We also support academic institutions such as the Centre for Energy, Petroleum, Mineral Law and Policy at the University of Dundee and the African Leadership Institute's Archbishop Tutu Fellowship Programme.

We participate in a number of voluntary initiatives which provide platforms to engage directly with a variety of stakeholders on issues of common interest. We are active in the Extractive Industries Transparency Initiative (EITI) with one employee on the EITI board and several employees engaged in multi-stakeholder groups at the national level in countries like Mongolia and the US. We are a member of the United Nations Global Compact and are active in the Australian and UK UNGC networks. Some of these initiatives have grievance mechanisms which encourage dialogue between participants and stakeholders on critical issues. In 2015 we received a complaint from a stakeholder via the UNGC integrity measures raising concerns of possible breaches of UNGC principles 3 and 6 regarding freedom of association and elimination of discrimination in respect of employment. We are engaging constructively with the UNGC process and have responded promptly to the issues raised.

We strive to build enduring relationships with communities where we operate to make sure we manage our operations in a way that is consistent with community expectations. Read more about our engagement with communities in the Social section.

### Building capacity

Stakeholder engagement is core to the role of many of our employees. Enhancing our skills in stakeholder engagement is crucial to addressing the challenges we face in delivering growth and sustaining our social licence to operate. In 2011, we created our Stakeholder Engagement Academy, to help our people develop their capabilities in stakeholder engagement. It provides learning and development courses and resources for frontline project managers, leaders and stakeholder engagement professionals around the business. Both external academic providers and Rio Tinto practitioners are involved in delivering the courses. In total we have delivered 30 courses in 12 countries, with 841 employees having completed the course. We also have an online knowledge base available for all employees.



# Fast facts

## Americas



Rio Tinto Kennecott received the US National Mining Association's Sentinels of Safety Award

Resolution Copper has spent

**US\$13.9m**

with Native American businesses since 2004

Diavik's windfarm reduced the mine's diesel use by

**5.2m**

litres in 2015

**80%**

of our global Aluminium business's power mix comes from low carbon sources

## Europe and Africa

**US\$9.46m**

community contributions in Africa in 2015

Richards Bay Minerals' enterprise development programme has helped more than

**60 small and medium enterprises**

**US\$3.4m**

contributed to the Ebola response

**90%**

of the Rio Tinto Jadar team is Serbian

## Asia and Middle East



Oyu Tolgoi signed a Cooperation Agreement with its partner communities

To December 2015, Oyu Tolgoi has paid

**US\$1.3bn**

in taxes, fees and other payments to the Government of Mongolia



Received the Indonesian Government's "Caring Company Forest Reclamation" award for rehabilitation at the Kelian Mine

**70%**

of employees at the Bunder diamond project are from neighbouring communities

## Australia and New Zealand

**71**

driverless trucks bringing safety and productivity benefits

Indigenous employees represented approx.

**7.3%**

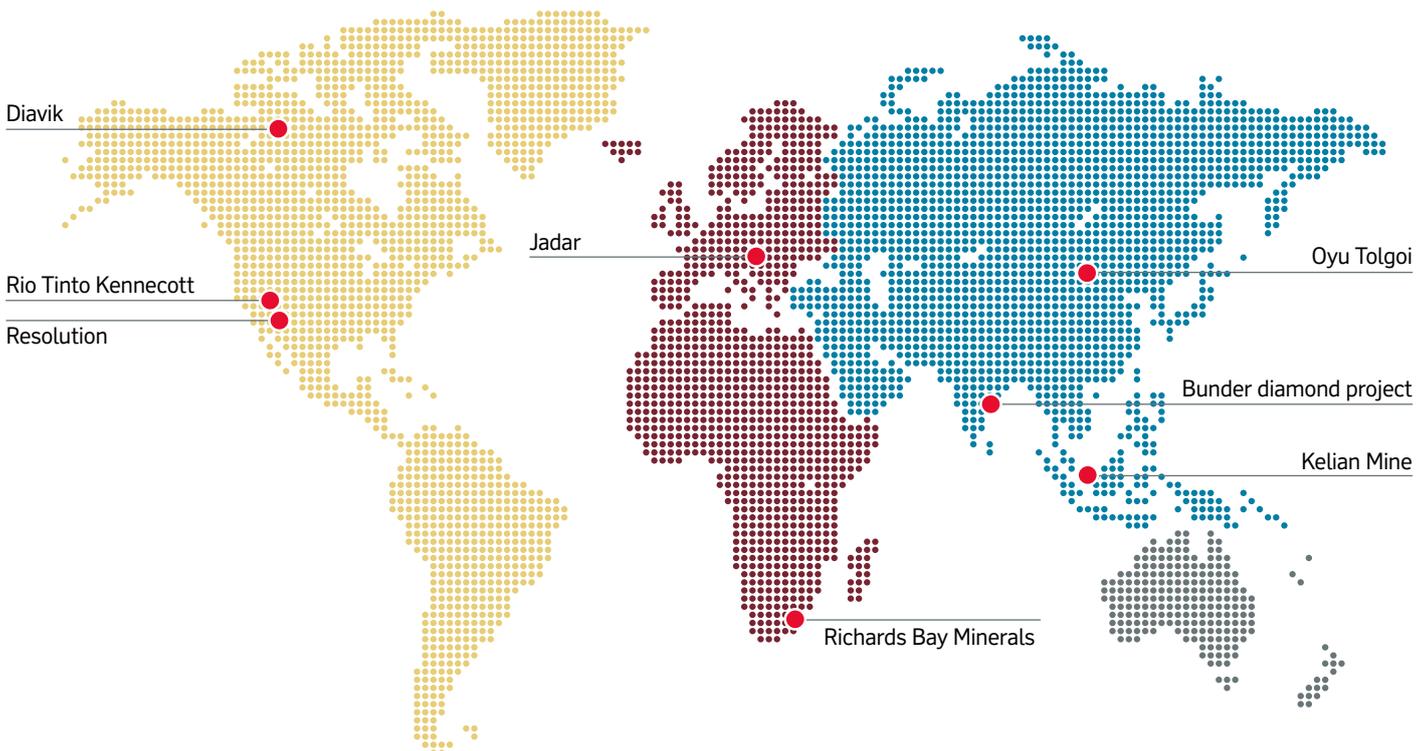
of our Australian workforce in 2015

**A\$22.5m**

committed to the Royal Flying Doctor Service in WA over 10 years

**R**

Signatory to the Recognise campaign in Australia



## Reporting what matters

Materiality is the guiding principle that ensures reporting is relevant, credible and focused on what matters. Our materiality process is in line with Global Reporting Initiative (GRI) guidance. It identifies the issues most important to our stakeholders and our business, and helps us better inform markets and society about our sustainability activities.

The process of issue identification involves:

- **Gathering information and opinions from stakeholders**  
In 2015, we consulted with investors, suppliers, industry groups, NGOs and peer companies. This combined with media reviews was used to assign an external rating for each issue.
- **Assessing the external impact of sustainable development issues**  
A materiality matrix was then created to plot external stakeholders' level of concern against the current or potential impact on our business and our compliance with policies and commitments.
- **Considering the importance of these issues for stakeholders**  
Each issue was given an impact rating of “low”, “medium” or “high”, from both internal and external perspectives in relation to our sustainable development performance. An impact can be either positive or negative.
- **Looking at their relevance to the mining and metals sector**  
We also consider other industries in addition to the mining and metals sector.
- **Evaluating the impact of sustainable development issues on our business**  
We evaluate the impact on our brand, relationships, production, ability to meet customer needs and the implications of non-compliance.

Issues that were highly material to both our external and internal stakeholders and at least high-to-medium are reported in the Annual report and in our [GRI report](#). The issues that meet the materiality threshold are linked to GRI aspects and we map the boundaries where impacts could occur.

The Sustainability Committee reviewed and approved the results of the assessment.

### Materiality matrix

Level of concern to stakeholders	High			Material issues reported in the Annual report
	Medium		Issues reported in the sustainable development website	
	Low	Issues addressed through direct communications, not reported in normal channels		
		Low	Medium	High
		Current or potential impact on our business		



## Material issues for 2015

We report issues that are of high importance to both us and our stakeholders in our Annual report, with topics of medium to high importance reported in this Sustainable development report.



### Social

- ★ Safety
- ★ Communities
- ★ Health
- ★ People

 [Go to the Social section of the SD report](#)



### Environment

- Air
- Biodiversity
- ★ Climate change
- ★ Energy
- ★ Waste
- ★ Water

 [Go to the Environment section of the SD report](#)



### Economic

- ★ Economic contribution
- ★ Non-managed operations and JVs

 [Go to the Economic section of the SD report](#)



### Governance

- Business resilience
- ★ Closure
- ★ Human rights
- ★ Business integrity
- Value chain

 [Go to the Governance section of the SD report](#)

 Issues of highest materiality reported in the Annual report



Social



# Building trust and solid relationships

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Image: Rio Tinto works with our local communities to make a positive, lasting difference.



## Focus on fatality-free

An unrelenting focus on everyone going home safe and healthy every day drives our safety performance at Rio Tinto.

### Approach

Our safety strategy focuses on three core areas: eliminating fatalities, reducing injuries and preventing catastrophic incidents. Strong and engaged leaders are essential to building a positive safety culture. They accept accountability for safety and set high standards through their behaviour. Teams implement and follow our safety risk management systems and processes rigorously. Work is stopped if it is not safe, and innovation drives safety improvement.

Our Group-wide safety standards are fundamental to our safety practice. During 2015, all the standards were reviewed to ensure they cover critical risks and reflect best practice. The revision included the update of the management of tailings and water storage facilities standard. We also introduced a dedicated safety standard to manage process safety hazards, including catastrophic events such as explosions, fires, or the loss of containment of toxic materials.

In 2015, critical risk management (CRM) started being implemented in all Group operations. CRM focuses on identifying critical risks and verifying critical controls. For each critical risk there are a series of controls that must be in place, and working, to prevent an incident. Managers, superintendents, supervisors, maintainers and operators are all involved in checking the controls.

### Results

In 2015, fewer people were injured in our business than ever before. Our all injury frequency rate (AIFR), which includes data for employees and contractors, was 0.44, the lowest rate in our company history. During the past five years we have reduced AIFR by 34 per cent. Our lost time injury rate (LTIFR) was 0.25 per 200,000 hours worked.

Tragically, we did not achieve our goal of zero fatalities. Four people lost their lives while working at Rio Tinto managed operations. Todson Rafaralahiniriko drowned when his excavator became submerged in a tailings pond due to slope failure at QMM Madagascar. Themba Thusi was killed in a vehicle roll over incident at Zululand Anthracite Colliery in South Africa. Luc Trudel died while doing high pressure hose cleaning at Rio Tinto Fer et Titane in Canada. Mohamed Lamine Cherif drowned when his truck was submerged when a bridge collapsed on a public road near the Simandou project in Guinea. These terrible events affect families, friends and colleagues forever. We provide counselling and support to those who have lost loved ones.

In 2015, we improved the way we learn from serious incidents such as fatalities or potential fatalities. We piloted a structured process at 12 sites to support effective learning and prevent these serious incidents being repeated. This approach to learning critical lessons will be extended to all Rio Tinto operations in 2016. The quality of incident investigation has also been improved.

More than 50 sites started implementing CRM during 2015. All other sites are on track to have started deployment by the end of the first quarter of 2016. Using the CRM approach, teams identify gaps in critical controls before work commences, and then work together to fix these. CRM complements our existing standards and risk assessment processes to eliminate fatalities.

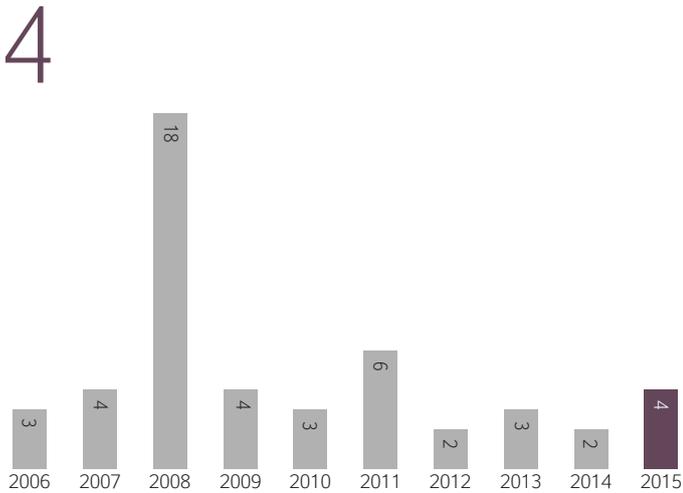
In 2015 we undertook an analysis to build a deeper understanding of the fundamental process hazards, risks and critical controls. We have also reviewed our occupied buildings for potential exposure to any catastrophic process safety risk. All temporary occupied buildings in high process safety hazard zones have been moved.



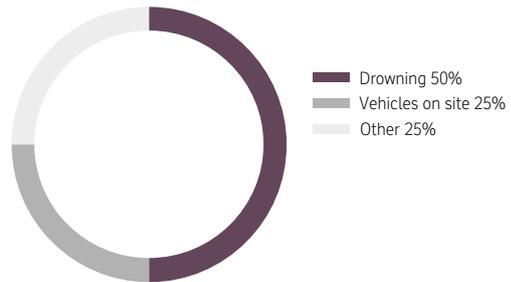
## Facts & figures

### Fatal incidents

Number

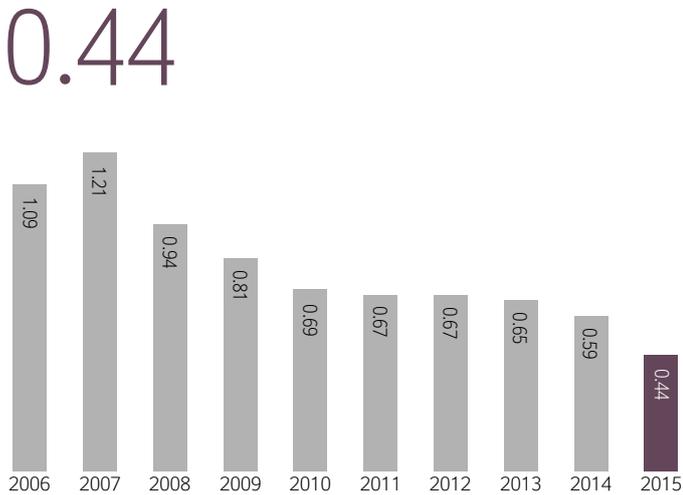


### Types of fatal incidents



### All injury frequency rate

Per 200,000 hours worked



See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)



# Communities and regional development

## Forging strong and lasting community relationships

We strive to build strong and lasting relationships with the communities where we operate.

Our relationships with local and regional communities are a key part of our projects and operations. We recognise and respect the cultures, lifestyles and heritage of our neighbours. By understanding the social, environmental and economic implications of our activities we can maximise the benefits and reduce any negative impacts.

We can't meet everybody's concerns and expectations, but wherever we are we aim to operate with broad-based community support.

### Approach

We use a number of tools and resources to guide our interaction with communities. We work from a common Communities and Social Performance framework which is based on building knowledge, engaging with communities and developing mutually beneficial programmes. *The way we work*, our global code of business conduct, provides the foundation of our Communities and Social Performance work, including resettlement. Our Communities policy and standard provide the framework for measuring our performance, and our guidance notes describe preferred worksite practices.

We also refer to external policies such as the International Finance Corporation's (IFC) Performance Standards on Environmental and Social Sustainability, and support the International Council on Mining and Metals' position statement on Indigenous Peoples and Mining.

Our work on the ground varies according to the local context. However, some common themes are:

### Cultural heritage

We recognise and respect the cultural heritage of all communities in which we operate, particularly that of Indigenous Traditional Owners who have close connections to land. We consult with local people to ensure the protection of their cultural heritage sites and values.

In 2011, we published *Why cultural heritage matters* to help our managers, employees and contractors understand why we value cultural heritage in our operations and how to effectively manage it.

### Community agreement-making

During the past 20 years we have negotiated agreements with land-connected host communities to gain access for exploration (land access agreements) and to develop mining operations (mine and regional development agreements). These agreements allow us to manage the shared risks, responsibilities and benefits, while also offering security to plan our future operations in strong, prosperous regions. The agreements provide beneficiary payments, and deliver social and economic outcomes. Most, but not all, of our community agreements are with local Indigenous communities.

We make sure that the community groups entering into agreements have access to independent advice and expertise when negotiating with us. Agreements arising from this process are evidence of Free, Prior, and Informed Consent (FPIC) as defined in IFC Performance Standard 7, although we prefer to secure what we call broad-based, free, prior, and informed support.

### Build knowledge

#### Baseline communities assessment

- Understand key social environmental and economic factors
- Gather data on demography, labour market, education profile and family and individual wellbeing
- Understand the current or potential impact of the business
- Identify potential risks and opportunities

### Engage

#### Build relationships and partnerships

- Build relationships and partnerships with government agencies, community and non-government organisations, academics and other corporate entities
- Agree needs and ensure these are mutually understood and accepted
- Base partnerships on respective expertise and collaborative inputs

### Develop

#### Develop communities programmes

- Programmes should reflect baseline assessments and consultation
- Programmes cover educational, health or livelihood initiatives and provide local employment, small business and contractor opportunities
- Programmes should build long-term local skills and knowledge
- Initiatives undertaken should encourage self-help and avoid dependency



# Communities and regional development

## Gender

Women in communities often bear more of the burden of change brought about by mining and other developments. Recognising the importance of understanding the social dynamics of relationships between men and women, we have developed a comprehensive guide, *Why gender matters*, to help our people better manage the gender considerations of communities work.

## Human rights and communities

In 2011, the UN published its Guiding Principles on Business and Human Rights. This is now the global standard for preventing and addressing the risk of adverse human rights impacts linked to business activity. The Guiding Principles are based on shared responsibility between the State's "duty to protect" and the business's "responsibility to respect".

To help our people understand their responsibility, in 2013 we produced *Why human rights matter* - a guide for integrating human rights into communities and social performance work. The guide was translated into multiple languages and widely distributed within Rio Tinto and to external stakeholders. It is available on the Rio Tinto website, as well as those of our partners and stakeholders including the University of Queensland's Centre for Social Responsibility in Mining, the Danish Institute of Human Rights, and the Business and Human Rights Resource Centre.

## Resettlement

The resettlement and economic displacement of people and communities can have significant impacts. Well-planned and well-executed resettlement and compensation can contribute to positive long-term relationships between Rio Tinto and our host communities.

We explore all viable alternative project designs to minimise the need to resettle individuals and communities. We only resettle people or displace existing economic activity where it is unavoidable.

We do not view resettlement as a short-term relocation activity. Our goal is to improve the livelihoods of those resettled and their future generations over the long term. Our intention is that resettled people will be better off over time – according to their own assessment and external expert review.

Maintaining and rebuilding social capital (the economic value derived from being in a social group) is an important aspect of resettlement planning and implementation. We recognise the importance of social and family networks, and the cultural and religious fabric of societies. Wherever possible, we resettle communities as groups to minimise cultural and social impacts.

We carry out early and ongoing consultation with those affected, and provide opportunities for the community to participate in planning and implementing resettlement programmes. We work with community representatives to establish a mutually agreed format for communication, consultation and engagement. We establish a complaints, disputes and grievance procedure, with the intention of collecting and resolving complaints in a timely way.

Major social changes such as resettlement can impact women and children disproportionately and so we involve women in the resettlement decision-making, planning and implementation.

We compensate for economic displacement in a transparent and fair way, and all compensation is publicly declared. We provide compensation that is equal to what is required by law and we aim to reach agreement with host communities on the methodology for calculating compensation. Although it can be challenging to calculate, we consider the loss of social capital as a key aspect of compensation. Where possible, we provide compensation in forms other than cash so that long-term goals and livelihood improvements can be achieved.

## Local procurement

Rio Tinto is an industry leader in the development of local procurement strategies and engaging local, and in particular, Indigenous suppliers. The Group has a strong record of collaborating with Indigenous and non-Indigenous suppliers to create opportunities for economic participation. In a time of challenging market conditions and with the company's overall drive to reduce costs, Rio Tinto is working with its local suppliers to support improved operational efficiency and continued supplier capacity-building.

## Results

In 2015 the Communities & Social Performance (CSP) global practice rolled out a revised CSP standard complete with revised guidance notes. The updated CSP standard reflects new Group commitments and changes in external CSP global performance practices and principles. The updated standard responds to the Group's material and strategic risks by focusing on achieving community approval and land access, increasing partnerships and minimising communities' incidents.

In addition to the new CSP standard, a new CSP global target was adopted in 2015. The new target requires that from 2016 all operations will locally report on an annual basis and demonstrably achieve by 2020:

- Progress against a locally defined target that demonstrates the local\* economic benefits of employment and procurement of goods and services.
- The effective capture and management of community complaints, with a year-on-year reduction in repeat and significant complaints.

In December 2015 Rio Tinto organised a Group-wide workshop to discuss collaboration with local and Aboriginal suppliers. The workshop allowed participants to share best practice across product groups and functions. This included identifying opportunities for improving our business resilience while also strengthening the regional economies where we operate.

The Iron Ore team in Canada coordinated an Aboriginal Business Exchange with Diavik Diamond Mines (DDMI) and some of their key Aboriginal service providers. The exchange was aimed at sharing best practice, and supporting the development of local Aboriginal business initiatives. The sessions involved formal presentations from DDMI and their Aboriginal business partners focused on:

- Successes within Diavik's approach to developing strong partnerships with Aboriginal businesses.
- How industry can support local Aboriginal business development.
- How Aboriginal businesses can benefit from the mining industry.

In 2015 we announced a partnership with Indspire, a charity supporting Indigenous education across Canada. Rio Tinto has contributed C\$1 million towards the Rio Tinto Award for Indigenous Students, which is designed to support Indigenous students in pursuing a post-secondary education.

\* local as defined by the business



## Communities and regional development

The American Exploration & Mining Association (AEMA) awarded its [2015 Environmental Excellence Award](#) to Rio Tinto for our work cleaning up the historic Holden Mine site in Washington State, US. In awarding Rio Tinto, AEMA recognised our state-of-the-art techniques, as well as our commitment to the environment and local communities: “Rio Tinto’s care to ensure that this remote and logistically challenging legacy site is made safe, that all problem areas are addressed, and that there is a substantial socioeconomic future for the community, together with a minimised aftercare burden, demonstrated the company’s commitment to environmental excellence.”

Rio Tinto is also exploring how the presence of a diamond mine at Bunder might benefit India’s Madhya Pradesh state - one of the most economically and industrially underdeveloped regions in the country. In acknowledgement of our work in this area, the Bunder project was awarded a “Commendation for Significant Achievement” in the CII - ITC Centre of Excellence for Sustainable Development’s 2015 Sustainability Awards. This is one of the most prestigious sustainable development awards in India.

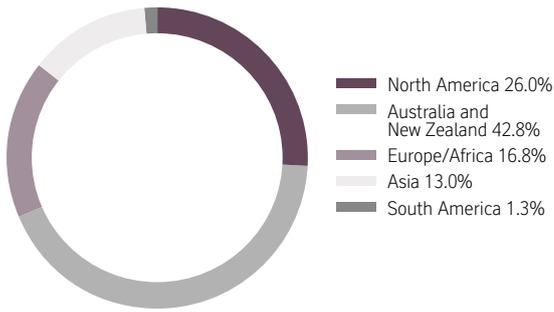
Rio Tinto was recognised for its approach to human rights by the independent NGO Business & Human Rights Resource Centre (BHRRC). In an interview with the charity Human Rights at Sea in January 2016, deputy director of the BHRRC Mauricio Lazala highlighted Rio Tinto as a best practice example of adopting and integrating the United Nations Guiding Principles on Business and Human Rights across the business: “We have many examples of best practices on our website. Three good examples are Adidas, Microsoft and Rio Tinto, three large multinationals from three very different sectors, adopting and integrating the United Nations Guiding Principles throughout their operations.”

During 2015, our business contributed to approximately 1,800 socioeconomic programmes covering a wide range of activities such as health, education, environmental protection, housing, agricultural and business development. In 2015, we spent US\$184 million on these community contribution programmes. There was a decrease in overall community contributions of 30 per cent compared to 2014. This result reflects a reduction in overall business unit expenditure in prevailing market conditions. This includes reduced agreement related payments arising from lower production and less land disturbance.

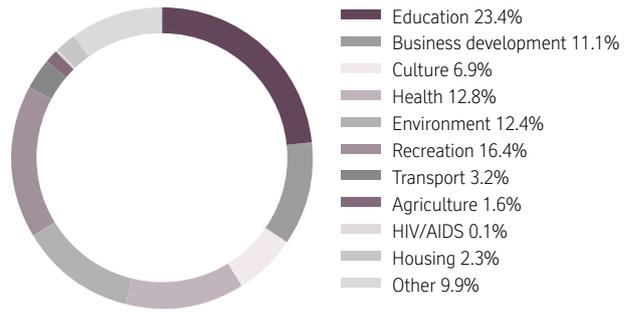


 Facts & figures

Community contributions by region



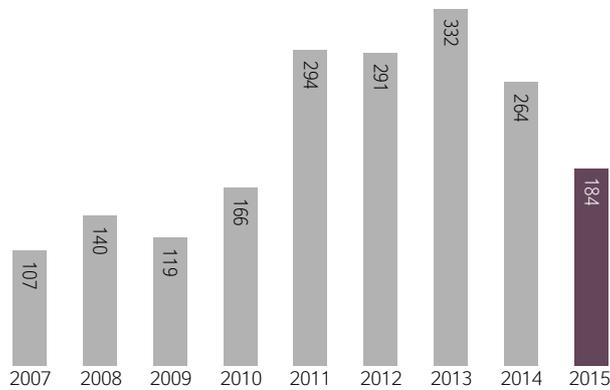
Community contributions by programme type



Community contributions

US\$ million

184



 See our performance in the interactive charts [www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)



## Keeping our people healthy

Our goal is to not only protect the health of our people, but also encourage their wellbeing.

Our health standards help us to look after our people by identifying key work-related health risks, and the actions required to prevent or minimise those risks. The types of health issues we need to manage include exposure to chemicals and hazardous substances, radiation, noise, musculoskeletal disorders, and vector-borne and infectious diseases.

The nature of workplace illnesses in our industry is also changing. The increasing prevalence of health conditions such as stress, fatigue and obesity mean we now face different challenges to traditional mining health issues. Our health vision outlines the areas we focus on in relation to these challenges.

### Health vision

#### Occupational health

Measuring and monitoring the work environment and our workers to control the occupational health risks in our businesses

#### Fitness for work

Detecting and managing human conditions (eg fatigue, mental disorders) and non-communicable diseases (eg diabetes, obesity, heart disease) that can impact worker safety

### Health vision

#### Medical emergency response

Providing ongoing support for medical and pandemic preparedness for emergency response and/or evacuation

#### Vector-borne and infectious disease

Ongoing support to our businesses in the management of such diseases as malaria, dengue, HIV, TB

## Health

### Approach

We treat an illness as occupational if the conditions in our workplace are thought to be either the cause, or to worsen it. Our workplace does not have to be the only cause.

In 2015 we rolled out our simplified health standards, which we revised in 2014. These updated standards focus on the most critical work-related health risks, and allow us to manage them more consistently across our Group. We have also prepared procedures, audit protocols, guidance documents and training modules to help our businesses implement the new standards.

Continuous improvement is an important part of our health management approach. We regularly audit the implementation of our health standards to make sure they're consistently applied and to identify opportunities to share best practice. We'll begin to report our performance against the new health standards from 1 July 2016.

Each year we report our performance against our Group health targets. These are:

- A year-on-year improvement in the rate of new cases of occupational illness per 10,000 employees.
- By the end of 2015 all managed operations will have reviewed – and increased their focus on managing – their health risks, through implementation of critical control management plans (CCMPs) to address their specific material health risks.

Prevention is also central to our approach. We use specialist technology to monitor our employees' exposure to potentially hazardous agents, and assess possible effects of these on their health.

All of our operations are different. Factors like type of resource, location, and the type of work carried out mean that each site has its own set of risks. This means our health programmes need to consider the local factors affecting our people, and ensure that resources are directed to those risks most relevant to their site. To achieve this, our businesses need to develop and implement CCMPs.

### Critical control management plans

Critical control management plans (CCMPs) help each of our individual sites to manage the critical health risks that are specific to their operations.

Our site teams are trained to identify and assess critical health risks, and the types of controls needed to manage these risks. CCMPs are developed and implemented for these risks, with performance measures and targets established for each critical control.

This approach allows our businesses to focus their resources on the specific health risks that are relevant to their sites.

### Focus areas

#### Noise

Heavy equipment tends to be noisy, and so noise-induced hearing loss is still an issue for us. Although achieving further reductions in noise exposure will be challenging, we're committed to looking for ways to improve our performance. This includes engineering solutions, as well as considering alternative ways of doing our work with reduced noise levels. We have a noise "community of practice" to share learnings and help develop more effective noise improvement strategies.

### Musculoskeletal disorders

Musculoskeletal disorders (for example back aches and muscle strains) remain a common form of occupational injury and illness despite advances in technology which have reduced the physical demands on our employees. In some of the countries where we operate, musculoskeletal conditions and heart disease are more prevalent due to an ageing workforce. We continue to look for ways to engineer out heavy lifting tasks. This includes reviewing different ergonomic solutions to see if they can be applied to our operations. We also use specialised computer programmes to improve the assessment and sharing of controls for manual handling risks.

### Stress and fatigue

Our health data shows that stress and fatigue are becoming more common. This is perhaps in part because we are becoming more effective at identifying and understanding these factors in the workplace. Across many industries, the potential for mental health problems to lead to short and long-term disability, employee turnover and occupational injuries is becoming better understood. We are taking a closer look at what is being done both within and outside Rio Tinto to help improve our response to these issues.

We consider fatigue as a critical risk to our employees' safety and health, and continue to introduce proactive measures to address both individual and organisational risk across the Group. This includes technological advancements such as "SmartCap", which monitors a worker's level of alertness in real time.

### Vector-borne and infectious diseases

Where we have operations in regions with a generalised HIV epidemic (as defined by UNAIDS) we actively encourage all employees to know their HIV status through voluntary testing. Each worker can then take steps to remain infection-free if negative, or avoid spreading the infection and quickly access the appropriate support and treatment if positive. We have had an HIV standard in place for several years, which has helped our workplaces to achieve HIV prevalence rates significantly lower than in surrounding communities.

Employees who are infected with HIV have reduced immunity and are at increased risk of developing tuberculosis (TB), which often leads to death when no treatment is available. We are currently working to raise the profile of TB in high-prevalence areas and have included TB in our revised health standard. The new standard requires that employees are given access to an integrated HIV/AIDS and TB management programme.

Malaria remains a significant problem in many developing countries, primarily in Sub-Saharan Africa (60 per cent of clinical cases and 80 per cent of global deaths), Latin America and Asia. Malaria is a significant health risk for employees based in affected regions and for those seconded or travelling to operations located in endemic areas. We have improved our Group-wide malaria management framework, including it in our revised health standards, and we continue to support our businesses in developing effective local malaria programmes. In terms of on-the-ground support, a malaria hotline has been made available to employees 24 hours per day, seven days per week. The hotline provides advice on the signs and symptoms of malaria, as well as on general preventative measures. We advise expatriates and visitors to areas where malaria is prevalent to take prevention medication.

The success of our infectious disease programmes will ultimately be influenced by the ability of surrounding communities to develop effective prevention and treatment responses. We are committed to helping these communities manage diseases such as HIV/AIDS, TB and malaria. As part of this, we work with government agencies, non-governmental organisations (NGOs), and relevant local organisations to deliver community health programmes. We have also worked with the International Council on Mining and Metals (ICMM) and other major mining associations to produce practical guidelines for the industry to improve the management of these diseases.



## Health

International travel, particularly to developing countries, can pose health risks that can result in serious illness and even death. Health risks may arise in areas where accommodation is of poor quality, hygiene and sanitation are inadequate, medical services are not well developed, and clean water is not available. Pre-travel medical checks are offered to business travellers at most of our key locations. Post-assignment medicals are offered to our people returning from high-risk locations. We also make sure there are adequate on-site medical facilities at our remote sites, as well as a medical emergency response and evacuation plan.

### Results

We are targeting a year-on-year reduction in the rate of new cases of occupational illness per 10,000 employees. We exclude operations that were divested or flagged for divestment during 2014/15 from our target. Ongoing reductions in new cases of occupational illnesses will require further improvements in the management of the risks posed by key hazards. These include manual handling and noise exposure, as well as supporting healthy lifestyles through workplace wellbeing and stress management programmes.

In 2015, the rate of new cases of occupational illness increased by 78 per cent from 2014. A number of factors have contributed to this increase:

- the change to the US Occupational Safety and Health Administration standards reporting criteria for noise-induced hearing loss;
- better awareness of surveillance and reporting requirements; and
- an improving health management culture.

The main types of occupational illnesses recorded are related to noise-induced hearing loss (42 per cent), stress (26 per cent) and musculoskeletal disorders (24 per cent).

Lung diseases related to long-term dust exposure are now rare in our workforce, which shows our dust and fume control programmes are working. We have also reduced the number of new cases of occupational asthma at our aluminium smelters, with no new cases during the period 2012 to 2014, although we did have one new case in 2015.

We continue to work on reducing radiation exposure to as low as reasonably practicable. For more than a decade our monitoring has not recorded any employee above our 20 milliSievert (mSv) annual exposure limit. Rio Tinto's exposure limit is well below the annual 50mSv and five-year 20mSv limits advised by international protocols.

We began an epidemiological study in relation to the long-term health impacts of radiation on employees at the Rössing mine in Namibia. The study is being conducted by independent experts from the University of Manchester. The final results will be published in a peer-reviewed journal and our own communication channels.

In 2015, we created online forums to support the management of mental health and fatigue risks for our workers. These forums allow sharing of internal and external best practice information, education and tools from across our different product groups. These include the mental health training for leaders and our mental health management framework.

At the end of the 2013-2015 target period, we fell just short (96 per cent) of meeting our target of 100 per cent of our managed operations having identified their critical health risks and commenced implementation of CCMPs. Based on our progress, we believe that by 2017 all managed operations will have fully implemented their approved CCMPs and will be able to confirm their controls are effective.

Our wellbeing programmes continue to encourage our employees to take an active interest in their health. We have seen these types of initiatives increase participation in skin cancer checks and blood pressure screening, therefore helping to identify high risk cases and prompting employees to seek urgent medical advice on potentially life-threatening conditions.

We established the Rio Tinto Business Resilience Team (BRT) in response to the Ebola outbreak in 2014. The team partnered with the Guinean government, the World Health Organization and other international organisations to respond to the crisis. We continue to educate our employees and local communities about the disease and prevention methods, and continue to provide support as needed. We keep up to date on developments in relation to vaccines and experimental treatments, and will consider their use for any subsequent outbreak.

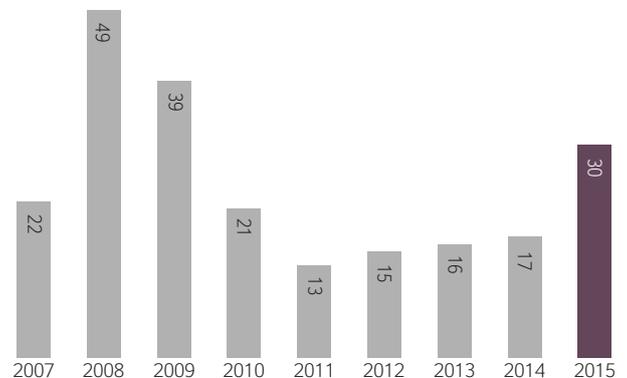
The number of medical emergency cases among business travellers and international assignees decreased by 29 per cent in 2015 compared with 2014 (191 cases in 2014 and 148 in 2015). The most common causes for medical emergencies among our business travellers and international assignees in 2015 were gastrointestinal disorders and musculoskeletal injuries. There were 13 emergency medical evacuation cases in 2015.

## Facts & figures

### New cases of occupational illness

Per 10,000 employees

# 30



See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)



## Building a diverse and engaged team

A diversity of skills, ideas and experience will help us find innovative responses to the challenges we face as a business. We are committed to building a culture which is inclusive and empowering for people of all kinds.

### Approach

Our People strategy guides how we attract, develop, engage and retain talented people. It's focused on fostering inclusion and diversity, offering exciting work and development opportunities, rewarding good performance, and providing quality leadership at every level.

Our employees' diversity of skills, ideas and experience helps to ensure that we can find innovative responses to the challenges our business faces. We encourage an inclusive culture, in order to use our diversity fully, to build cohesiveness and to raise performance.

We are focused on increasing the representation of women in our business, and achieving a better balance of gender in the short term, and of ethnicity and nationality in the medium term. We are also focused on developing a more diverse leadership team. This involves developing local nationals in emerging regions to ensure they have the capabilities and experience to lead our operations.

Where we can, we prefer to employ local candidates. Where local capacity does not meet our requirements we work in partnership with local communities and government to implement programmes that develop skill levels and work readiness. We help Indigenous people participate in the local economy through various strategies, including employment and learning programmes.

Our Group diversity targets for 2016 reflect these focus areas:

- Women to represent 20 per cent of our senior management.
- Women to represent 40 per cent of our graduate intake.
- Fifteen per cent of our graduate intake to be nationals from regions where we are developing new businesses.

Transparency is part of our everyday work ethic. We conduct and act on formal surveys that give our employees the opportunity to provide feedback on their experiences of our business and working environment. We also provide *Speak-OUT*, a confidential and independently operated whistleblowing service for our people to bring any concerns to the attention of senior management.

We continue to have a strong focus on building the skills and capabilities of our people at all levels within the Group. Our activities are based on an analysis of the technical, functional and leadership skills required for each role. "Leading at Rio Tinto", our leadership framework, provides employees with the key competencies and behaviours we expect from our leaders.

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, and enable employees to articulate their career aspirations. We offer our employees a rounded reward package – the principles of which are consistent across the Group. These principles are designed to be competitive, in compliance with all applicable laws and regulations, and to appropriately balance fixed pay with variable pay linked to performance.

To ensure the long-term sustainability of our business, we need to operate efficiently throughout market cycles. Labour productivity, or the efficiency of our people to safely generate output, continues to be a focus for us. This year, in collaboration with the Technology & Innovation (T&I) team we have:

- Improved the capability of our Human Resources and operational leaders to pursue labour productivity improvements in our operations. This was implemented via e-learning and face-to-face courses.
- Established standardised metrics for labour productivity and developed a reporting solution for use by leaders in our business.



## People

### Results

In 2015, we employed 55,000 people, including the Group's share of joint ventures and associates. Of these, approximately 29,000 were located in Australasia, 16,000 in the Americas, 7,000 in Africa, and 3,000 in Europe.

Although we made an improvement of 2.6 percentage points from 2014, we did not meet our diversity goal for women to represent 20 per cent of senior management by 2015. In 2015, women represented 43 per cent (female: 40; male: 53) of our graduate intake, 25 per cent (female: 3; male: 9) of the board, 18.1 per cent (female: 108; male: 490) of our senior management, and 18.5 per cent (female: 9,237; male: 40,818)<sup>(1)</sup> of our total workforce. 33.3 per cent of our graduate intake in 2015 comprised nationals from regions where we are developing new businesses.

Throughout 2015 we remained one of the largest private sector employers of Indigenous Australians, with more than 1,500 full-time Indigenous employees, representing approximately 7.3 per cent of our permanent Australian workforce. Further to our permanent Indigenous workforce we also had additional Indigenous contractors working on our Australian mine sites. Our local employment commitments are often managed through directly negotiated agreements with Traditional Owners.

Good communication and open, honest dialogue are vital to meeting our employees' expectations. Rio Tinto's culture of leader-led communication and engagement is supported by a number of communication tools. These include myRioTinto, a portal dedicated to employment needs, and keeping employees regularly informed of Group updates, news and announcements.

Following on from the 2014 Global Employee Survey, product groups and functions have continued to track and report on the progress of their action plans which were based on findings from the survey. These plans support programmes and activities already under way and which are part of the overall business transformation.

In 2015, 510,143 attendances were recorded for training in leadership, technical and operational skills, and health, safety, and environment courses across the business. We also have a Group graduate development framework in place. This provides the foundation for the development of our graduates during their two-year programme through a combination of both on-the-job learning and online learning modules.

(1) Gender distribution for our total workforce is based on managed operations (excludes non-managed operations and joint ventures) as of 31 December 2015. Less than one per cent of the workforce gender is undeclared.





# Environment



## Seeking more environmentally sustainable ways

### In this section

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Image: Water quality monitoring at Diavik Diamond Mine, Canada.



# Managing our air emissions

Our operations involve burning fossil fuels, moving ores and wastes, and smelting metals which release gases and particulates into the atmosphere. We continually look for ways to improve our performance, and apply controls to avoid or minimise related health or environmental impacts.

We constantly review our emissions and apply strict air quality control standards across our operations, and in accordance with regulatory requirements. We also monitor particulate gas and vapour exposure in the workplace, in line with our occupational health standards.

## Approach

Tightening regulatory constraints and changing societal expectations in relation to air emissions present challenges for our business globally. While some emissions will always be inevitable because of the very nature of our mining and smelting operations, we realise we need to improve our performance. In 2015, we implemented our significantly revised air quality protection standard which sets high performance expectations on our operations. It aims to:

- prevent breaches of applicable criteria under normal and reasonable worst-case operating and meteorological conditions, to protect human health and the environment;
- control our air emissions at their source; and
- understand our contribution to local airsheds.

We support its implementation at all our managed businesses with extensive guidance and regular assurance auditing. We believe this is the best way to meet these challenges while still providing a valuable contribution to society through the products we supply.

There are four major air emissions from our operations. We also report mercury air emissions at Group level. To calculate our emissions, we use the direct measurements, engineering calculations or methods for estimating emissions published by the national regulators in countries where we operate. Where emission factors are used, we typically use those published by the Environmental Protection Agency (US), Department of the Environment (Australia) or Environment and Climate Change Canada.

## Results

### SO<sub>x</sub>

Oxides of sulphur (SO<sub>x</sub>) emissions are mainly generated at our aluminium and copper smelters and our coal and fuel oil fired power stations.

In 2015, our operations emitted 85.7 thousand tonnes of SO<sub>x</sub> gases to the atmosphere, a decrease of 32.5 thousand tonnes compared with 2014. Most of this reduction resulted from the refinery curtailment at our Gove operations.

Emissions from stationary sources such as smelters, refineries, roasters and concentrators (SRRC sources) and power stations continue to account for the majority of our emissions (99 per cent in 2015).

### NO<sub>x</sub>

Oxides of nitrogen (NO<sub>x</sub>) come from burning fossil fuels.

During 2015, total NO<sub>x</sub> emissions were 67 thousand tonnes, a decrease of 8 thousand tonnes from 2014. This was the result of a change in measurement methodology at Rio Tinto Marine. Emissions from stationary sources accounted for 18.4 thousand tonnes, with 48.58 thousand tonnes being emitted from mobile sources.

Oxides of nitrogen (NO<sub>x</sub>, a combination of NO and NO<sub>2</sub>) emissions are expressed as equivalent nitrogen dioxide emissions (NO<sub>2</sub>).

### Fluoride

Particulate and gaseous fluoride emissions are generated in aluminium smelters when converting alumina to aluminium, and to a lesser extent from processes that consume coke and coal. In 2015, our aluminium smelters contributed 98.2 per cent of our 2,288 thousand tonnes of fluoride emissions. This was a decrease of 902 tonnes from 2014 due to operational improvements at one of our smelters.



### Particulate emissions

Particulates less than ten micrometres in diameter (PM<sub>10</sub>) are released from our mining activities, metal manufacturing processes, and power stations.

In 2015, we released 93.8 thousand tonnes of PM<sub>10</sub>, a decrease of 8 thousand tonnes from 2014. Emissions in 2015 were:

- 87.5 thousand tonnes from fugitive sources such as wind blowing on stockpiles, loading and unloading stockpiles, vehicles operating on unsealed roads and our blasting activities.
- 6.35 thousand tonnes from our smelting, roasting, refining, concentrating and other stationary sources.

## Facts & figures

NO<sub>x</sub>

8,500t

■ SRRC POINT SOURCES

9,900t

■ OTHER POINT SOURCES

48,600t

■ MOBILE SOURCES

SO<sub>x</sub>

80,000t

■ SRRC POINT SOURCES

5,200t

■ OTHER POINT SOURCES

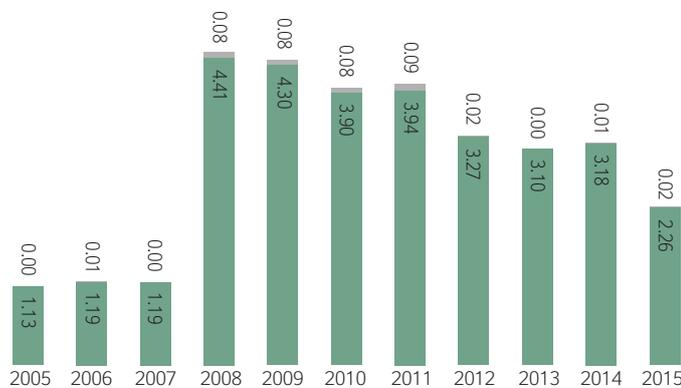
540t

■ MOBILE SOURCES

### Fluoride emissions

'000 tonnes

2.28



■ SRRC point sources

■ Other point sources

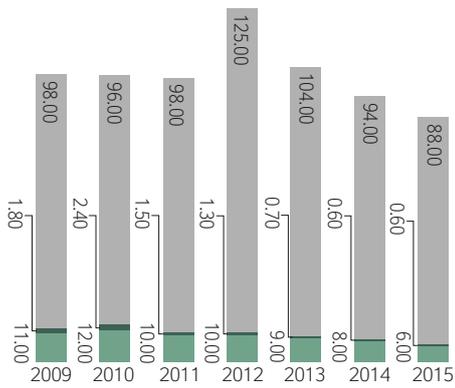
Values presented elsewhere may not match due to rounding.



 Facts & figures

**Particulate (PM<sub>10</sub>) emissions**  
'000 tonnes

94.6

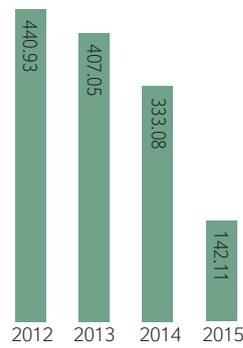


SRRC point sources    Other point sources    Fugitive sources

Values presented elsewhere may not match due to rounding.

**Mercury emissions**  
kg

142.11



Mercury emissions



See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)



## Managing our biodiversity impacts

The rate of biodiversity loss is a global concern. The growing human population competes with habitats containing the world's remaining biodiversity, and a changing climate is straining ecosystems further. Our business has a strong conservation ethic and we acknowledge our responsibility to manage our biodiversity impacts.

By its very nature, our business must access and disturb large blocks of land. We recognise biodiversity as a risk that we need to manage that constrains where and how we conduct our operations.

### Approach

We control biodiversity risks and impacts through a structured management programme described in our publication [Rio Tinto and biodiversity](#).

The mitigation hierarchy is central to our approach. As an active participant in the Cross Sector Biodiversity Initiative (CSBI), we supported the development of CSBI's flagship publication [A cross-sector guide for implementing the mitigation hierarchy](#).

A fundamental principle in the mitigation hierarchy is avoidance. This entails changing or stopping certain actions before they take place to prevent their expected impacts on biodiversity. This can be simple as rerouting the alignment of a new haul road, or as significant as refraining from developing a deposit.

Avoiding impacts on the rich flora and fauna of the north Kimberley region of Western Australia was an important consideration in our decision in March 2015, along with our joint venture partner Alcoa, to relinquish the rights to mine and process bauxite in the Mitchell Plateau. This will allow more than 175,000 hectares of land to be included in the proposed Kimberley National Park.

Under the mitigation hierarchy, when avoidance is not possible we identify measures aimed at minimising impacts and implementing best practice rehabilitation programmes. If the predicted residual impacts are still considered significant, then offsetting measures are developed.

Working with others in the natural resources sector is an important part of our approach. We continue to reach outside the business for expert advice and robust challenges to our programme and performance. In 2015, we agreed to a three-year extension to our agreement with the International Union for Conservation of Nature. We gratefully acknowledge the important contributions of BirdLife International and Fauna & Flora International in our biodiversity management journey as we bring our partnerships with these leading international conservation organisations to a close.

In 2015, as part of our partnership with IUCN and in collaboration with Shell and The Nature Conservancy, IUCN published [case studies](#) describing the business and conservation cases for net positive impact (NPI). IUCN also organised and led a workshop bringing together leading voices from the conservation community to consider when and how out-of-kind offsets might be considered in voluntary compensation programmes. An IUCN publication will follow in 2016.



## Committed to effective biodiversity management

In 2004, we publicly stated an aspiration of having a net positive impact (NPI) on biodiversity. We have described this as minimising the impacts of our business and contributing to biodiversity conservation to ensure a region ultimately benefits from our presence.

There is little argument that NPI is an ambitious goal for a business as large and diverse as Rio Tinto, particularly given that accounting for biodiversity losses and delivering and measuring biodiversity gains is still an emerging science. We continue to face challenges to fully deliver on our aim, including:

- Limited opportunity for conventional, in-kind offsets in pristine habitats where we operate.
- Growing scientific understanding of the centuries-long timeframes needed for biodiversity to be restored.
- Competing priorities associated with the costs of meeting restoration and offset objectives and other financial imperatives in the business.
- Prioritising site-level biodiversity actions and expenditures when commercial benefits accrue to future projects.
- Communicating successes, challenges, and failures inside and outside the business.

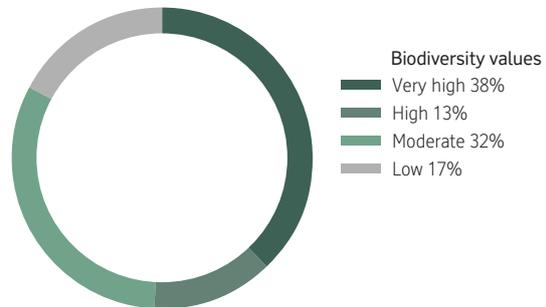
Despite these challenges and uncertainties, our commitment to good biodiversity management remains undimmed. We continue to adapt our approach to address site-level constraints, business risks, emerging scientific understanding, and developing public policy. As a result, we expect to reshape the nature of our NPI aspiration to ensure it remains relevant and realistic.

## Results

We have previously prioritised the need for biodiversity planning and action across our portfolio. We have been monitoring our progress in implementing biodiversity action plans (BAPs) at the 32 operations that we ranked as having very high or high biodiversity. We have now implemented BAPs at 26 of these sites.

## Facts & figures

### Biodiversity values assessments



# Managing climate risks and opportunities

Climate change presents a range of challenges for Rio Tinto that have implications across our value chain. We continue to work to understand and proactively manage climate change threats, and to identify and capture opportunities.

These range from the challenges posed by the changing nature of extreme weather events, impacts on water availability, and the need to reduce emissions and improve energy productivity, to the opportunities presented by technology change. We believe an effective response is best achieved by companies, governments and society working together towards common goals, as demonstrated by our support for the Paris Pledge for Action – the agreement resulting from the COP21 meeting in Paris in late 2015.

### Approach

We are focused on delivering shareholder value and we continue to manage climate change risks as they develop over time. The scale of the necessary emissions reductions and the need for adaptation, combined with the world's increasing requirements for secure, affordable energy, create large challenges which require global attention. Meeting these challenges will create threats and opportunities for Rio Tinto's businesses.

The core principles that underpin our approach to climate change are publicly available in [our climate change position](#).

Our climate change programme focuses on reducing the emissions intensity of our operations, understanding and managing the impacts of policy and regulatory change, and increasing resilience to a changing climate. Setting targets, and regularly reporting against them, is a priority and helps us to manage our performance.

When considering the long-term future of our business, including capital investment decisions, we apply a carbon price to assess the impacts of climate change on future costs and commodity value.

We recognise the long-term need to decarbonise our business and that our efforts to reduce emissions will need to increase over time. Innovation and the use of new technology are at the core of these efforts. Rio Tinto has participated in, and provided financial support for, organisations seeking to accelerate the commercialisation of carbon capture and storage (CCS). We participated in the Hydrogen Energy joint venture with BP, as well as the Cooperative Research Centre for Greenhouse Gas Technologies and the Australian Coal 21 Fund. We have invested a total of more than A\$100 million over the past 15 years in developing CCS.

Our businesses are also exposed to the impacts of a changing climate across a wide range of business activities. We recognise the risks, assess the potential impacts, and look for opportunities to build resilience over time. For example, weather forecasts are increasingly being used to improve climate resilience and preparedness in the short to medium term, which also assists in building capacity to deal with long-term change. Long-term planning and lessons from past weather events are built into business continuity and site planning procedures for existing operations. We also build resilience into the design of new assets and project development, with the need to assess these risks included in project development guidelines.

### Policy advocacy

Engagement is a key part of our risk management processes. We engage a range of stakeholders including investors, governments, NGOs and other companies to better understand the risks and to share our own assessments. Our advocacy position is based around support for a coordinated global approach to carbon pricing, to reduce emissions and ensure there is a level playing field for all business. Until this is established we recognise that it will be necessary for individual jurisdictions to take independent actions. We advocate for stable regulatory frameworks to support business in planning their investments efficiently, and we support the use of market mechanisms as the best way of achieving emissions reduction at lowest cost.

To assess how carbon policy and regulation will affect our businesses and our products in the future, we closely monitor national and international climate and energy policy developments. We advocate constructively for policies that are environmentally effective, economically efficient and equitable. Much of our advocacy is through direct submissions to governments. We also use selected organisations whose goals align with ours. Principal of these are the International Emissions Trading Association and the US-based Center for Climate and Energy Solutions (C2ES). In the lead-up to Paris COP21, we signed the public statement released by C2ES in support of a strong international agreement.



## Climate change

### Results

Reducing our greenhouse gas (GHG) emissions intensity index is one of seven Group key performance indicators. In 2008 we set a target of a ten per cent reduction in total GHG emissions intensity, to be achieved by 2015. By the end of this target period, we have achieved a 21.1 per cent reduction. This reduction is largely due to the 2009 divestment of the Ningxia aluminium smelter in China, closures of the Anglesey smelter in 2009 and the Lynemouth aluminium smelter in 2012, divestment of the Sebree smelter in 2013, divestment of the Alucam aluminium smelter in 2014 and the commencement of low-intensity operations (Kitimat smelter and the Oyu Tolgoi copper mine) in 2015.

This target has been extended to 2020, and aims for a 24 per cent reduction in our GHG emissions intensity relative to our 2008 baseline. Targets have been developed in collaboration with Group businesses, and take into account their current circumstances and future plans.

In 2015, our total GHG emissions were 31.3 million tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e), a decrease of 2.5 million tonnes from 2014<sup>(1)</sup>.

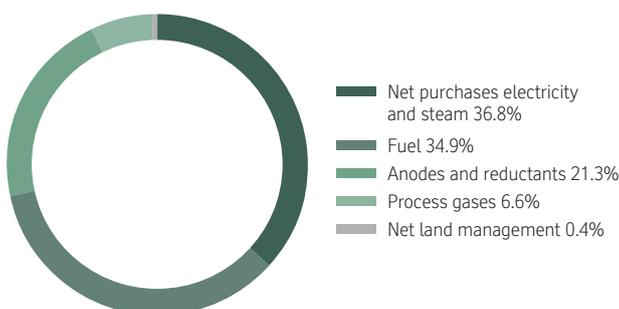
Our business is inherently energy-intensive. The majority of our GHG emissions are generated from energy use (electricity and fuel) and chemical processes (anodes and reductants) during mining, milling and smelting activities at our sites. The majority (65 per cent) of the electricity we use is from hydropower.

The transportation, processing and use of our products also contribute significantly to GHG emissions. In 2015, the three most significant sources of indirect (scope 3) emissions associated with our products were:

- Approximately 5.6 million tonnes of CO<sub>2</sub>-e associated with third-party transport of our products and raw materials.
- An estimated 118 million tonnes of CO<sub>2</sub>-e associated with customers using our coal in electricity generation and steel production.
- Approximately 509 million tonnes of CO<sub>2</sub>-e associated with customers using our iron ore to produce steel (These emissions are not all in addition to the coal-use emissions above, as some customers use both our iron ore and our coal to produce steel).

(1) See the performance data section for a breakdown of GHG emissions by product group and country.

### Sources of total greenhouse gas emissions



## Facts & figures

### Total greenhouse gas emissions

Million tonnes of carbon dioxide equivalent

# 31.3



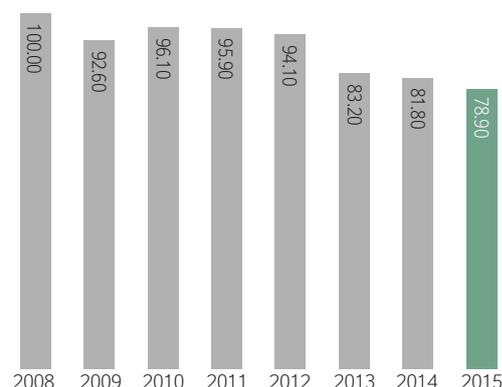
Legend: Total emissions (dark green), Scope 1 emissions (medium green), Scope 2 emissions (light green)

See glossary for definitions.

### Greenhouse gas emissions intensity

Indexed relative to 2008

# 78.90



See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)



# Balancing energy needs and environmental impacts

Energy is fundamental to the mining, refining and transport activities of our operations and a reliable and cost-effective energy supply is essential. But energy and climate change are inextricably linked through the use of carbon-based fuels.

The recent agreement reached at COP21 in Paris saw global alignment to act on climate change. The Paris Agreement committed to hold the increase in the global average temperature to less than 2°C above pre-industrial levels. Rio Tinto has joined many other businesses supporting this agreement by signing onto the Paris Pledge for Action. We believe it will require companies, governments and society working together to meet the challenge of decarbonisation while meeting the growth in global energy demand. This will require increased energy efficiency, technological innovation and a mix of energy sources (fossil fuels, nuclear and renewable energy) with increasing preference given to renewable energy options.

### Approach

Technology development is at the heart of improved energy solutions. This year a 1.7 megawatt (MW) solar photovoltaic facility was commissioned at our Weipa bauxite mine and we are exploring the ability to expand the facility. And in our Aluminium group the Kitimat modernisation project commenced first metal production using our industry-leading energy-efficient AP technology. This has improved the energy intensity of the Kitimat smelter by 30 per cent over the old technology.

The way we operate our plant and equipment impacts our energy intensity as much as the technology that we use. So we also look at how we use energy and aim to reduce our energy intensity through our business improvement processes and behaviour as an energy user. Business improvement activities occur at the site and product group levels. A good example of this is the Energy Leadership Programme being run at Richards Bay Minerals and which features as a [case study](#). We are looking at how we can share learnings from these activities across the Group.

### Results

Mining and refining mineral products is energy intensive. In 2015, our operations used 433 petajoules of energy. The majority of the 17 petajoule decrease from 2014 was a result of operational changes at some of our Aluminium and Diamonds & Minerals operations, but there were also contributions from operational efficiency gains across our product groups. Energy use in Iron Ore increased in line with the expansion in the Pilbara. By comparison we supplied 2,180 petajoules to our customers and our energy supply was therefore around five times our own energy use.

In 2015, 50 per cent (217 petajoules) of the energy we used was electricity. Of that total, 126 petajoules was purchased from commercial networks and 112 petajoules was generated at our hydroelectric, natural gas, coal, diesel and fuel oil power stations. We exported 21 petajoules of the electricity we generated to remote communities near our operations or to commercial networks where our generation exceeded our needs.

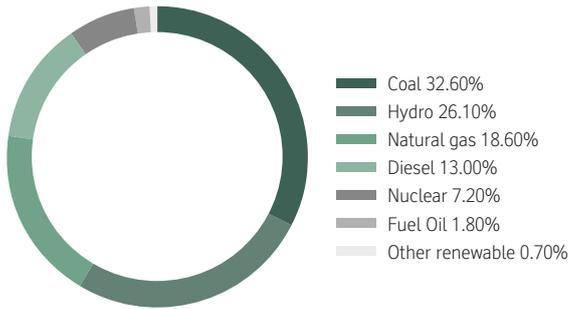
Seventy two per cent of our total electricity use was sourced from hydro, nuclear and renewable power sources. We own significant hydropower generation facilities in Canada and Scotland.



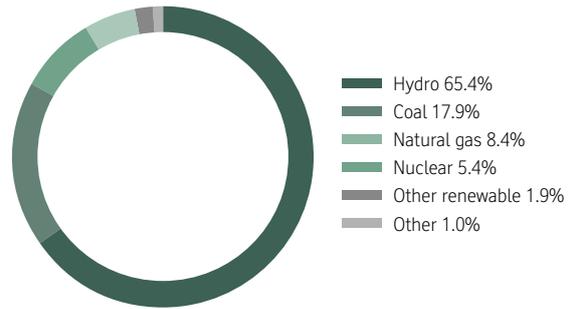
# Energy

## Facts & figures

### Primary sources of energy used



### Sources of electricity used

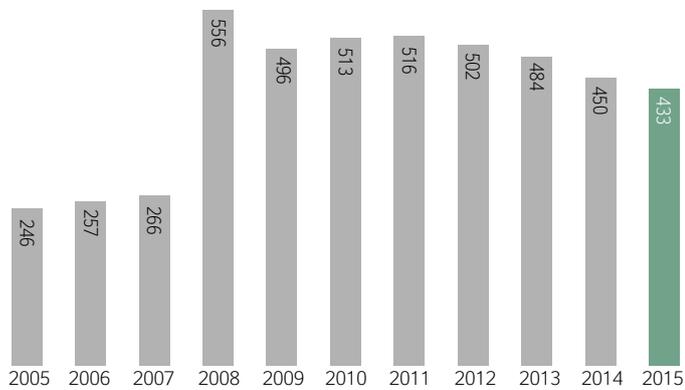


Due to rounding, sum may not total 100 per cent.

### Total energy use

Petajoules

# 433



See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)



## Managing chemical and physical hazards

We must efficiently and effectively manage waste to protect human health and the environment, minimise disposal costs, and avoid creating future liabilities.

### Approach

Our waste management approach starts with characterising our waste and predicting how it will behave. We determine how each waste type behaves in the short to long term – and long term can be over decades and centuries. Where there is not an opportunity to reuse or recycle our waste we manage it in facilities compatible with their physical nature and specific risks.

Most mineral waste we manage is benign. This means it is not considered chemically harmful now or in the future. Our primary objective in managing this mineral waste is to minimise water and wind erosion and create stable, rehabilitated landforms.

We have assessed about one fifth of our mineral waste as reactive. This means the waste may react with air and water or break down to create potentially harmful contaminants, most notably acid and metalliferous drainage (AMD) from waste rock and tailings containing pyrite. Our environmental programme places specific emphasis on preventing or minimising risks and consequences of AMD by providing controls at all stages of the mining process:

- We look for reactive mineral potential during exploration and evaluate risk in our project studies.
- During mine planning and mining operations, we identify specific mining areas containing reactive wastes and apply controls including avoidance and segregation.
- We are deliberate in selecting areas for permanent storage of reactive waste rock, and minimise AMD generation through strategies that isolate waste and collect drainage.
- We monitor the performance of our mineral waste disposal programmes.
- We regularly undertake independent, external reviews of our site-level strategies and performance.
- We support the responsible management of mineral waste at non-managed operations through participation in technical committees and sharing of good practice.

### Results

In 2015, we disposed of 1,740 million tonnes of mineral waste (predominantly waste rock and tailings) and 286,837 tonnes of non-mineral waste.

The accompanying charts indicate the total weight of non-mineral waste managed by disposal method, the total weight of mineral wastes by type, and the percentage of wastes that are recycled.

### Safely managing tailings storage

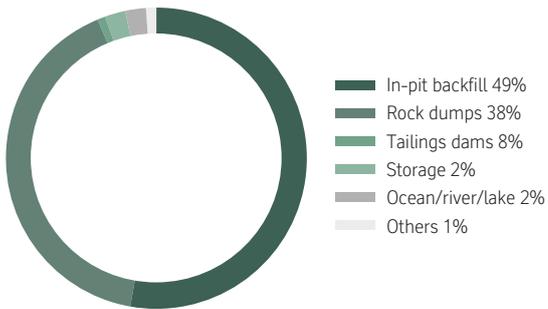
We noted the tragic failure of a tailings dam in Brazil at another company's iron ore operation in November 2015 and other catastrophic tailings failures in Brazil and Canada in 2014. Safely managing large tailings dams is a challenge facing the mining industry and we are supporting the International Council on Mining and Metals (ICMM) [global review](#) of tailings storage facility standards and critical controls.

We operate large tailings facilities across the Group and have tailings facilities that are being closed. The safety of these mineral waste storage facilities has long been a focus of our health, safety, and environment programme. In August 2015, we formally adopted an updated safety standard (Management of tailings and water facilities) to formalise our approach to risk management at these facilities. The standard specifies risk control for planning and design, implementation and operation, monitoring and inspection, and disaster management. All operations with tailings and water storage facilities will be audited against this standard from August 2016.

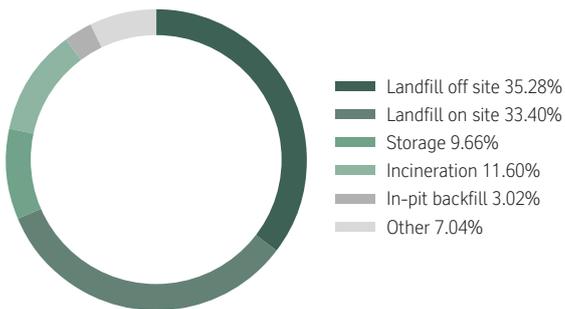


## Facts & figures

### Management of mineral waste



### Management of non-mineral waste



See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)



## Managing a vital resource

Water is critical to many Rio Tinto operations. We need water at each stage of the business – from exploration through to closure. We source and distribute potable water to our facilities, towns, and camps. And we use water to generate hydroelectric power. It is one of our most sensitive interfaces with the natural environment.

### Approach

Each of our operations has its own water context and risks. Some operations are located in water-scarce environments, while others must manage intense rainfall during the tropical wet season. A number of sites manage impacts from mine dewatering, including aquifer drawdown and excess water disposal. Most sites must manage the quality of water returned to the environment, and all sites are experiencing some change in their local water regime due to climate change.

Our global water management approach recognises the variation in local context and local risk. We have established a core set of performance outcomes for all sites, and we entrust water strategy, water risk management, and water performance to the sites.

Reflecting this approach, our Group water performance target for 2014 to 2018 is that managed operations with material water risk will achieve a tailored, locally relevant water target by 2018. These local water targets, formulated by site specialists and approved by site leadership, must result in an improvement in the management of material water risk. Local water performance targets have been set to address water supply, ecological impacts, or surplus water management at 30 operations across the Group.

### Results

At the end of 2015, 60 per cent of operations with local water performance targets were on track to meet their target by 2018 (2014 – 66 per cent). Where operations are not on track to meet their local water target, they are contending with challenges such as prioritisation of capital that is slowing or deferring spending on water projects, and technical challenges such as longer than anticipated commissioning of water treatment systems or drought-constrained water supply. We expect that a number of operations not on track will make up ground in the next three years of the target period and achieve their 2018 target. Despite these challenges, we have found the target is driving discussion about water-related risk and is positively influencing operational performance.

Our other key water performance metrics and trends are shown on the included charts.

We report water data and water risk [information to CDP](#) using their water questionnaire, and our response is [available on the CDP website](#). We hope to work with the International Council on Mining and Metals (ICMM) and the CDP to develop more meaningful metrics for the mining sector and improve our own reporting in 2016.

We continue to work with international organisations committed to sustainable water management and development of good water policy. In 2015, ICMM published [A practical guide to catchment-based water management for the mining and metals industry](#). We were actively involved in the development of this guide, which outlines a comprehensive and systematic approach for identifying, evaluating and responding to catchment-based water-related risks. It serves as a structured guide to companies as they develop their water strategies and plans.



## Facts & figures

### Responding to water management challenges

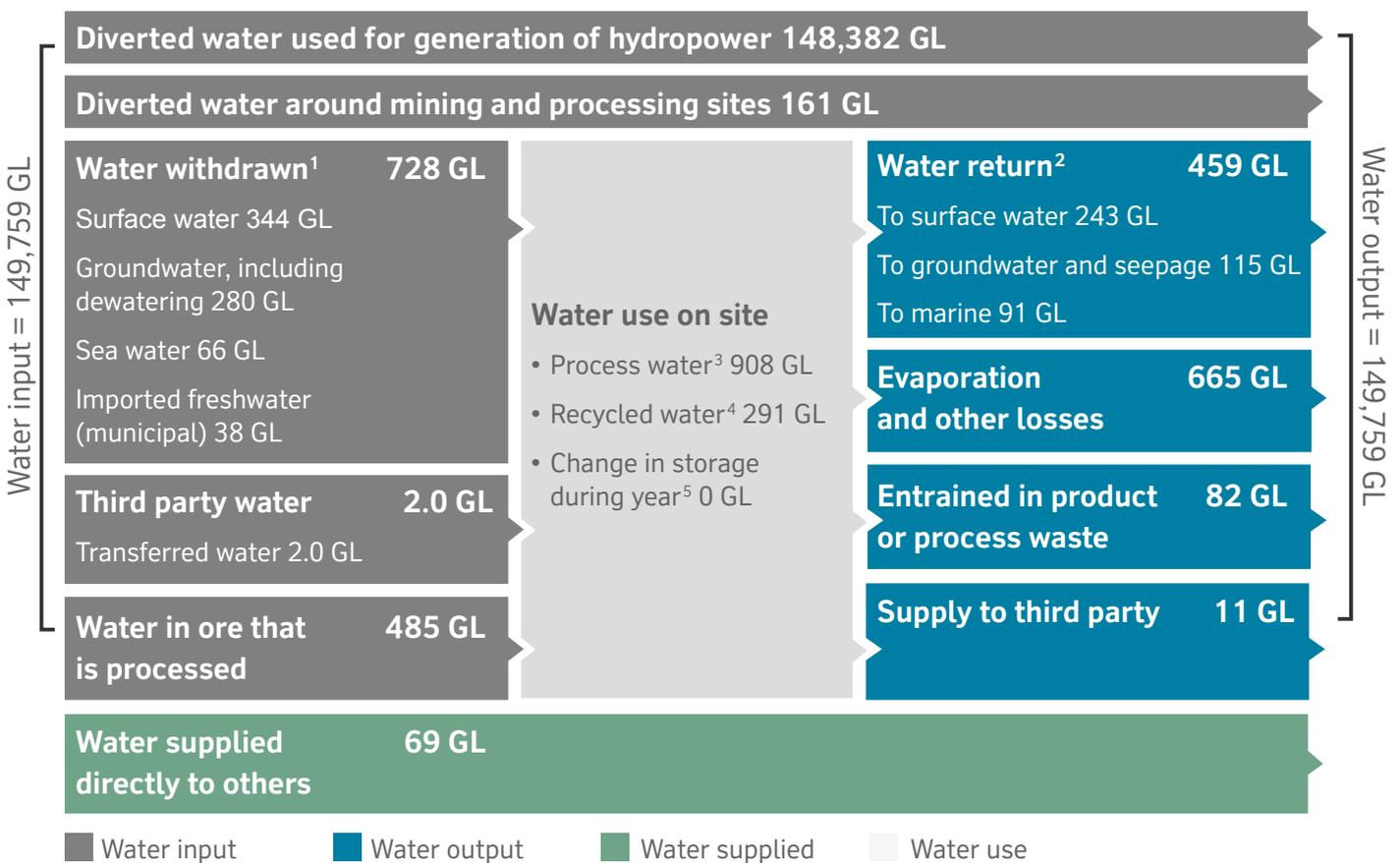
We face a number of technical and regulatory challenges as we seek to increase our business's resilience to water risk and responsibly manage our impacts on local water regimes. Current challenges include:

- The impacts from mine dewatering on local supply and Traditional Owners' concerns over how we dispose of water produced by mine dewatering.
- A changing climate resulting in more frequent recurrence of intense storm events.
- Tightening water quality regulation in many jurisdictions, especially in North America.

Our business is meeting, or will need to meet, these challenges through focused efforts, and, in some instances, higher capital and operating expense.

### Water balance 2015

Rio Tinto measures and reports on all water inputs and outputs, as shown by our water balance:



(1) Including onsite impounded/imported surface water, onsite/impounded groundwater (including dewatering) and marine water.  
 (2) Including process effluent and dewatering water discharged without use.  
 (3) Including mining (dewatering), milling, washing, power generation, dust suppression, etc.  
 (4) Tailings, sewage or water contaminated in process that has been treated for reuse.  
 (5) The difference between total water input and total water output is "change in storage".

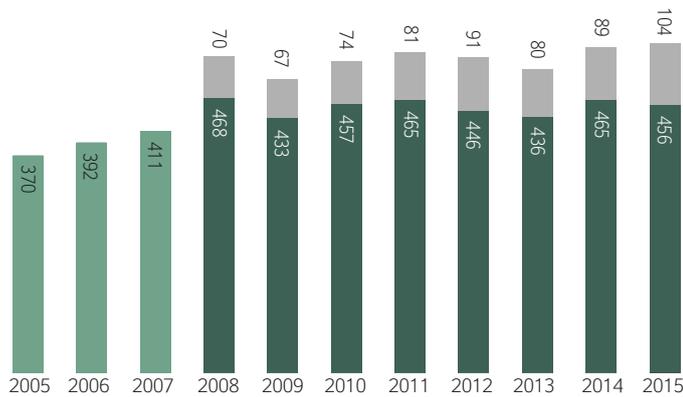


## Facts & figures

### Freshwater withdrawn

Billion litres

560



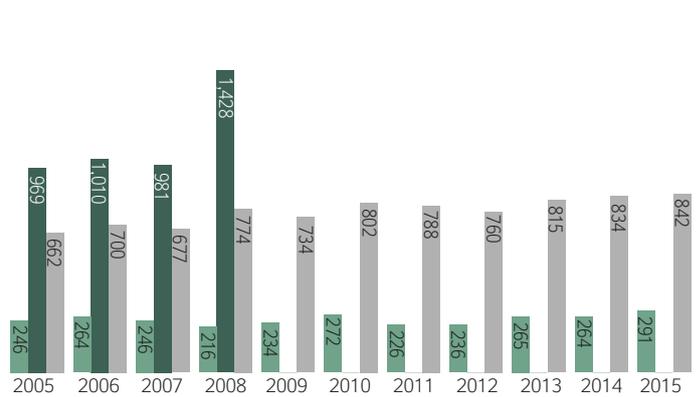
■ Freshwater withdrawn  
■ Freshwater withdrawn and used  
■ Freshwater withdrawn and discharged without use

The sum of the categories may be slightly different to the total due to rounding. Totals are provided on the Performance data page.

### Water used and recycled

Billion litres

842



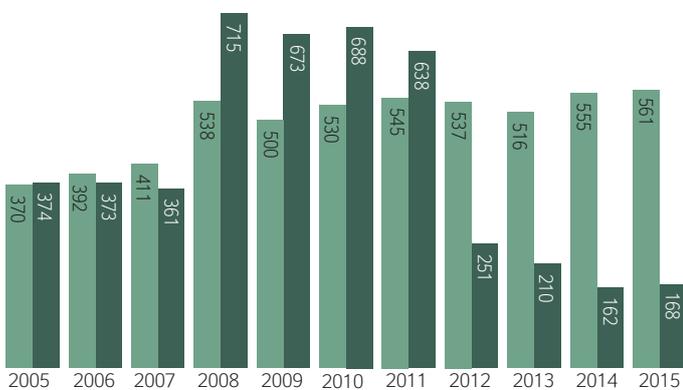
■ Water recycled in process  
■ Water use including marine water  
■ Water use

The definition of "water use" was changed in 2009 to exclude marine water.

### Sources of water withdrawn

Billion litres

729



■ Fresh  
■ Poor

The decrease in poor quality withdrawal in 2012, compared with previous years, is due to divestment of operations.

See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)





# Economic



# Contributing to economic growth

## In this section

Economic contributions

02 Non-managed operations and joint ventures

05

Image: Rio Tinto's Iron Ore operations, Pilbara, Western Australia.



# Helping to build economies

We assess our financial performance not only on our profits, but also by the economic contributions we make to the countries in which we operate. It is important to our shareholders, employees and many other stakeholders that we create a sustainable net benefit to local economies by providing employment opportunities, procurement, and the transparent payment of tax and dividends.

### Approach

Our operations can make a substantial economic contribution to the regions and countries in which we operate through:

- **Employment:** We strive to hire locally where possible. We support a number of local education and training programmes with the aim of creating a stronger local workforce, which is then better positioned to participate in the opportunities that our operations create.
- **Payments to suppliers:** Where possible we buy goods and services locally, and provide small enterprises with technical support to help the local community take advantage of procurement opportunities.
- **Government revenues:** Through our tax contributions and the equity participation of some governments in Rio Tinto-operated mines, we contribute to government revenue. Our taxes paid reports<sup>(1)</sup> ensure that the Group remains transparent about its payments to governments in a way that is consistent with our support for the principles of the Extractive Industries Transparency Initiative (EITI).
- **Community investment:** This includes investments in local programmes that support communities. Our programmes are the result of rigorous consultation and research and cover a wide range of activities: health, education, business development, housing, environmental protection and agricultural development. In addition, the infrastructure developed for a particular mine or processing plant can also greatly benefit local communities, businesses and governments.

Our approach helps us build a reputation as an organisation that facilitates economic growth. In turn, this helps us earn our social licence to operate.

### Results

In 2015, Rio Tinto's global economic contribution was US\$37 billion. This comprises US\$18 billion of payments to suppliers, and US\$19 billion of "value added". This latter number is the value that the Group has added through its production processes. It has been calculated as the sum of payments to labour (wages), the government (taxes and royalties), and to capital (interest payments to debt providers, dividends to shareholders, and retained earnings).

Our 2015 economic contribution can be broken down as follows:

- Payments to suppliers – US\$17,896 million (49 per cent)
- Taxes and royalties – US\$3,666 million (10 per cent)
- Payments to employees – US\$4,887 million (13 per cent)
- Dividends and finance items – US\$8,420 million (23 per cent)
- The remainder was reinvested.

Our business activity also generates indirect contributions to the economy. These include the effects of our workers spending their wages, governments distributing their tax revenues, shareholders spending profits, export revenues from the international sale of our products and investment in local infrastructure such as roads, power or telecommunications for our operations. We do not measure our indirect economic effect globally but it is important to keep this in mind when considering Rio Tinto's overall contribution to host economies.

(1) The [Taxes paid in 2015 report](#) will be available on our website in June 2016.

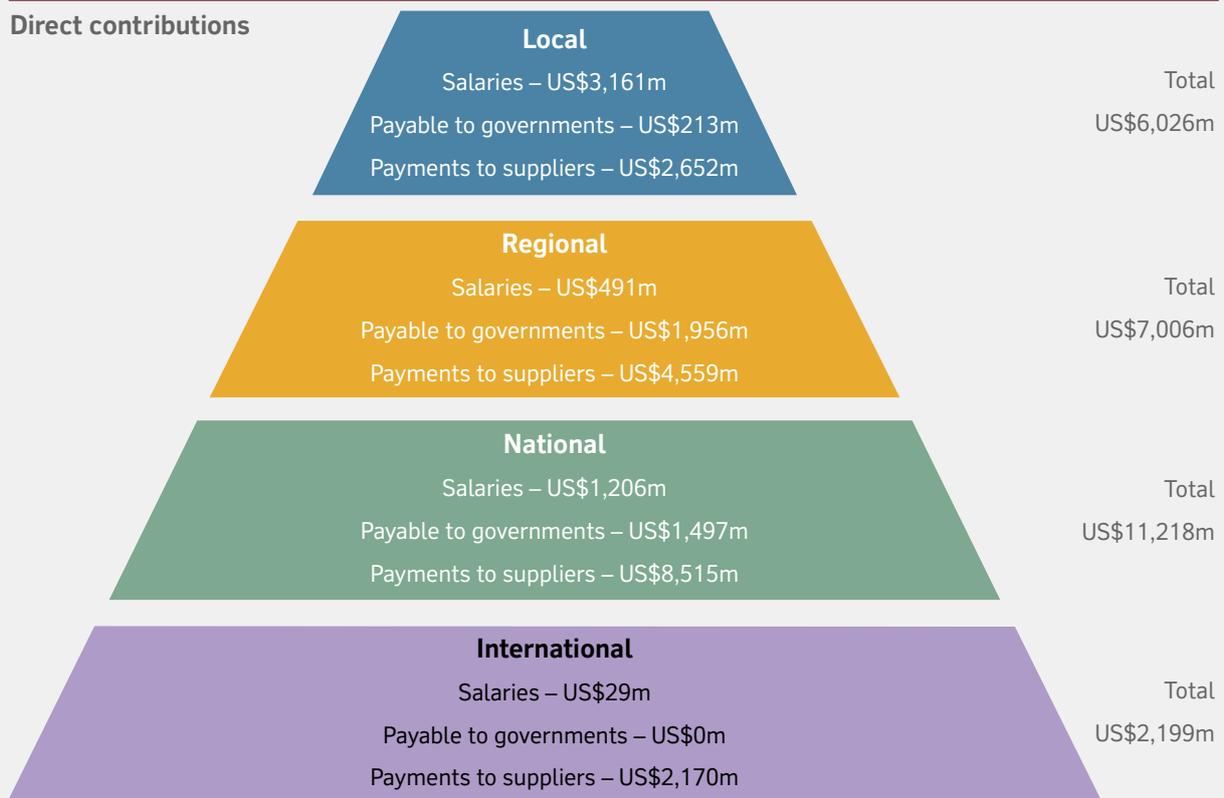


# Economic contributions

## Discretionary contributions

Direct community programmes	– US\$69m	Total US\$184m
Benefit receiving trusts	– US\$96m	
Management costs	– US\$19m	

## Direct contributions



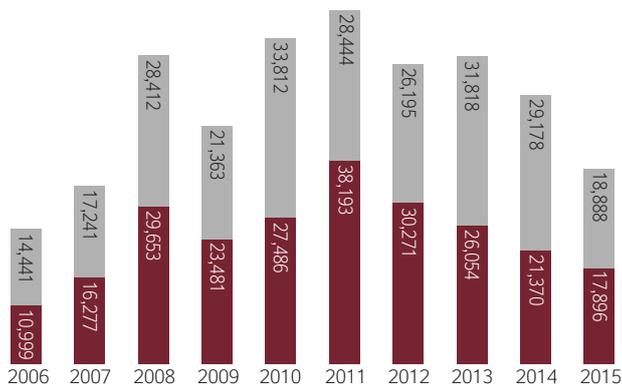
## Economic contributions

### Facts & figures

#### Economic contributions\*

US\$ million

# 36,784

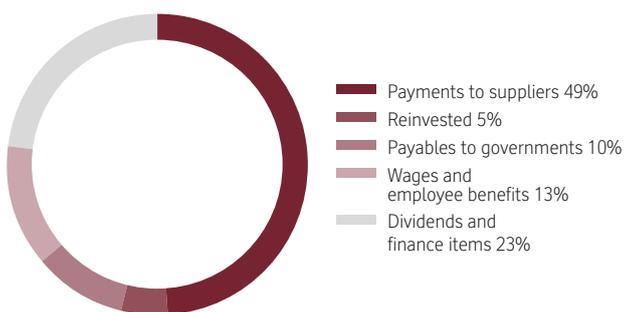


■ Payments to suppliers      ■ Value added\*\*

\* Due to rounding, sum may not equal total shown.

\*\* This can be thought of as the value that a company has added to its inputs through its processes of production. It can be thought of as the sum of payments to labour (wages), the state (taxes and royalties), and to capital (interest payments to debt providers, dividends to shareholders, and retained earnings).

#### Distribution of economic contributions\*



\* The sum of the categories may be different due to rounding.



See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)

For further information on the types of payments included see our [Taxes paid in 2015 report](#)



## Non-managed operations and joint ventures

# Engaging with our partners on the way we work

Rio Tinto holds interests in companies and joint ventures that it does not manage. The two largest are the Escondida copper mine in Chile and the Grasberg copper-gold mine in Indonesia. We actively engage with our partners around sustainable development through formal governance structures and technical exchanges.

In this way we endeavour to ensure that the principles in *The way we work* are respected at all times and encourage our partners to embed a strong safety and security culture in their workforces.

### Approach

Examples of our non-managed operations include the Escondida copper mine in Chile and the Grasberg copper-gold mine in Indonesia.

#### Escondida

Rio Tinto has a 30 per cent interest in Escondida, which is managed by BHP Billiton. Our seat on the Owners' Council enables us to provide regular input on strategic and policy matters. Sadly, there was one BHP Billiton Major Projects-related fatality in 2015 involving a vehicle collision. A bus transporting contractors from La Calera was involved in a crash with a truck on a main highway. The bus driver subsequently died from his injuries.

Construction of the Escondida water supply seawater desalination project progressed well in 2015. Initial start-up of the desalination plant is expected in late 2016, and when fully operational in 2017 it will significantly decrease the demand on groundwater from operations at Escondida.

#### Grasberg

PT Freeport Indonesia (PTFI), a subsidiary of Freeport-McMoRan Copper & Gold, Inc., owns and operates the Grasberg mine in Papua, Indonesia. We have a joint venture interest attributable to the 1995 mine expansion, which entitles Rio Tinto to a 40 per cent share of production above specified levels until the end of 2021 and 40 per cent of all production after 2021. 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.

The operation employs controlled riverine tailings transport, a process that the World Bank does not consider as good industry practice because it is contrary to the International Finance Corporation's 2007 Environmental, Health, and Safety Guidelines for mining. However, several independent expert reviews concluded that this method represents the best available option for this operation because of the extremely rugged topography, high rainfall and significant seismic activity. We continue to believe that this method is appropriate given these conditions, but have adopted the standard that riverine and shallow marine disposal of mining and processing mineral waste will not be used at new Rio Tinto managed operations.

The emphasis of Rio Tinto's involvement is to promote continuous improvements in the environmental performance of the existing tailings management system. Significant improvements continue to be made to:

- limit the surface area disturbed by tailings placement and to protect adjacent river systems by the maintenance and extension of lateral containment levees;
- enhance retention within the engineered deposition area with techniques such as interim revegetation;
- minimise geochemical risks by techniques such as ore blending and limestone addition; and
- rehabilitate inactive tailings surfaces as they become available.

Tragically, there were two fatalities at PTFI in 2015: one at the surface mine involving a worker caught between a light vehicle and a building and one involving a worker entangled with a tail pulley on a conveyor belt. When requested, we support the PTFI leadership team in the investigations and in the post-investigation lesson implementation to help avoid a repeat of these accidents.





# Governance



## Acting responsibly is critical to our success

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Image: Oyu Tolgoi, Mongolia.



# Behaving honestly and responsibly, wherever we operate

Sound governance structures and a commitment to integrity are the foundations on which we do business. They support our goal to be accountable for our actions and ensure we continue to operate ethically wherever we operate. We are committed to doing business the right way, and with the right business partners.

*The way we work*, our code of conduct, was refreshed in June 2015. It acts as a vital tool for all our people by explaining our company values of respect, integrity, teamwork and accountability and helps to guide our behaviour.

*The way we work* is our conscience: it reminds us to make choices we can be proud of.

### Approach

How we do business, and who we do it with, is just as important as what we do. We comply with all relevant laws and regulations and, where needed, draw upon internationally recognised standards, including for social and environmental responsibility. In the event of any inconsistency between our policies and the local laws where we operate, we will comply with the higher standard. We conduct our business with the highest ethical standards.

Establishing and maintaining an effective Integrity and Compliance programme is essential to this commitment. However, the success of our programme ultimately relies on our employees acting with integrity, and behaving honestly and responsibly. *The way we work* represents a clear framework for how we do our business and is supported by internal standards that cover key topics such as antitrust, business integrity, conflicts of interest, data privacy, fraud and third-party due diligence.

Being alert to serious matters as they arise and preventing misconduct before it occurs is fundamental. A key part of this is educating our employees about their responsibilities regarding *The way we work*, our company policies, and the local laws where we operate. This includes communication from senior leaders, as well as providing training and guidelines.

We are moving towards a more risk-based approach with our Integrity and Compliance programme, which will ensure we focus on the areas that matter. This involves efforts to cultivate appropriate and clearer messaging at all levels within the business for better impact.

Our Integrity and Compliance programme is supported by a team that reports to the global head of Compliance. Each product group and function has its own Compliance manager and support officers working to ensure our programme is implemented within our businesses around the world. Each product group and function also has well-established quarterly audit forums to monitor and oversee the implementation and effectiveness of their respective Integrity and Compliance programmes. This represents a key channel for management to report and discuss any significant trends, developments, issues and gaps within their businesses so that any issues can be managed promptly and effectively.

### Standards and processes

We have a strict and longstanding stance against bribery and corruption, which is prohibited in all forms. This is clearly stated in *The way we work* and in our Business integrity standard. Our Integrity and Compliance programme has been developed to meet the requirements of the Group as well as the diverse activities of our businesses, including making efforts to address concerns arising in our local communities. While we are aware there is increased regulatory and legislative activity in this area, our approach is driven by our corporate values – particularly our commitment to undertaking business with integrity. Any Rio Tinto employee not complying with anti-bribery and anti-corruption laws may face disciplinary action, up to and including termination.

High-profile cases during the year demonstrate that inattention to processes and those of third-party partners can be a very costly and painful lesson for a company. For Rio Tinto, this means we must continue to apply proper rigour and attention in all our operations. We are currently working on enhancing our monitoring capability so possible issues are dealt with promptly and efficiently through use of data analytics and technology.



## Business integrity

### Training

We provide Integrity and Compliance training to all our employees based on a “risk to role” methodology that maps relevant training to an individual’s role. The training modules range from three to six minutes in duration and focus on key messages that provide an understanding of the topics and how to act in certain scenarios. Feedback indicates the majority not only learned something, but also enjoyed the experience:

- “Great work; succinct, relevant, interesting, useful”
- “Fun way to approach some ‘boring’ material so helps with learning process”
- “Key takeaways are clear”
- “Liked the brevity of them and yet they were informative and educational”

We continue to update our training materials and methods to keep them fresh, engaging and relevant to the roles of our employees. More structured face-to-face training is also available to meet any additional needs that the business has.

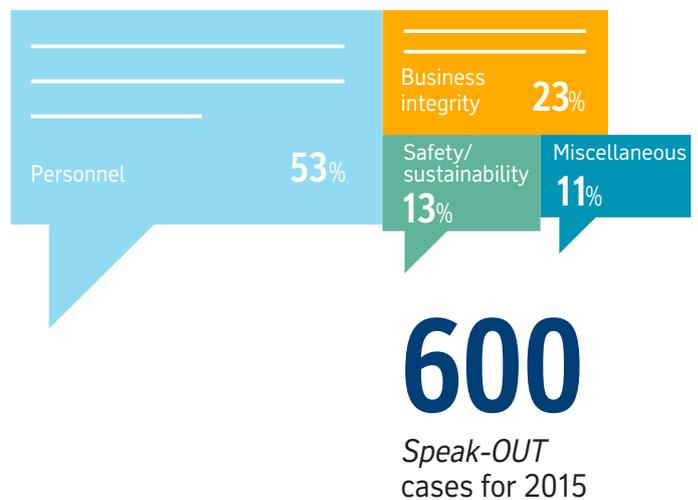
### Transparency

Rio Tinto is committed to maximum transparency and accountability, consistent with good governance and commercial confidentiality. Information on the Group’s operational, financial and sustainable development performance is published in a timely manner through a number of channels including our Annual report. We work with external organisations in furthering our commitment to transparency.

Since its launch in 2002, we have actively supported the Extractive Industries Transparency Initiative (EITI), which aims to strengthen governance by improving transparency and accountability in the extractive sector. We have a representative on the board of the EITI. (Find out more about the taxes and royalties we paid in 2015 in our [Taxes paid in 2015 report](#), published in June 2016). We communicate views to governments and other organisations on matters affecting our business interests. By furthering public conversation, we can contribute to the development of sound legislation and regulation.

### Results

*Speak-OUT*, the Group’s confidential and independently operated whistleblowing service is available to all employees, including suppliers and contractors. It offers an avenue for reporting concerns about the business or individuals’ behaviour, anonymously, subject to local law. This could include suspicion of violations of safety or environmental procedures, human rights, financial reporting, or business integrity issues in general. We are committed to a culture of transparency and encourage employees to speak up about their issues and concerns, either through management, human resources or through *Speak-OUT*. Our case management tool for *Speak-OUT* provides for a single, secure repository for management of all cases and related investigations, including complete data analysis and reporting capabilities.



In 2015, 600 *Speak-OUT* incidents were reported, representing an increase of approximately two per cent on last year. Given the reduction in overall headcount, this report volume represents an average incident rate of 10.7 per 1,000 employees (up from 9.7 compared to 2014). We believe this trend reflects both increased trust in the process and restructuring within the Group as a whole. Twenty eight per cent of cases raised were substantiated, resulting in corrective and preventative actions. Approximately 56 per cent of contacts elected to remain anonymous.

We continue to monitor the success of *Speak-OUT* and other internal reporting channels. This helps us to provide a practical and effective system for reporting concerns, therefore creating a culture of transparency and accountability. Lessons learnt from investigations are incorporated into our Compliance programme and communicated throughout the organisation.



# Building a resilient business

The global nature of our operations and the inherent risk associated with our industry mean there are a range of incidents that could threaten our business. While it is impossible to predict every kind of incident we could face, we can take steps to help prevent or control risk and the consequences associated with these events.

Business resilience is an essential part of our Health, Safety, Environment and Communities (HSEC) management system, which aims to prevent or control risk and the consequences associated with these events. Our Group-wide approach to business resilience and recovery brings together our collective experience to protect our people, the environment, our assets and our reputation.

### Approach

Rio Tinto's Business Resilience and Recovery programme (BRRP) is aligned with recognised good practice and well-established standards. The key elements are:

1. Management: Ensure an appropriate level of commitment and resourcing is allocated to business resilience and recovery.
2. Embedding business resilience: Strategies and programmes are in place to ensure business resilience is integrated into day-to-day work.
3. Analysis: Plans and arrangements are based on major or catastrophic risks that would have an unacceptable impact on safety and business.
4. Design: Ensure the right solutions are in place to support the required response.
5. Implementation: Every site has fit-for-purpose plans and arrangements.
6. Validation: Confirms the business resilience and recovery programme at each site meets the business objectives and is fit-for-purpose.

The programme is externally audited as part of Rio Tinto's HSEC management system framework.

### Results

In 2010, Rio Tinto brought together the previously separate plans for emergency response, business continuity and information technology recovery into one integrated BRRP.

The programme requires all our operations to allocate appropriate resources, including trained personnel, facilities and equipment, to effectively mitigate the impact of major incidents, control them and recover from them. We manage incidents in a consistent manner by using a common language, sharing best practices, eliminating overlaps and clarifying accountabilities.

Every Rio Tinto site, whether an office, mine, plant or project, has a BRRP with appropriate plans and teams to prepare for and respond to the risks they face. Every team is required to exercise their plans on an annual basis. Time and time again it has been proved that the best responses to incidents are led by teams that have rehearsed using realistic and credible exercises. These are now routinely undertaken with increasing sophistication, giving the teams confidence that they will be able to meet the business's needs in a time of crisis.

Whenever a major event occurs at one of our sites, or where the safety and security of our people might be compromised, the Business Resilience team responds. With a hub office and many travellers in Paris on 13 November 2015 when the terror attacks occurred, the team immediately stepped in to ensure we established contact with all of our people, and provided advice and assistance to those in need.

There are measures that we undertake to ensure our response is proportionately robust. Strong lockdown, evacuation and invacuation (where staff are held in the secure core of a building if the threat is outside) procedures are regularly exercised. The key to any incident response is communication, and we continue to develop sophisticated tools to track the whereabouts of our staff at any time, and quickly establish contact when needed.

Acts of violence tend to be unpredictable. However, we have undertaken a global programme to ensure our employees have a basic knowledge of the measures that will increase their survival in the unlikely event of terrorism and encouraged them to share this with their family and friends.



# Managing what's left behind

Although it may extend over decades, mining is a temporary land use. So it's critical we have an effective plan in place to manage what we leave behind.

Good closure planning and legacy management can enhance our reputation, and enable us to establish new projects with the support of local communities. Careful planning throughout the lives of our operations, and in consultation with local stakeholders, will result in closure outcomes that are better for those concerned, minimising the social and economic impact on local communities and the surrounding region. We collaborate with and listen to our stakeholders to identify options for post-closure land uses.

### Approach

It is a priority that we plan for closure during our operations and be prepared for closure when the commercially recoverable ore is exhausted. A comprehensive Closure standard applies to all our operations, providing a consistent approach to closure planning and management.

All Rio Tinto businesses must plan for closure from the earliest stages of project development. This planning is intended to minimise financial, social and environmental risks when the operation eventually closes. Closure objectives must address legal requirements, as well as any other commitments made to stakeholders.

We aim to progressively rehabilitate land as we operate at a mine site. We test and confirm rehabilitation methodologies, control dust and erosion, and meet regulatory requirements.

Closure planning aims to incorporate beneficial post-mining land uses, which could include economic activities, conservation or community use. We recognise the landscape in some mined areas is permanently altered, and may not be amenable to beneficial reuse. In such cases, our goal is to ensure that the sites remain safe and stable, and that the cost of aftercare is minimised, and provided for appropriately.

### Post-closure stewardship

In addition to those sites that we have owned and operated, we also manage a portfolio of non-operational sites that we have inherited through acquisitions and mergers. These sites may be no longer economically viable or may have been closed by their previous owners and require further remediation. Some of these are mine sites, but the majority are industrial or brownfield sites such as former smelters, refineries, mills and manufacturing sites.

Regardless of these legacy sites' history, we safely decommission and remediate them; making the land available for beneficial reuse. Our reputation depends on our doing this responsibly and effectively. We seek opportunities for socioeconomic and environmental regeneration, and have found that through careful management, applying innovative solutions where appropriate, and working in close collaboration with others, these sites can often be transformed into community assets.

Some of our legacy sites are located in remote areas and present challenges with limited work windows due to climate and site access. One such legacy site is the Holden Mine remediation project in Railroad Creek Valley, Washington US. In July 2015, a fire started by lightning threatened Holden Village and the Holden Mine remediation project. The village and 200 project workers were evacuated. The United States Forest Service (USFS) was successful in saving the village and remediation project as the fire burned around these areas and continued up-valley. Rio Tinto provided heavy mobile equipment to the USFS to assist in fighting the fire, as well as a large sprinkler system which helped to protect Holden Village. The fire has resulted in the deferment of a significant amount of work from 2015 into 2016, thereby increasing the time and costs associated with completing the project. The forest was badly burned in some areas and risks such as debris flows, flooding, and avalanche will continue for several years.

### Results

Since the closure plan review programme began in 2005, we have conducted 83 reviews. These ensure that our mine closure plans are in line with our closure requirements and aligned with stakeholders' expectations. We expect that businesses design and plan their operations so that adequate resources are available to meet the full cost of closure, including post-closure management and monitoring.

Eighty seven per cent of the Group's operations have closure plans in place. New operations and businesses integrated into the Group through acquisition are progressively developing closure management plans to meet the requirements of our Closure standard. In 2015, 26 per cent of our disturbed land (excluding hydroelectricity dams) had been rehabilitated.

Close-down and restoration costs include the dismantling or demolition of infrastructure, the removal of residual materials and the remediation of disturbed areas for mines and certain refineries and smelters. The costs are provided for in the accounting period when the obligation arising from the related disturbance occurs. The provisions are based on the net present value of the estimated future costs of restoration and where appropriate, probability weighting of the different remediation and closure scenarios. These estimates are based on current restoration standards and techniques. Total closure and environmental provisions as at 31 December 2015 amounted to US\$8,426 million.



# Respecting human rights

Respecting human rights is not only the right thing to do; it also contributes to our long-term success. The actions we take to respect human rights help us build strong relationships with local communities, employees and business partners. Failing to manage our human rights performance effectively can lead to real risks, which include losing our social licence to operate.

### Approach

Rio Tinto has a presence across diverse countries and often in challenging social, economic, political and cultural environments. We have long recognised the importance of respecting human rights wherever we operate.

Our approach is consistent with the Universal Declaration of Human Rights and the UN Guiding Principles on Business and Human Rights (UNGPs). Our business code of conduct, *The way we work*, and our Human rights policy set the foundations of our approach. We have also made voluntary commitments including the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises, the UN Global Compact and the Voluntary Principles for Security and Human Rights (VPSHR).

To avoid human rights violations through our security arrangements, we provide training for security personnel and continue to conduct human rights analysis of our security operations. We provide practical guidelines, toolkits and training on implementing the VPSHR. Our online VPSHR training is mandatory for all security personnel at high-risk sites, and is strongly recommended for all other Rio Tinto businesses.

In line with the human rights due diligence process outlined by the UNGPs, we integrate human rights considerations into existing processes as much as possible. These include social and economic risk analysis, impact assessments, health, safety and environment reviews and audits, security and human rights risk assessment, procurement pre-qualification, and complaints handling. We also conduct standalone human rights studies at high-risk sites where necessary.

We work with suppliers, contractors and other business partners to promote human rights and avoid adverse human rights impacts. *The way we work*, our Human rights policy and Procurement principles apply to all suppliers and contractors working with or on behalf of Rio Tinto. Our policies and standards reiterate that we oppose and prohibit forced, bonded or child labour. They specify that suppliers should maintain human rights policies and have a process to assure compliance. Pre-qualification checks, contractual arrangements and ongoing monitoring help us to ensure that suppliers follow these principles.

We respect Indigenous communities' connection to land and seek mutually beneficial agreements with communities affected by our operations. We strive to achieve the free, prior and informed consent of Indigenous communities as defined in the 2012 International Finance Corporation Performance Standard 7 and the 2013 International Council on Mining and Metals' position statement on Indigenous Peoples and Mining. We seek consent as defined in relevant jurisdictions, and ensure agreement-making processes are consistent with such definitions.

Under our Communities standard all sites must have a complaints, disputes and grievance mechanism in place, which reflect the UNGP guidelines. This includes being publicly available, locally appropriate and easily accessible to all community members. Our whistleblowing system, *Speak-OUT*, is available for all employees, suppliers and contractors who wish to make a complaint, including about human rights issues.

### Results

Our Human rights policy, which reaffirms our commitment to respecting human rights, was updated in 2015. This is supplemented by internal guidance documentation which supports our employees to implement the policy in practice.

An online human rights training module is available for all employees. This raises awareness of human rights in the business context, why it is important to respect human rights, and how to identify and report a human rights incident. Approximately 2,100 employees have completed online training since its inception in 2013. In 2015, we refreshed this training so that it more closely reflects the types of human rights risks individual employees may encounter in their roles.

In 2015 we conducted VPSHR and "use of force" training for security providers at five of our operations in Mongolia, South Africa, Jamaica and Guinea. Both private and public security providers were present, including officers who were responsible for training and development for their organisations. We continued to work with our partners in academia and non-governmental organisations to conduct a research project on preventing conflict in the mining sector. We have developed and are in the process of rolling out our revised guidance note for security and human rights principles, which includes a "use of force, weapon and firearm" framework to ensure the strict control of these globally.



## Human rights

In 2015, our Group Audit & Assurance team completed a Group-level review of security and human rights. The review considered the design and effectiveness of governance and internal controls supporting the Group security and human rights framework. Overall, the findings indicate that most elements of the security and human rights framework were operating effectively. The report noted minor control weaknesses existed in certain areas, and recommended improvements including:

- the design and implementation of a governance and assurance structure to include monitoring, measurement and auditing of security providers;
- the need to develop an assurance framework and accountability model to ensure compliance with the *Group Security guidance* and *Site assurance visits and firearm decision reviews* documents;
- a need for risk assessment and consistent authorisation processes to support the use of weapons (excluding firearms);
- more consistent reporting of site security and human rights incidents;
- VPSHR guidance, tools and templates that support a fit-for-purpose Group-wide approach to security and human rights; and
- a more informative security training for management of high-risk sites.

Group Security has taken actions to address the findings, and is committed to using the audit recommendations to strengthen the security and human rights control framework further.

To avoid human rights breaches through our business partners, online human rights training is mandatory for all employees in Rio Tinto's Procurement function. The training aims to increase awareness of human rights risks in the supply chain. As one Procurement employee commented, the training has "brought to reality human rights concerns that even Procurement professionals in developed countries could encounter," and "provided suggestions of what we could do to remedy any concerns identified."

In 2015, we conducted a pilot programme to review the Group's third party pre-tender due diligence process to ensure a holistic approach for responsible supply chain practice.

During 2015 we continued to participate in national and international business and human rights discussions, including several global, thematic and regional events. We also engaged with stakeholders such as governments, civil society and investors on our human rights approach through publications, briefings, surveys and responses to enquiries.



# Supporting sustainability across our value chain

As a large multinational company, our activities have societal, environmental and economic impacts in regions where we mine and where we source materials. Lower commodity prices emphasise the need to reduce costs throughout our value chain. We are committed to doing this in a risk-based, sustainable manner that supports our social licence to operate and our financial objectives.

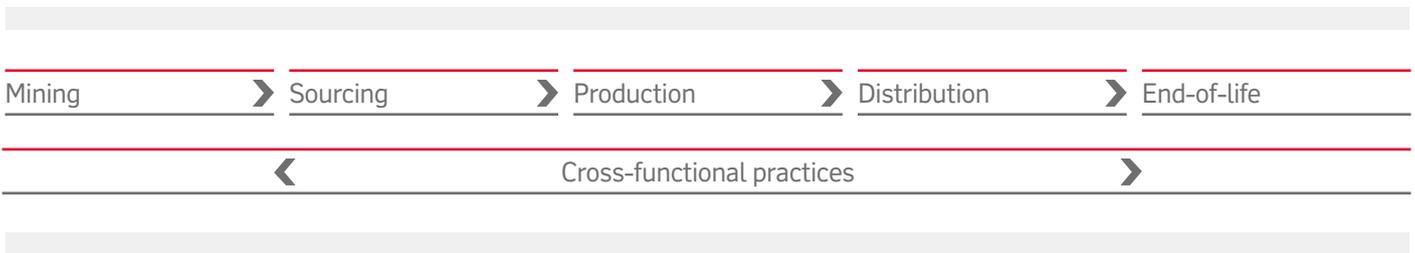
## Approach

Our value chain is about understanding the health, safety, environmental, social and economic impacts of our operations, including everything we purchase and the materials we manufacture across their life cycles. Our goal is to obtain preferred supplier status and recognition for our commitment to the safe, and socially and environmentally responsible production, transport and use of our products.

Pressure is mounting on companies not only to increase supply chain performance for commercial gain, but also to ensure their supply chains have a positive impact on the environment and local economic activity, and that they meet the publicly expected standards around treatment of labour.

The diagram below shows the categories where our supply chain practices contribute to our value chain.

## Our value chain



## Value chain

### Mining

It is important we understand the social, environmental and economic implications of our activities (from exploration through to legacy management). This allows us to optimise the benefits and reduce negative impacts on local communities as well as regional and national economies. During our mining and processing operations, we generate both [mineral and non-mineral](#) waste. We have programmes in place to encourage responsible product design (where possible), use, reuse/recycling and disposal of our mineral and non-mineral products.

### Sourcing

We seek to engage suppliers who share our values and support our social licence to operate. We work closely with many suppliers to develop sustainable supply chains that promote economic development, reduce waste and environmental impacts and drive working capital efficiency. We embrace innovation and technologies that improve working conditions and help to conserve resources and the environment in our communities.

### Production

Our systematic [product stewardship programmes](#) ensure manufactured products meet regulatory requirements in countries where we produce them and also in countries to which we are selling. Increasingly, customers and consumers want to know the sustainability credentials of the products they manufacture and use. To meet expectations, we have developed [life cycle assessments](#) (LCAs) for our key products that are aligned with international standards. LCAs are used across our business units as a means of evaluating the potential impacts of our products throughout their life cycle. We work with our customers to ensure we meet their product design and quality specifications.

### Distribution

We understand our products and ensure they are safely transported to our customers while meeting regulatory requirements. Keeping up with changing product regulations and selling into new markets has posed a challenge to Rio Tinto in 2015. Through our systematic approach, strong association links and internal resources we are meeting the needs. However we see this as an area that will continue to require more time and effort. For example the introduction of the Korean chemical registration scheme (K-REACH) in 2015 has meant many of Rio Tinto's businesses have had to respond or assist customers in meeting the requirements.

### End-of-life

Our products contribute to sustainable development by contributing to sustainable communities, sustainable markets and a sustainable stock of goods that can be used and recycled for centuries to come.

### Cross-functional practices

Employees and external stakeholders are an important part of our value chain. [Our People strategy](#), [The way we work](#) and our [Human rights policy](#) set out how we act. We take the care of our employees and the environments we operate in very seriously, and implement strong health, safety, and environment requirements across all sites.

Supply chain visibility is becoming more relevant throughout the world, particularly following the implementation of regulations such as the US Securities and Exchange Commission's (SEC) conflict minerals legislation. Rio Tinto has completed due diligence on its supply chain and publicly reports its compliance with the SEC's conflict minerals requirements.

### Results

- We completed extensive research into our bauxite shipping operations and have received authorisation to continue safely shipping bauxite from our Australian sites as a Group C schedule under the International Maritime Solid Bulk Cargoes Code.
- We continued to conduct due diligence on our supply chain and report on conflict minerals according to US Securities and Exchange Commission requirements. The [Responsible Jewellery Council](#) renewed Rio Tinto's certification which included a Chain of Custody certification for its Kennecott operations.
- We are rolling out a system to deliver the latest safety data sheet to our customers automatically.
- Oyu Tolgoi LLC continues to work in partnership with the non-profit organisation American Center for Mongolian Studies and the Royal Roads University of Canada to deliver an innovative supplier development programme in Mongolia. This programme involves graduate students from abroad teaming with local university students to offer free management consulting to native Khanbogd businesses.

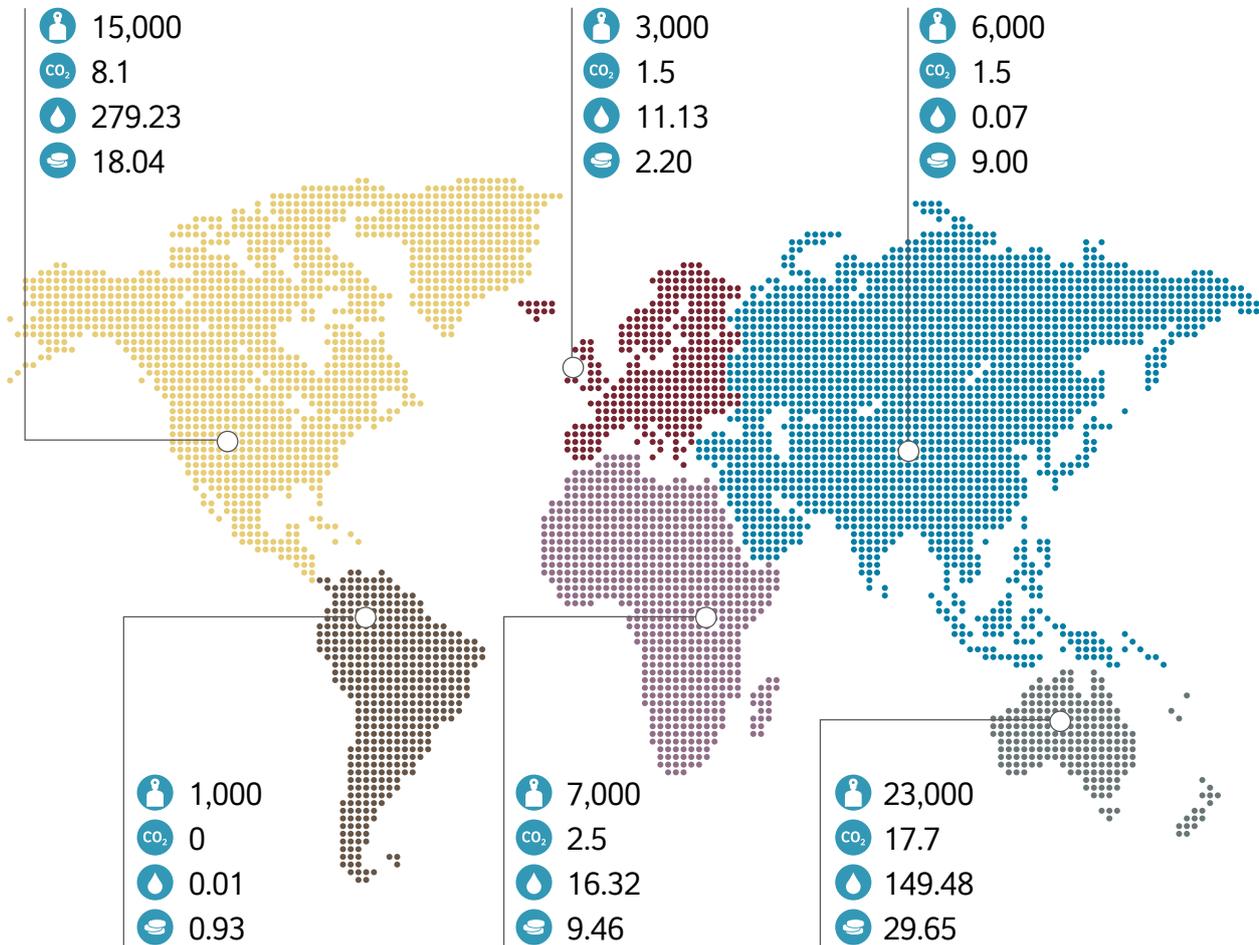


See our performance in the interactive charts  
[www.riotinto.com/sd2015/charts](http://www.riotinto.com/sd2015/charts)





# Performance



\* South America emissions are 1,028 tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e). Due to rounding, sum may not match total emissions provided elsewhere.

\*\* Community contribution does not include Rio Tinto management costs and direct payments.

Employees

Emissions\* (million tonnes CO<sub>2</sub>-e)

Freshwater use (billion litres)

Community contribution\*\* (US\$m)

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# Performance

Every year, we report on our sustainable development performance through a number of channels. In addition to the performance highlights in our Annual report, we publish information on our programmes and performance data in this Sustainable development report.

We also report consistent with or under other voluntary commitments, including:

- [Global Reporting Initiative](#)
- [International Council on Mining and Metals \(ICMM\) Sustainable Development Framework](#)
- [United Nations Global Compact](#)
- [Carbon Disclosure Project](#)
- [Carbon Disclosure Project Water Disclosure](#)
- [Dow Jones Sustainability Index](#)
- [FTSE4Good](#)

## Reporting at a Group level

*The way we work*, our global code of business conduct, outlines our commitment for transparency consistent with good governance and commercial confidentiality. It also outlines our approach to internal controls and Group records management to ensure our disclosures are a true and fair view of our affairs.

Our sustainable development data are reported for calendar years and, unless otherwise stated, represent 100 per cent of the parameter at each managed operation, even though Rio Tinto may have only partial ownership. We report in line with the [Global Reporting Initiative](#) (GRI) G4 guidelines. Accordingly, we use a [materiality](#) assessment to help us focus this report on those issues that are most important to our internal and external stakeholders. Omission from the material issues covered in our report does not mean that the issue is not managed by the company.

We have implemented [ICMM's Sustainable Development Framework](#) and disclosed the alignment of our policies, strategies, standards and practices with ICMM's principles and position statements.

We collect health, safety, environment and community data using industry standard techniques consistent with Rio Tinto standards. Our standards are applicable, on a risk-assessed basis, to all Rio Tinto business units and managed operations, including new acquisitions, administration/corporate offices and research facilities located off-site at all stages of their lifecycle.

We apply global [definitions](#) and guidance to ensure consistency and comparability between operations. We store data, which is queried and aggregated to the Group level, in a central database to avoid manual intervention. In line with Rio Tinto standards our calculations use formulae from relevant industry protocols (for example the GRI, the International Organization for Standardization and the International Panel on Climate Change (IPCC)) where available.

The most accurate practical measurements of input data are used in our calculations: for example, invoiced quantities with stockpile adjustments or measurements from equipment located at the point of use or abstraction.

Where measurement equipment is not in place, input data are determined using reasonable estimates. The most accurate and practically available emission factors and calorific values are used in our calculations. For example, where we do not examine the composition of fuels ourselves, we use (in order of priority) factors provided by our suppliers, regional sources or reporting schemes, the IPCC or the International Energy Agency.

Data reported in previous years may be modified if business or Group verification processes detect material errors, or if changes are required to historic data to ensure comparability with current year data (eg updating emission factor assumptions).

Wherever possible, data for operations acquired prior to 1 October during the reporting period are collected for inclusion in Rio Tinto datasets. Divested operations are included in our data collection processes up until the transfer of management control.

Descriptions of the systems and approaches we use to manage sustainable development issues have been reviewed for factual accuracy by internal subject matter experts.



# Assurance

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

The rules we use to define how we report data at the Group level can be found in the Performance overview and the definitions of the subject matter selected for assurance can be found in our [Glossary](#).

Download our [independent limited assurance report](#).

## Ethical indexes and awards

Investors consider the environmental, social and ethical impacts of their investments. As a result, there is now greater emphasis on providing material information on companies' non-financial performance in a comparable format.

Investors use ethical indexes as an important tool in the process to screen companies to identify issues or challenges. We see social, environmental and economic challenges as opportunities to build our reputation as a trusted partner.

Some examples of corporate responsibility indexes that we participate in are outlined here:

- The [Dow Jones Sustainability Indexes](#) (DJSI) track the financial performance of the leading sustainability-driven companies. Of the largest 2,500 firms worldwide, only the top ten per cent, in terms of economic, environmental and social criteria, qualify for the DJSI World Index. Rio Tinto has been included in the DJSI series since 2002 and is included in the 2015 DJSI World, DJSI European and DJSI Asia Pacific and Australia indexes. In 2015, we maintained our position on the index and were awarded Silver Class in RobecoSAM's Metals and Mining Sustainability Leaders Group.
- The [FTSE4Good Index](#) has been designed to measure the performance of companies that meet globally-recognised corporate responsibility standards, and to facilitate investment in those companies. We have been a constituent member of the FTSE4Good Index since becoming eligible for assessment in 2007. In 2015, we retained our leading position on the index and are ranked in the top one per cent of our sector.



### Awards

In 2015 we participated in and were recognised by various national award schemes. Three of the awards we received were:

- The US National Mining Association's Sentinels of Safety Award at Rio Tinto Kennecott for their outstanding safety performance in 2014 (large metal/non-metal mill category).
- The American Exploration and Mining Association's (AEMA) Environmental Excellence Award for our clean-up of the Holden Mine site.
- The Indonesian Government's "Caring Company Forest Reclamation" award for rehabilitation at the Kelian Mine.



# Goals and targets

To drive continuous improvement, we have set Group targets for a range of sustainability metrics. These help us to improve performance and manage risk.

Our targets are designed using the following principles:

- They focus on internal performance, while considering external drivers.
- They must be relevant to the nature of our business.
- They need to be measurable and transparent and consistent with other Rio Tinto objectives.
- They must include a degree of stretch, while being realistically achievable with appropriate management.

Our board endorses our sustainable development targets. It also receives regular updates on our progress and the key issues affecting performance.

## Targets

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.

A year-on-year improvement in the rate of new cases of occupational illness per 10,000 employees annually.

All managed operations will have reviewed – and increased their focus on managing – their health risks, through implementation of critical control management plans (CCMPs) to address their specific material health risks, by the end of 2015<sup>(a)</sup>.

Ten per cent reduction in total greenhouse gas emissions intensity between 2008 and 2015<sup>(a)</sup>.

All managed operations with material water risk will have achieved their approved local water performance targets by 2018.

Our diversity goal is to employ people based on job requirements that represent the diversity of our surrounding communities<sup>(a)</sup>.

We are targeting:

- Women to represent 20 per cent of our senior management by 2015.
- Women to represent 40 per cent of our 2015 graduate intake.
- 15 per cent of our 2015 graduate intake to be nationals from regions where we are developing new businesses.

By 2015, all operations have in place locally appropriate, publicly reported social performance indicators that demonstrate a positive contribution to the economic development of the communities and regions where we work, consistent with the Millennium Development Goals<sup>(a)</sup>.

## Outcomes in 2015

4 fatalities at managed operations in 2015.

25 per cent reduction in our AIFR compared with 2014.

78 per cent increase in the rate of new cases of occupational illness compared with 2014, due primarily to the change in criteria for noise-induced hearing loss consistent with US Occupational Safety and Health Administration (OSHA) standards.

96 per cent of managed operations have identified their critical health risks and implemented CCMPs with the remainder on track to do so in 2016.

We exceeded our target with 21.1 per cent reduction in our total greenhouse gas emissions intensity compared with 2008.

60 per cent of managed operations with a material water risk are on track to meet their approved local water performance targets.

- Women represented 18.1 per cent of our senior management in 2015.
- Women represented 43 per cent of our 2015 graduate intake.
- 33.3 per cent of our 2015 graduate intake were nationals from regions where we are developing new businesses.

We met our target in 2014, ahead of schedule, and now all operations have locally appropriate, publicly reported indicators in place.

(a) The target period is complete.



# GRI

We report our sustainable development performance in accordance with the core option of the new Global Reporting Initiative (GRI) G4 guidelines and the GRI Mining & Metals sector disclosures. We use a materiality assessment to select what information should be included in our reports. The issues that meet the materiality threshold are linked to the GRI aspects and we map the boundaries where impacts could occur.

This checklist includes responses to the GRI G4 general standard disclosures, our disclosure on our management approach, responses to the specific standard disclosures and indicators and the Mining & Metals sector indicators that are deemed material.

We have engaged an independent external assurance organisation to provide assurance over selected sustainable development topics within our Annual report.

## General standard disclosures

- Strategy and analysis
- Profile
- Identified material aspects and boundaries
- Ethics and integrity, Governance and Engagement

## Disclosure on management approach

- Management approach

## Performance indicators

- Economic
- Environmental
- Labour practices and decent work
- Human rights
- Society

Download our [GRI checklist](#).

# ICMM framework

As members of the International Council on Mining and Metals (ICMM), Rio Tinto has committed to implementing the ICMM Sustainable Development Framework.

The ICMM was established in 2001 to improve sustainable development performance in the mining and metals industry. Today, it brings together 23 mining and metals companies as well as 34 national and regional mining associations and global commodity associations. Visit ICMM's website to find more information on how leading companies are working together and with others to strengthen the contribution of mining, minerals and metals to sustainable development.

There are three elements to the Sustainable Development Framework which are mandatory for corporate members to meet:

1. Principles – implement the ten ICMM Sustainable Development Principles and any mandatory requirements set out in ICMM position statements throughout the business.
2. Reporting – report in accordance with the core option of the new Global Reporting Initiative (GRI) G4 framework.
3. Assurance – provide independent assurance that the ICMM commitments are met.

ICMM conducts an annual assessment of the progress that each member company is making against these performance commitments. The resulting annual member performance assessment is published in ICMM's Annual Review.

Find out more about how these requirements are embedded in our business.

Download our [ICMM sustainable development framework](#).

# UNGC

The [United Nations Global Compact](#) (UNGC) is a voluntary commitment by businesses to endorse, observe and promote a set of core values in the areas of human rights, labour standards, environmental practice and anti-corruption. These values are reflected in the ten principles.

Rio Tinto became a signatory when the Global Compact was founded in 2000. More than a decade on we remain committed to the ten principles and to promoting the Global Compact wherever we operate.

The ten principles on human rights, labour standards, environment and anti-corruption are fully reflected in our policy, standards and guidance. We report our implementation of the ten principles in our annual Communication on Progress (COP). Our COP is widely available to stakeholders and is reported at the GC Advanced level which is the UN's higher standard for corporate sustainability performance and disclosure.

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 Global Compact's Human Rights Working Group, an expert advisory group.

Download our [Communication on Progress](#).



# Performance data

## Environment

	2015	2014	2013	2012	2011
Significant environmental incidents <sup>(1)</sup>	0 <sup>(2)</sup>	12	15	7	11
Fines and prosecutions – environment (US\$ '000)	130.4 <sup>(3)</sup>	319.5	190.3	47.1	236.4
Energy use (Petajoules)	433	450	484	502	516
Greenhouse gas emissions – Scope 1 (million tonnes CO <sub>2</sub> equivalent)	19.8	21.9	23.6	26.5	27.4
Greenhouse gas emissions – Scope 2 (million tonnes CO <sub>2</sub> equivalent)	12.0	12.4	14.4	16.4	17.1
Greenhouse gas emissions – total (million tonnes CO <sub>2</sub> equivalent)	31.3	33.8	37.4	40.7	43.2
Freshwater withdrawal (billion litres)	561	555	516	537	545
Freshwater use (billion litres)	456	465	436	446	465
Land footprint – disturbed (square kilometres)	3,629	3,592	3,556	3,530	3,485
Land footprint – rehabilitated (square kilometres)	533	502	472	446	422
Mineral waste disposed or stored (million tonnes)**	1,740	1,737*	1,950	1,853	1,535
Non-mineral waste disposed or stored (million tonnes)**	0.30	0.42*	0.53	1.04	0.58
SO <sub>x</sub> emissions (thousand tonnes)	86	118	128	153	184
NO <sub>x</sub> emissions (thousand tonnes)	67	75	78	73	72
Total fluoride emissions (thousand tonnes)	2.3	3.2	3.1	3.28	4.03
Particulate (PM10) emissions (thousand tonnes)	94	102*	113	136	109

\* Numbers corrected from those published in previous year following data verification.

\*\* Mineral and non-mineral waste data excludes material that has been reused.

(1) We adopted a definition of “significant environmental incidents”, in 2015. See [riotinto.com/sd2015/glossary](http://riotinto.com/sd2015/glossary).

(2) In accordance with the significant environmental incident definition we reported no significant environmental incidents. In 2014 we reported 12 environmental incidents. However, only one incident with a major or catastrophic impact would have been reported in 2014 when restated in accordance with the new definition.

(3) In 2015 we paid environmental fines totalling USD\$130,371 based on the prosecutions paid against the following incidents: a stack test failure at the ammonia scrubber unit (US), late reporting (Canada), failure to meet an offset deadline (Australia), finalisation of prosecution from a 2013 spill of wet scrubber liquor (Canada), and two fines for failure to notify the Northern Territory Environment Protection Authority according to permit (Australia).

## Major material purchases for 2015<sup>(1)</sup>

Material	Amount ('000 tonnes)
Petroleum coke	1,568
Caustic soda	551
Diesel	1,377
Fuel oil	98.6
Sulphuric acid	335.57
Explosives*	532
Coal tar pitch	293
Aluminium fluoride	23
Lubricants and greases	23

\* Only bulk product included. Other initiating explosive items purchased in boxes or pieces excluded.

(1) Most of the materials included in the table are globally procured. Most mine-related services are procured within the local areas, states, territories and provinces where we operate.

## Social

	2015	2014	2013	2012	2011
Employees (average) <sup>(1)</sup>	55,000	60,000	66,000	71,000	68,000
Fatalities at managed operations from safety incidents	4	2	3	2	6**
Fatalities at managed operations from health incidents	–	–	–	1	–
All injury frequency rate (AIFR) (per 200,000 hours worked)	0.44	0.59	0.65	0.67	0.67
Lost time injury frequency rate (LTIFR) (per 200,000 hours worked)	0.25	0.37	0.42	0.37	0.37
Fines and prosecutions – safety (US\$ '000)	23.5	95	145.5	536.1	18.3
New cases of occupational illness (per 10,000 employees)	30	17*	16	15	13
Number of lost time injuries	220	381	500	535	470
Fines and prosecutions – health (US\$ '000)	0.0	0.0	0.0	23.2	0.0

\* Numbers corrected from those published in previous year following data verification.

\*\* Six fatalities at Rio Tinto managed operations or operations held for divestment in 2011.

(1) These figures include the Group's share of joint ventures and associates (rounded to the nearest thousand).



## People

Employees by gender and employment type	Female	Male
Executive management	18	103
Senior management	90	375
Regular employees <sup>(1)</sup>	7,443	35,328
Students/Interns	130	322
<b>Total permanent employees</b>	<b>7,681</b>	<b>36,128</b>
Temporary	304	738
<b>Total<sup>(2)</sup></b>	<b>7,985</b>	<b>36,866</b>

(1) Includes Graduates.

(2) Figure is inclusive of temporary employees.

Data does not include contractors and non-executive directors. Total contractors are 3,470. Gender distribution for our total workforce is based on managed operations (excludes non-managed operations and joint ventures) as of 31 December 2015. Less than one per cent of the workforce gender is undeclared.

Workforce by region and gender	Female	Male
Africa	742	4,004
Asia	1,064	2,312
Australia/New Zealand	3,662	16,664
Europe	579	2,155
Americas	1,934	11,692
Other regions*	4	39
<b>Total</b>	<b>7,985</b>	<b>36,866</b>

\* Other regions include locations in Oceania other than Australia and New Zealand.

Excludes contractors, and non-executive directors. Total contractors are 3,470. Gender distribution for our total workforce is based on managed operations (excludes non-managed operations and joint ventures) as of 31 December 2015. Less than one per cent of the workforce gender is undeclared.

Employee hiring rate and turnover	Gender		Age group				Region				
	Male	Female	Under 30	30-39	40-49	over 50	Africa	Asia	Australia/ New Zealand	Europe	Americas
Employee hiring rate	7%	11%	25%	6%	4%	3%	8.6%	6.4%	6.3%	9.5%	8.4%
Employee turnover	13%	19%	24%	12%	11%	15%	11.4%	9.4%	14%	26.6%	13.0%

Excludes contractors, and non-executive directors. Total contractors are 3,470. Termination data does not include reduction of employees due to business divestment. Rates have been calculated over average headcount in the year. Gender distribution for our total workforce is based on managed operations (excludes non-managed operations and joint ventures) as of 31 December 2015. Less than one per cent of the workforce gender is undeclared.

Workforce by region	Fatalities	AIFR (per 200,000 hours worked)	Occupational illnesses (per 10,000 employees*)		Absenteeism rate <sup>(1)</sup>	
			Male	Female	Male	Female
Africa	3	0.37	6	49.25	50.15	
Asia	0	0.28	0	26.02	43.94	
Australia/New Zealand	0	0.50	18	79.46	85.58	
Europe	0	0.47	6	0.38	2.90	
Americas	1	0.42	81	50.72	50.18	
Not assigned	–	–	3*	–	–	
<b>Total</b>	<b>4</b>	<b>0.44</b>	<b>30</b>	<b>58.59</b>	<b>62.13</b>	

\* As per average headcount data sourced from an internal health database; for certain data points, region cannot be established and occupational illness rate of 3 has not been assigned.

(1) Absenteeism comprises of sick leave, disability, FMLA and other unpaid leave.

Types of fatal injuries are located in the interactive web charts on this website. Lost time injuries are presented in the Annual report in the Sustainable development section performance data table (page 24). For illness and injury rates, breakdown by gender is not available.

Employees receiving regular performance and career development reviews	Gender		Employee category				
	Male	Female	Executive management	Senior management	Regular employees <sup>(1)</sup>	Operator/Trade/ Technical	Apprentice
	37%	59.2%	96%	96%	88%	16%	95%

(1) Includes Graduates.

The population included covers those employees who are managed via the global performance process. There are various other performance processes that are all local site-based that cover the remaining population. Excludes contractors, and non-executive directors. Total contractors are 3,470. Gender distribution for our total workforce is based on managed operations (excludes non-managed operations and joint ventures) as of 31 December 2015. Less than one per cent of the workforce gender is undeclared.



## Performance data

### Economic

	2015	2014	2013	2012	2011
Gross sales revenue (US\$ million)	36,784	50,041	54,575	55,597	65,298
Net cash generated from operating activities (US\$ million) <sup>(a)</sup>	9,383	14,286	15,078	9,430	20,235
Underlying earnings (US\$ million)	4,540	9,305	10,217	9,269	15,572
Underlying earnings per share (US cents)	248.8	503.4	553.1	501.3	809.7
Profit/(loss) after tax for the year (US\$ million)	(1,719)	6,499	1,079	(3,027)	6,790
Net debt (US\$ million)	13,783	12,496	18,055	19,192	8,342
Capital expenditure (US\$ million) <sup>(b)</sup>	4,685	8,162	13,001	17,615	12,573
Employment costs (US\$ million)	5,446	6,659	7,568	8,671	7,140
Payments to governments (US\$ million) <sup>(c)</sup>	3,666	8,938	9,414	11,625	12,587
Total value added (US\$ million)	18,888	29,178	31,818	26,195	38,193
Payments to suppliers (US\$ million)	17,896	21,370	26,054	30,271	28,444
Community contributions (US\$ million)	184	264*	332*	291	294

\* Numbers corrected from those published in previous year following data verification.

(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 payments to governments include:

	2015	2014	2013	2012	2011
Amounts paid by Rio Tinto (US\$ million)	n/a <sup>(1)</sup>	7099	7470	9708	10958
Amounts paid by Rio Tinto on behalf of its employees (US\$ million)	n/a <sup>(1)</sup>	1839	1944	1917	1629

(1) Taxes paid report in 2015 will be available on our website in June 2016.

### Detailed performance data

#### 2015 Greenhouse gas emissions by location

(million tonnes of CO<sub>2</sub> equivalent)

Location	Scope 1 greenhouse gas emissions	Total greenhouse gas emissions
Australia	9.4	17.0
Canada	6.0	6.0
France	0.6	0.9
South Africa	0.5	2.3
United Kingdom	0.1	0.1
United States	1.6	2.0
Other: Rest of Africa	0.1	0.2
Other: Rest of Europe	0.5	0.5
Other: Asia, New Zealand, Central America, South America	1.0	2.2
<b>Rio Tinto total</b>	<b>19.8</b>	<b>31.3</b>

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

Product group	Scope 1 greenhouse gas emissions	Total greenhouse gas emissions
Aluminium	9.5	17.0
Copper & Coal	3.5	5.9
Diamonds & Minerals	2.2	3.9
Iron Ore	4.6	4.5
Other*	0.0	0.0
<b>Rio Tinto total</b>	<b>19.8</b>	<b>31.3</b>

\* Other includes Exploration, Technology & Innovation, Corporate offices, etc.

Note: Due to rounding, sum may not equal the total shown



## 2015 Water withdrawal by product group

(billion litres)

Product group	Marine	Surface water	Groundwater	Municipal water	Total
Aluminium	55	42	33	13	144
Copper & Coal	0.0	36	49	5.4	91
Diamonds & Minerals	4.2	71	12	14.4	102
Iron Ore	7	195	185	5.1	392
Other*	0.0	0.0	0.0	0.0	0.0
<b>Rio Tinto total</b>	<b>66</b>	<b>344</b>	<b>280</b>	<b>38</b>	<b>728</b>

\* Other includes Exploration, Corporate offices, etc.

Note: Values greater than 10 billion litres are shown to the nearest billion.

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

## 2015 Water withdrawal by location

(billion litres)

Location	Marine	Surface water	Groundwater	Municipal water	Total
Australia	58.68	52.30	195.19	19.08	325.25
Canada	0.6	268	23	5.1	297
France	0	0.3	1.0	0.3	2
South Africa	0	4	0.5	9.9	14
United Kingdom	6.8	0.4	0	0.0	7.3
United States	0.0	16.42	33	2	50.76
Other: Rest of Africa	0	3	1.7	2.1	7
Other: Rest of Europe	0	0	10	0.1	10
Other: Asia, New Zealand, Central America, South America	0	0.1	15.1	0	15.3
<b>Rio Tinto total</b>	<b>66</b>	<b>344</b>	<b>280</b>	<b>38</b>	<b>728</b>

Note: Values greater than 10 billion litres are shown to the nearest billion.

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

## 2015 workforce by location<sup>(1)</sup>

Location	Employees
Australasia	29,000
North America	15,000
Europe	3,000
Africa	7,000
Other*	1,000
<b>Rio Tinto total</b>	<b>55,000</b>

(1) These figures include the Group's share of joint ventures and associates (rounded to the nearest thousand).

\* Other includes Central and South America.





# Case studies



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Image: Kitimat, Canada.



## Sharing risk to deliver mutual value



### Working together for a better future

Australia's remote western Cape York Peninsula is home to Rio Tinto's Weipa bauxite mine, which produces more than 27 million tonnes of bauxite annually.

When geologist Harry Evans discovered the bauxite reserves in 1955, he was helped by local Indigenous people George Wilson (Piiramu), Old Matthew (Wakmatha), and Lea Wassell. However in the years that followed the discovery, the nearby Mapoon mission closed and Aboriginal people were forcibly removed in 1963. Although not instigated by then owner Comalco, it was a sad chapter in the history of the region. Sixty years on, Rio Tinto is working in partnership with local Indigenous people to create positive economic, cultural, social and environmental outcomes for future generations.

Image: Rio Tinto employees near Aurukun, Queensland, Australia.



## Sharing risk to deliver mutual value

### Empowering decision-making

Three Aboriginal Agreements underpin all activities at our Weipa operations – the Western Cape Communities Co-existence Agreement (WCCCA), the Ely Bauxite Mining Project Agreement, and the Weipa Township Agreement.

These agreements outline how the business and Traditional Owners work together towards mutual value. They provide the land access that's critical for Rio Tinto's operations, and ensure the social and economic benefits are shared with the local Weipa community.

A fundamental aspect of these agreements is ensuring Aboriginal stakeholders are involved in deciding how benefits should be used within their communities. Both the WCCCA and Ely agreement are linked to trusts which are used to fund sustainable community initiatives such as educational bursaries, outstations for Traditional Owners and other on-Country activities. The WCCCA trust's strategy is to accumulate more than A\$150 million for Traditional Owners and Western Cape communities by 2022, and is currently tracking ahead of target.

### Building local talent

According to the Minerals Council of Australia, more than 60 per cent of Australia's mining operations neighbour Indigenous communities, however Indigenous employees make up on average only six per cent of the country's mining workforce. Twenty four per cent of Weipa's employees are Indigenous, and 13 per cent are local Aboriginal people.

Weipa's Indigenous Employment and Training strategy was developed in collaboration with members of the agreements including the WCCCA, and defines our long-term commitment to increasing the participation, retention and advancement of local Aboriginal people in our operations. It includes a number of initiatives designed to improve Indigenous employment participation rates, while also ensuring the business has the skills needed to support its operations.

One such initiative is Weipa's Kinection programme – an innovative pre-employment training course designed to equip local Aboriginal people with the skills needed to work in the mining sector. Kinection provides training in a range of personal development and practical work readiness skills, such as social and emotional wellbeing activities, and entry-level knowledge across areas such as road and building construction, machinery repairs and maintenance, and conservation and land management. In 2015, 12 people completed the programme with four transitioning into stage two (entry level roles within the business).

Weipa also runs a traineeship programme which helps local Indigenous people gain practical industry experience. Some trainees have gone on to work at Weipa and others have pursued apprenticeships or secured roles with other companies.

Our decade-long partnership with the Western Cape College in Weipa focuses on developing school-to-work pathways and providing quality local education

options for the region. Since the partnership began, there has been a 186 per cent increase in the number of senior certificates awarded to Indigenous students. The partnership was awarded the 2015 Excellence in Industry Partnerships at the Queensland Government Showcase Awards for Excellence in Schools.

In 2014 we also introduced a school holiday programme, which allows local Aboriginal boarding school students to spend time at our Weipa operations and learn about the different parts of the business and possible career pathways.

### Rio Tinto Weipa

**24%**  
of workforce are Indigenous

**13%**  
of workforce are local Aboriginal people

**30%**  
reduction in Indigenous turnover





## Passing on knowledge

In November 2015 Rio Tinto announced the approval of the US\$1.9 billion Amrun (formerly South of Embley) bauxite project, located between Weipa and Aurukun - an area that encompasses the land of the Wik-Waya people.

Rio Tinto worked closely with the Wik-Waya Traditional Owners to develop the South of Embley (Amrun) Communities, Heritage and Environment Management Plan (CHEMP). A key principle of the CHEMP is ensuring future cultural heritage work is jointly planned, and primarily focused on places and topics that are important to Traditional Owners.

As one example of this, Rio Tinto is now taking a different approach to the management of cultural heritage sites by placing a much stronger focus on important story places that are not located on the bauxite plateau. These story places have significant meaning and cultural importance to the Wik-Waya people. Rather than focussing on the identification and management of individual artefacts in isolation, the Weipa team is working with the Wik-Waya Elders to map and record these sites and their stories. The information will then be used to create educational resources for young Wik-Waya people, helping to ensure the culture, connection and history of the area remains strong among future generations.

Facilitating connection to Country and culture in this way is also seen as an opportunity to improve wellbeing, and provides opportunities for Traditional Owners who are involved in the work to take steps towards full employment.

“Our country is who we are. It is our culture and our past and future. We understand that the mine will change our country. These changes mean that some cultural heritage places need to be moved and disturbed to allow the mine to be built. We accept that this is necessary but at the same time we want to make sure that the places that are left behind are properly looked after for future generations.”

Loyla Chevathen, Wik-Waya Elder.

Image: Rio Tinto Weipa is working with Wik-Waya Elders to map and record important story places for future generations.





## Developing the business's future Indigenous leaders

A key focus of Weipa's Indigenous Employment and Training strategy is to identify and develop leaders among the mine's Aboriginal employees, and help them progress by preparing plans to build leadership capacity and skills.

Ray Ahmat, Yupungathi Traditional Owner and Weipa-based mining superintendent, started his career with Rio Tinto more than 15 years ago, and now leads a team of around 170 people.

"The broad range of careers available with a world-class operation right on our doorstep provides a unique opportunity to develop local talent in remote Australian communities. I look forward to ensuring we continue to operate in a mutually respectful way, now and for generations to come," Ray said.

*Hear from Ray Ahmat about his role at Weipa*

"The broad range of careers available with a world-class operation right on our doorstep provides a unique opportunity to develop local talent in remote Australian communities."

Ray Ahmat, Rio Tinto Weipa.

Image: Ray Ahmat, mining superintendent.

## Building the region's economic sustainability

One of the key issues affecting employment levels among Indigenous Australians is a lower level of education and training.

Through the Western Cape Regional Partnership Agreement (RPA), Rio Tinto is working with Western Cape Indigenous stakeholders and Australia's state and federal governments to overcome barriers to Indigenous employment, grow the region's economy, and increase Indigenous participation in a broad range of industries beyond the mining sector.

The RPA's initiatives include workshops that help adults improve their skills in areas such as driving, literacy and numeracy – areas which are known barriers to Indigenous people gaining employment – as well as forums to support the development of local Indigenous businesses.

We are also looking for ways to help broaden the regional economy and encourage growth of local businesses through our Weipa supplier development and procurement strategy. This includes building relationships with Indigenous businesses in the region, and educating locals on our procurement process and criteria.

## Connecting with the Country

Weipa's mining operations start and finish with Traditional Owners working with Rio Tinto to understand and protect the areas of cultural and environmental significance through our clearing and rehabilitation process.

The progressive rehabilitation of land is a substantial undertaking at Weipa given the scale of the operations. To ensure the long-term sustainability of our rehabilitation efforts, Weipa has involved local Aboriginal people in the land rehabilitation process. Rio Tinto's general manager, Weipa Operations, Gareth Manderson says it not only benefits the local Indigenous community, but also makes good business sense.

"We recognise that we mine on Aboriginal land and can benefit from Traditional Owners' unique connection to the land, in their understanding of the geography and climate, while we both work to sustain the long-term viability of the community," Gareth said.

"We are proud our traineeship programme and land rehabilitation model offers opportunities and land management experience to local Aboriginal people, as part of the three Aboriginal Agreements which underpin our operations."

Rio Tinto Weipa is partnering with local Aboriginal business Northern Haulage and Diesel Services to coordinate a community seed collection programme. In 2015, more than 120 local Aboriginal people from Weipa and the surrounding communities of Aurukun, Napranum and Mapoon collected approximately 1,150kg of seed from 43 different local plant species that will be used to help revegetate the land.

Local Aboriginal trainees have also joined Weipa's land management team to help with daily land rehabilitation activities. The activities range from weed spraying to monitoring the growth of the regeneration nursery, and prepping and spreading seed in areas ready for rehabilitation.



## Collaborating to create trust



### Investing for the long term

Oyu Tolgoi is one of the world's largest copper-gold mining projects, and represents an opportunity to bring lasting development to Mongolia. Oyu Tolgoi's vision – natural wealth to enduring value, knowledge and skill – encapsulates how Rio Tinto and its partners are working together to build trust among all stakeholders and ensure this valuable resource benefits Mongolia's future at every level, from local employment, education and the environment to the national economy.

Image: Employees undergo training at Oyu Tolgoi, Mongolia.



### Oyu Tolgoi

Oyu Tolgoi is located in the southern Gobi desert of Mongolia, approximately 80 kilometres north of the Mongolia-China border and 550 kilometres south of the capital, Ulaanbaatar. It is jointly owned by the Government of Mongolia (34 per cent) and Turquoise Hill Resources (66 per cent, of which Rio Tinto owns 51 per cent). Since 2010, Rio Tinto has also been the manager of the Oyu Tolgoi project.

With an expected multi-generational productive life, the Oyu Tolgoi copper-gold mine in southern Mongolia is a truly long-term project. It has the potential to contribute significantly to Mongolia's development and prosperity. As the manager and joint owner of Oyu Tolgoi, Rio Tinto is focused on ensuring the project brings lasting benefits to the country and is sustainable over time. This means forging strong partnerships with communities that are built on trust, developing the local talent that can drive and support future growth, and stewarding the country's environmental resources – such as water – with care.

By making these investments in communities, education and the environment, the Oyu Tolgoi operation can have a positive impact that stretches across both the local and national levels.

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US\$ **126**m

committed to education and training over five years

**95%**

national workforce, 21.7% from South Gobi

US\$ **6.8**m

spent on sustainable development projects in 2015

US\$ **5.4**bn

spent in-country 2010-2015, 75% of which was directly with Mongolian suppliers

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## Collaborating to create trust

### Groundbreaking partnership

In April 2015, Oyu Tolgoi established precisely the type of partnership agreement that will help to spread and consolidate the benefits of this large-scale project. The signing of a Cooperation Agreement with Oyu Tolgoi's partner communities, Umnugobi aimag (province) and the Khanbogd soum (county) as well as Manlai, Bayan-Ovoo and Dalanzadgad soums was the first of its kind in Mongolia and took four years to finalise. Its ultimate goal is to build a stronger relationship between Oyu Tolgoi and the community and promote sustainable socioeconomic development for current and future generations including the promotion of employment and training, water and pasture land management, environmental and cultural heritage protection and monitoring, health and safety, and local business development.

Each year, Oyu Tolgoi will contribute US\$5 million to a Development Support Fund. The fund is administered by a separate legal entity with a board consisting of representatives from the local communities and Oyu Tolgoi, and is destined for community programmes and projects within Umnugobi aimag that meet defined criteria. The board decides how to spend the funds to deliver the best outcomes for the region. The first tranche of investment has been made to develop two kindergartens for local children.

According to Oyu Tolgoi's chief executive officer Andrew Woodley, "The agreement builds on the great work that has already been achieved – in roads, power, infrastructure, education and health – and sets a clear direction for future collaboration and cooperation. I am certain that this is a strong foundation for growth; and, that the agreement will be a benchmark and model for other projects in the future." Umnugobi aimag Governor Mr Badraa underlined the significance of this partnership, saying: "The cooperation agreement opens the door for the development of the Umnugobi aimag, and will help create a brighter future for our citizens."

"The cooperation agreement...  
will help create a brighter future  
for our citizens"

Mr Badraa, Governor, Umnugobi aimag

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US\$5m

per year to be invested in community programmes

US\$2m

donated in 2015 for the construction of  
two kindergartens

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## Collaborating to create trust

### Fostering tomorrow's talent

Mongolia has a young population, reflected in the 70 per cent of employees at Oyu Tolgoi who are aged 25-39. To make sure that the operation has a workforce for both today and the future, since construction began, it has operated a "Talent Pipeline" programme that looks at every stage of people's development – from sparking the enthusiasm of schoolchildren to developing the operation's future leaders. This long-term view of the workforce was a high priority even before the construction of Oyu Tolgoi began.

Bayarmaa Shuuvai, head of the Talent Pipeline programme in 2015, describes it as a "giant jigsaw of training, education, scholarships and apprenticeships, which is central to our long-term approach to our workforce needs". However the Talent Pipeline is designed to benefit not just Oyu Tolgoi but also – like the mining operation itself – the broader economy and society within Mongolia. This was emphasised by the country's Minister of Labour Bayarsaikhan Garidkhuu at a scholarships awards ceremony, who noted that: "Oyu Tolgoi's investment in the education of students, who are the future of Mongolia, proves that our goals are the same. This is an important part of broader cooperation between the Government of Mongolia, the Ministry of Labour and Oyu Tolgoi."

### Youth development

Finding Mongolia's world-class miners of the future is an important goal at Oyu Tolgoi. Each year, the Talent Pipeline's Youth Development programme selects 50 high-school students to undertake extra study and receive support with career development. When they graduate, the best five participants are chosen for one of Oyu Tolgoi's scholarship programmes. To date, 200 domestic scholarships have been awarded, with a further 16 students studying abroad at the end of 2015.

Oyu Tolgoi scholarship student Tugsbuyan Tsedenbaljir went on to take a Master's in mining engineering at the University of British Columbia and has now joined the Rio Tinto Graduate programme. Tugsbuyan says: "With every scholarship, the dreams of a student and their family come true. I would like to thank Oyu Tolgoi for making hundreds of these dreams a reality."

### Apprenticeship programme

The approach to apprenticeships at Oyu Tolgoi is designed for both immediate and long-term needs. Currently, 230 apprenticeships are enrolled in an internationally aligned programme aimed at building individuals' skills and qualifications. Looking further to the future, the programme will also build capacity in the education sector to help meet Oyu Tolgoi's needs over time.

Born to a traditional herder family, D. Khurlee joined Oyu Tolgoi in 2012 as a road maintenance worker. Through the apprenticeship programme he progressed to driving the mine's 290-tonne haul trucks. Khurlee describes his progress from herding to driving as a "huge journey", adding: "It feels great to work in my homeland doing such an interesting job."

### Inspirational leadership

Continuous development is the philosophy of Oyu Tolgoi's rigorous training and development approach for its permanent workforce. The "Inspirational Leadership" programme has so far trained over 480 people at supervisor level and above, spreading world-class leadership skills through the organisation.

For tailings superintendent Tsogjavkhan Sodnomdarjaa, the four-module Inspirational Leadership programme was a valuable opportunity for personal and professional development: "As well as teaching me a lot about myself, the programme provided an opportunity to build trust in the team and open up better communication".

### Investment in education

Complementing the Talent Pipeline programme is the biggest-ever single investment in the Mongolian education and training sector, amounting to US\$126 million over five years. Through its Technical and Vocational Education Programme, Oyu Tolgoi has financed the construction and extension of five technical schools and a Mining School of Excellence. As well as helping develop the curriculum, Oyu Tolgoi has funded the training of nearly 300 technical education teachers and school managers who in turn have delivered the same standard of training to around 800 more teachers.

Gansuvd Chimedbadam is one of 90 Mongolian teachers to have trained in Australia as part of the Oyu Tolgoi Technical Teacher Training programme. Today, she shares her knowledge with hundreds of colleagues in Mongolia. Gansuvd says that "Because of what we have done, my students are becoming more competent and our teachers are becoming more open."

# 200

domestic scholarships

# 70%

employees aged 25-39

# 16

international scholarships

# 480

trained through the Inspirational Leadership programme

# 78

Mongolian employees promoted to leadership roles in 2014 and 2015

# 230

apprentices in apprenticeship programme





## Preserving a precious resource

Oyu Tolgoi is designed to be one of the most water-efficient mines of its kind in the world. As well as only using water from a previously-undiscovered, deep and saline aquifer, the operation will continuously recycle at least 80 per cent of the water used in operations and all of the water used for domestic purposes.

Careful management of existing water sources is also critical for Oyu Tolgoi. As part of the mine's construction, a local river, the Undai, had to be diverted away from the open pit mine. This shallow water in the riverbed is an important water source for local nomadic herders and their livestock, as well as wildlife in this dry region. Oyu Tolgoi worked closely with the community to undertake the work, and the project continues to be monitored to ensure the availability of water and the local ecosystem remains undamaged.

Early in 2016, Oyu Tolgoi was one of the leading signatories to a voluntary code of practice (VCP) for common water management that recognises the need for water to be managed as a shared resource. Brokered by the International Finance Corporation (IFC), the VCP is an important step towards building trust among local stakeholders. A statement issued by the signatories, which include leading mining organisations in Mongolia, said: "The VCP is a powerful display of corporate accountability. It is necessary to balance mining sector development with the human need for water in the water-scarce Gobi desert region. We have made a

statement of intent; now we have to deliver on it." Noting the need for water to be managed with common approaches, IFC representative Tuyen D. Nguyen said: "The mining industry's commitment to the VCP shows its willingness to take a sector-wide approach to address a national challenge."

---

# 0.421 m<sup>3</sup>

water/tonne of ore processed in 2015, significantly better than global average for comparable copper businesses of 1.2m<sup>3</sup>

# 85.6%

water recycling rate in 2015

Image: Oyu Tolgoi's open pit mine, Mongolia.





# Towards a low-carbon future

Rio Tinto recognises the challenge of climate change. In the short term, the policy drivers and imperatives for businesses to take action are weak. However, the intent shown by governments in adopting the Paris Agreement in December 2015 indicates a higher level of ambition. By signing the Paris Pledge, we have supported this intent and a commitment to a safe and stable climate in which temperature rise is limited to less than two degrees Celsius.

We also recognise the need to act now, plan how to reduce greenhouse gas (GHG) emissions to a safe level over the medium term and build resilience against changes already occurring. We have clear goals for reducing our GHG emissions intensity, and we are working to make our operations more energy efficient and to expand our use of renewable power sources. These initiatives benefit our business, our stakeholders and the environment.

Image: Chute-du-Diable hydropower station in the Saguenay, Quebec, Canada.



## Leading through innovation

Our business is energy intensive. When we mine, process and transport the minerals and metals that modern society depends on, we use energy and generate carbon emissions. Given the scale of our business, when we take steps to manage and reduce our energy use and emissions, Rio Tinto has an opportunity to make a sustainable impact on a large scale.

Reducing our energy footprint is not easy. It's a complex process, often involving projects with long time horizons. But we have already made significant progress, cutting our absolute GHG emissions by more than 36 per cent between 2008 and 2015. And we have stated our intent to take further action, signing the COP21 Paris Pledge for Action in 2015 and confirming our aim to substantially decarbonise our business by 2050.

Innovation is an important part of our climate change programme. It helps us to find smarter and more sustainable ways to run and grow our business, and to work in ways that are better for the environment.

Today, we are applying innovation to the challenge of climate change in two key ways: using less energy in our operations and cutting the carbon intensity of our energy mix.

### Smart operations

#### Sustainable smelting

Producing aluminium requires large amounts of energy, which is why Rio Tinto uses hydroelectricity for much of our power needs in primary aluminium. However, our technical advances have also made it possible for Rio Tinto and other smelters to keep the production process for aluminium as efficient as possible. Rio Tinto's proprietary AP Technology™ reduces electricity consumption, drives down atmospheric emissions, including greenhouse gases, and enables producers to recycle waste streams internally. Perfected over 30 years, AP Technology™ is recognised today as the cleanest way to produce aluminium.

#### Energy leadership

We recognise that it is sometimes easy to identify opportunities to save energy but hard to implement them in practice, especially when sites lack the resources to pursue them. In these cases we can work with partners to transform opportunities into action. Richards Bay Minerals (RBM) in South Africa partnered with consultancy Ensignt in 2013 to create the Energy Leadership Programme (ELP). As well as helping RBM find and implement energy efficiency projects, the programme also aimed to create sustainable cultural change within the organisation. Since its inception, the multi-year ELP has investigated 50 projects and already reduced energy costs and improved RBM's bottom line.

## Kitimat: more production with lower emissions

In British Columbia, Canada, modernisation of our Kitimat smelter means it can now produce 48 per cent more aluminium with 50 per cent lower emissions. Kitimat is powered by hydroelectricity from its own power station and uses our proprietary AP40 technology, which is expected to cut its energy usage by 33 per cent per tonne of aluminium produced. This makes Kitimat one of the world's lowest GHG-emitting aluminium smelters.



Image: Kitimat aluminium smelter, British Columbia, Canada.



## Leading through innovation

### Clean energy

As a business that operates long-term, energy-intensive projects, it is in our interest to use sources of power that are as cost effective and sustainable as possible. Sixty seven per cent of all electricity Rio Tinto uses is derived from renewable sources including hydropower, wind and solar. Today, we are finding more and more opportunities to introduce clean energy across our operations.

### Harnessing solar

At the Weipa bauxite operation in Australia, Rio Tinto is using a solar photovoltaic (PV) array to reduce diesel usage at the facility's power stations. The 1.7 megawatt capacity plant will be able to support 20 per cent of the Weipa township's daytime electricity needs, saving up to 600,000 litres of diesel per year and cutting CO<sub>2</sub> emissions by 1,600 tonnes per year. This hybrid solution combines PV with diesel generation to provide a reliable off-grid power source. If its first phase is successful, there are plans to expand the plant and introduce a storage component, with the potential to cut GHG emissions by over 6,100 tonnes per year.

In Karratha, Western Australia, Rio Tinto is installing solar PV on 300 houses it owns for its Iron Ore workforce, reducing CO<sub>2</sub> emissions by 7,000kg per property, per year. In the longer term, a fully off-grid system incorporating battery storage is being considered.

The 1.7 megawatt capacity plant will be able to support 20 per cent of the Weipa township's daytime electricity needs, saving up to

# 600,000

litres of diesel per year and cutting CO<sub>2</sub> emissions by 1,600 tonnes per year

## Hydropower: low cost, low carbon

Low-carbon energy keeps aluminium smelting cost-effective as well as clean. Almost 80 per cent of the power for our smelting operations comes from low-carbon sources, with 55 per cent generated by our own hydropower assets. The carbon footprint from Rio Tinto's aluminium smelters is around half the industry average, at less than six tonnes of carbon dioxide equivalent per tonne of aluminium, compared with an industry average of around 11 tonnes.

Image: Isle-Maligne hydroelectric power station, Quebec, Canada.





## New benchmark for wind power

Supplying energy to the Diavik diamond mine in Canada's remote Northwest Territories is itself an energy-intensive process, as fuel has to be hauled over long distances. Diavik's solution has been to build the world's largest wind-diesel hybrid power facility. With four turbines featuring innovative de-icing technology that allows

them to operate in temperatures as low as  $-40^{\circ}\text{C}$ , the 9.2 megawatt wind farm provides 11 per cent of the mine's power and cuts the winter road fuel haul by around 100 loads each year.

Image: Diavik wind farm, Northwest Territories, Canada.



### Contributing to the low-carbon economy

Many of our materials and innovations have a large part to play in building a low-carbon future. Aluminium, for example, makes lighter vehicles that use less fuel; and the primary market for our borates is insulation, acknowledged as one of the most cost-effective ways to reduce CO<sub>2</sub> emissions. Copper's properties make it a critical component in electric cars, smart systems and renewable energy, while uranium makes it possible to generate large amounts of power with no CO<sub>2</sub> emissions. As a coal producer, Rio Tinto recognises the importance of developing low emission technologies for fossil fuels, and has invested in carbon capture and storage (CCS) pilots and studies over the past 15 years.

### Climate commitment

Rio Tinto has committed to reducing the emissions intensity of its operations and is seeking a substantial decarbonisation of its business by 2050. Our [Climate Change Position Statement](#), published in August 2012, sets out how we see our role in addressing climate change, including how we will work with customers, suppliers, governments and communities to work towards a low-carbon future. In December 2015, we signed the Paris Pledge for Action following the international negotiations at the 21st Conference of the Parties (COP) conference at which a historic climate agreement was reached. In signing the Pledge, we have joined a global community of organisations committed to maintaining "a safe and stable climate in which temperature rise is limited to under two degrees Celsius".

## Aluminium: a metal for the future

- **Infinitely recyclable**
- **Reduces transport emissions**
- **Preserves food and pharmaceutical products**

## Borates: sustainable mineral

- **Important ingredient in insulation fibreglass**
- **Used in textile fibreglass for the blades of wind turbines**

## Copper: material for green innovation

- **Hybrid and electric cars**
- **Renewable energy systems**
- **Smart wiring**

## Coal: developing low emission technologies

- **>A\$100 million invested in carbon capture and storage (CCS)**
- **Sponsor of CO2CRC CCS research organisation**
- **Voluntary contributor to Coal21 Fund for low emission research and development**





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Image: QIT Madagascar Minerals' mineral sands operation, Fort Dauphin, southern Madagascar.





## Critical risk management: Eliminating fatalities

Critical risk management (CRM) focuses on the critical risks that can kill people at work. It involves everyone at our operations checking that lifesaving controls are in place, and working, before starting a task. This is done every time the job changes. If the controls are not in place, the job doesn't start until it's safe.

Control verifications are completed by answering a series of yes/no questions. If the answer to any question is no, the work does not go ahead until the control is in place. This is how CRM helps eliminate fatalities – stopping work until we know it is safe.

Verifications are recorded in an online portal, which everyone in the business can access. The portal allows real-time tracking of performance, and trends and insights can be shared rapidly, helping leaders to focus on and drive improvements.

The CRM programme was first piloted at the Kennecott smelter in the US. The programme proved successful, bringing improvements to the site's already strong safety systems and culture. As a result, the whole business started implementing CRM during 2015.

"CRM empowers all employees with the information and tools they will need to identify and control risks that have the potential to kill," said Ted Himebaugh, general manager, Safety Step Change, Rio Tinto Kennecott.

"This improved approach ensures we can have the right conversations about how to work safely and prevent fatalities."





## Supporting our workforce in the Pilbara

Throughout life people can experience a range of stressors that may affect their ability to cope with aspects of their life. Recent statistics indicate that 45 per cent of people will experience a mental health condition at some point.

Rio Tinto's Iron Ore product group has provided an Employee Assistance Programme to employees for more than 20 years. However, the business recognised the need to provide additional workplace support – given its large and diverse workforce which is based across multiple sites, and often in remote regions of Western Australia.

In 2012, the business launched a pilot peer support programme. It was designed to provide additional support to the workforce and encourage employees to create a work environment where it is acceptable to have conversations about how they are feeling.

Initially trialled at the Yandicoogina operations, the programme generated significant interest across the business. This led to its roll out across Iron Ore's 15 sites and divisions located in the Pilbara and in Perth.

A key part of the programme is training employee volunteers to provide a listening ear and help their workmates in dealing with day-to-day challenges. Peer supporters provide information on resources, facilitate pathways for additional assistance, and encourage early access to other support services. In three years more than 450 peer supporters have been trained to support a workforce of around 12,500 employees.

The programme has resulted in positive outcomes for many employees, and has helped to build the capability and resilience of the Iron Ore workforce.



# People



## myShare: Building employee engagement

myShare, Rio Tinto's award-winning global employee share plan, is aimed at building a workforce who are genuinely engaged in the success of the company. As part of the plan employees use their own funds to buy shares and hold them for three years, after which time Rio Tinto matches them on a one for one basis. Currently more than 15,000 employees across more than 35 countries are participating in the plan.

In 2016, the first matching share awards will be delivered to more than 10,000 employees who have participated in myShare since 2013. Quarterly awards of matching shares will be provided thereafter, providing a steady delivery of shares to reward participants for their continued investment in Rio Tinto.

Rio Tinto aims to grow the number of employees who are shareholders to help build engagement throughout the workforce. Participation in myShare has been increasing year by year. Currently we have around a third of our employees participating in the plan, with more than 45 per cent investing the maximum permitted.





## Award-winning research into Canada's grizzly bear population

With its remote location in the tundra of Canada's subarctic, Rio Tinto's Diavik Diamond Mine operates in one of the most challenging environments in the world – an environment it shares with grizzly bears.

While up to 20,000 grizzly bears remain in Canada, the country's Committee on the Status of Endangered Wildlife lists the animal as a species of special concern because of its sensitivity to human activities and natural events.

The Diavik team partnered with neighbouring Ekati Diamond Mine to conduct research into whether mining-related activity has influenced the number and distribution of grizzly bears in the region over time.

The two-year study was the largest grizzly bear study ever completed in Canada's Northwest Territories. Using traditional knowledge from community elders, the teams designed and placed 112 bear posts across 16,000km<sup>2</sup> of tundra, collecting 4,709 grizzly bear hair samples for DNA analysis.

The results showed the local bear population was stable or even increasing. In 2013, the study detected approximately ten grizzlies in a 1,000km<sup>2</sup> area - three times the number detected in the 1990s.

The Diavik and Ekati mines were jointly presented with the 2015 Mining Association of Canada's Towards Sustainable Mining Environmental Excellence Award in recognition of the research.



## Conserving India's critically endangered vultures

Vultures are a critical part of the food chain. They maintain a balanced ecosystem and prevent unnecessary spread of diseases by removing rotten meat and bones.

Sadly, today almost 99 per cent of India's vulture species have been eradicated. The Indian vulture (*Gyps indicus*) is included in the International Union for Conservation of Nature red list as critically endangered, and in the Indian Wildlife Act of 1972 as an endangered species which requires special conservation. The dramatic decline in the Indian vulture population is directly linked to animal husbandry practices – specifically the use of the painkiller, diclofenac – to treat cattle. This painkiller poisons the vultures when they eat cattle carcasses.

Rio Tinto is working with the Bombay Natural History Society to help conserve India's vulture population. A major focus of the partnership is establishing a 32,000 square kilometre "Vulture Safe Zone" around Rio Tinto's Bunder Diamond Project in the Chattarpur district of Madhya Pradesh.

During the past two years the partnership has also:

- monitored the vulture population to establish a regional baseline;
- tracked specific indicators to help determine progress – including monitoring the use of veterinary diclofenac through carcass sampling; and
- raised awareness among more than 20,000 people about vultures, their conservation status and impact on the ecosystem.



# Climate change



## Kitimat: One of the world's lowest GHG-emitting aluminium smelters

Rio Tinto's Aluminium product group has a strong commitment to greenhouse gas (GHG) management which includes both short-term operational improvements and long-term adaptation strategies. It also has one of the lowest carbon footprints in the aluminium industry, with almost 80 per cent of its total power needs generated by non-fossil-fuel based hydro and nuclear power.

Expansion and modernisation projects, such as the recent modernisation of our Kitimat smelter in British Columbia, demonstrate our commitment to further reducing the group's carbon intensity.

The modernisation of the smelter, which began production in 2015, will increase its capacity by about 48 per cent to 420,000 tonnes annually.

Powered by hydroelectricity from its power station at Kemano, the smelter uses our proprietary AP40 technology which is expected to reduce the smelter's energy consumption by 33 per cent per tonne of aluminium produced, overall emissions by nearly 50 per cent annually and GHG emissions intensity by 50 per cent. This makes Kitimat one of the lowest GHG-emitting aluminium smelters in the world.





## Minimising cost and CO<sub>2</sub> through solar technology

Rio Tinto's Iron Ore product group owns more than 300 houses in the city of Karratha, Western Australia. The majority of these houses are standard four bedroom, two bathroom properties located in residential suburbs and are used to provide accommodation for our employees and their families.

Since 2009 average electricity prices have increased at a rate of 5.7 per cent each year. In response, the business is trialling the introduction of solar energy to reduce costs.

In 2015, as part of the stage one trial, the Iron Ore business installed 20 solar photovoltaic installations with a total generating capacity of 100 kilowatts of electricity. The installations are expected to produce approximately 200,000 kilowatt hours of electricity each year. During the next five years, the business plans to expand its solar capacity to include the majority of its residential houses.

The current installations are expected to deliver a 64 per cent reduction in electricity costs. The programme is also expected to reduce the amount of carbon dioxide (CO<sub>2</sub>) produced by replacing the current gas-based electricity supply with renewable solar energy. This is expected to save 7,000kg of CO<sub>2</sub> per property each year.

While battery storage has not yet been integrated in the programme, the ability to operate fully off-grid remains a long-term option.



## Partnering to save energy

Identifying opportunities to save energy is easy, but often implementing those opportunities in a way that produces real savings in energy usage is much harder. This can be due to competing priorities for resources, as well as a lack of time and capability to pursue energy efficiency opportunities.

Richards Bay Minerals (RBM) recognised there were opportunities to improve its energy efficiency and embarked upon the Energy Leadership Programme (ELP) through a partnership with the consultancy Ensignt. RBM senior leadership asked Ensignt to embed their team within RBM to help identify and implement energy efficiency projects, as well as create a sustainable cultural change throughout the business.

Since it began in 2013, the ELP has investigated more than 50 projects, including many identified by RBM's staff through a site-based competition for energy saving ideas.

The ELP has already had a positive impact on RBM's bottom line, improving energy efficiency and reducing energy costs. Work is continuing to build an energy-aware culture at RBM and to drive further energy cost savings. The ultimate goal of the partnership is to produce savings that are ten times greater than the cost of the programme.



## Setting new standards for reclamation in the Mojave Desert

Boron Operations is a world-class borate mine located in the western Mojave Desert of California. The climate is classified as harsh, with an evaporation to precipitation ratio of nearly 25:1.

Overburden slopes are piles of waste soil created as part of the mining process. They consist mainly of silty arkosic sandstone soils which contain varying levels of residual boron. The threat of boron-related soil toxicity on native plant re-establishment is widespread and we believe unique to this mine.

Overburden slope reclamation began in 1995 and continues today. This process involves sampling the mine overburden prior to stripping. The final slopes are contour-tilled and seeded with a native mix whose species were selected based on the test plots and early slope results.

During March and April 2015, we collected data on vegetative cover, species richness, and plant density from the overburden final slopes seeded between 1995 and 2008. Data was required to determine which slopes had met the ten-year minimum success criteria for

reclamation, as stipulated in the agency-approved Boron mine 2008 reclamation plan and the California Surface Mining and Reclamation Act of 1975.

The data was compared with vegetation samples taken from the overburden expansion area in 1994, prior to disturbance. Of the 230 acres sampled, a total of 207.55 acres met the success criteria and were subsequently designated as reclaimed by the California Department of Conservation's Office of Mine Reclamation.

This reclamation programme's success is unprecedented in California, and will be used as a template for the ongoing reclamation of overburden slope and ultimately site closure. The programme can also be applied to other reclamation efforts in the Mojave Desert.





## Award-winning research helps protect fragile Canadian environment

Waste rock contains sulphide minerals that, when exposed to air and water, can result in poor quality drainage. If not managed properly, the drainage can harm fish and aquatic life long after a mine has closed.

Rio Tinto's Diavik mine team has collaborated with researchers and scientists from the Waterloo, Alberta, British Columbia and Carleton universities to develop improved methods to predict its chemistry and manage its environmental effects.

The ten-year long study used novel analytical techniques, including synchrotron X-ray spectroscopy and advanced numerical models, to study both biological and geochemical processes. Diavik's Site Services and Mine Operations teams assisted in the construction of a large-scale test pile, and the Environmental team provided monitoring services.

The research has changed the way Diavik manages its waste rock; all waste rock is classified based on sulphur content, with high sulphur rock segregated within the mine's waste rock pile. The team has developed a cover system for the high sulphur rock that takes advantage of the local permafrost environment and limits poor-quality drainage.

The project received a Synergy Award for Innovation from the Natural Sciences and Engineering Research Council of Canada in recognition of the team's work in protecting the fragile northern environment. The research has been critical to verifying Diavik's long-term closure plan and has reduced its closure liability bond by approximately C\$40 million. It will also help other mining companies around the world to better understand waste rock behaviour and develop mitigation strategies to protect the environment.



## Minding the Gap

Rio Tinto's Minerals business worked closely with the City of Los Angeles to support the region's water quality and conservation.

Groundwater basins in coastal Los Angeles are continually affected by salt water from the Pacific Ocean, as well as urban pollution. To keep seawater out of the freshwater basin, the local government uses a network of hydraulic dams to pump imported freshwater along natural geological underground barriers. One such barrier is the Dominguez Gap, located near Rio Tinto Mineral's Wilmington Operations.

While this process keeps the ocean at bay to the west, it also traps pollutants inland to the east. This means the water pumped into the Dominguez Gap has to be clean enough to restore the quality of the freshwater basin and ensure it's suitable for beneficial uses, such as irrigation.

With California facing a water crisis, rather than continue to use imported freshwater to feed into the groundwater system it made sense to investigate whether recycled water could be made clean enough at local treatment plants to be used.

One of the initial challenges to this solution was the boron in industrial wastewater produced under the Wilmington Operations' existing discharge permit. The rate at which boron was discharged

by the Operations meant the local water treatment facility could not effectively process it to a level which would meet the basin's new water quality objective.

The Wilmington Operations team worked collaboratively with the City of Los Angeles' Industrial Waste Management division to slow the flow of the operation's industrial wastewater to the water treatment plant. The team discovered that by slowing down the wastewater discharge it was also possible to reduce the total amount of boron in the wastewater, and keep clean water moving as needed.

Today, almost all of the boron is recycled into refined product and the wastewater discharged to the water treatment plant goes where it can do some good for the community – to the Dominguez Gap.

### **Boron discharged in industrial wastewater to the City of Los Angeles, Terminal Island Water Reclamation Plant:**

Year	Boron discharged (Pounds)	% reduction versus 2012
2012	11,058	
2013	3,351	70
2014	1,197	89
2015	302	97





## Responding to the Ebola outbreak

The Ebola outbreak in 2014-15 in West Africa has claimed more than 11,000 lives. With 3,000 employees and contractors in Guinea, Rio Tinto was pitched into the eye of the storm. While Rio Tinto has established resilience plans for endemic and pandemic disease, the unprecedented scale of the Ebola outbreak, the serious consequences of contracting the disease, and the route of infection through contact with bodily fluids, made this outbreak uniquely challenging.

At the earliest stages of the outbreak, Rio Tinto invoked a multi-layered local and global response to protect the workforce and to support the country's humanitarian effort. A local Business Resilience team was mobilised, with their first priority to safeguard employees and their families by minimising exposure. This involved a mass hygiene and prevention programme, distribution of 140,000 sanitation kits, screening at all premises, and standing down employees on full pay to reduce exposure. These lessons were quickly shared with, and adopted by, other organisations operating in Guinea.

A corporate Business Resilience team was also formed under Alan Davies, chief executive, Diamonds & Minerals to provide advice, resources and strategic direction.

As the Ebola outbreak now appears to have moved into remission, we are able to reflect on the key outcome for Rio Tinto: we did not lose any of our employees to the disease. Our response to the outbreak has attracted international praise. The UN's Karen Smith

said "Rio Tinto were way ahead of the curve in Guinea. They did a great job of protecting their people and their communities by being creative. What they did had a big impact."

Karen also had high praise for the company's contribution to the overall aid effort in combating Ebola. Rio Tinto donated more than US\$3.4 million towards the Ebola response, including US\$2.9 million of equipment.

In June 2015, Rio Tinto's Business Resilience team was named "Team of the Year" at the Continuity, Insurance and Risk awards.

"Rio Tinto were way ahead of the curve in Guinea. They did a great job of protecting their people and their communities by being creative. What they did had a big impact."

Karen Smith, UN



# Closure



## Kelian closure successfully completed

The Kelian gold mine (90 per cent Rio Tinto) located in East Kalimantan, Indonesia is operated by PT Kelian Equatorial Mining (KEM) under a Contract of Work with the Government of Indonesia. KEM has successfully completed the mine closure activities and is now in the final stages of handing over the site to the Government.

The closure plan was developed with the Kelian Mine Closure Steering Committee, which was formally established in 2000 comprising local, provincial and central governments, local non-government organisations, customary leaders, academics, and company representatives. The key components of the closure plan included:

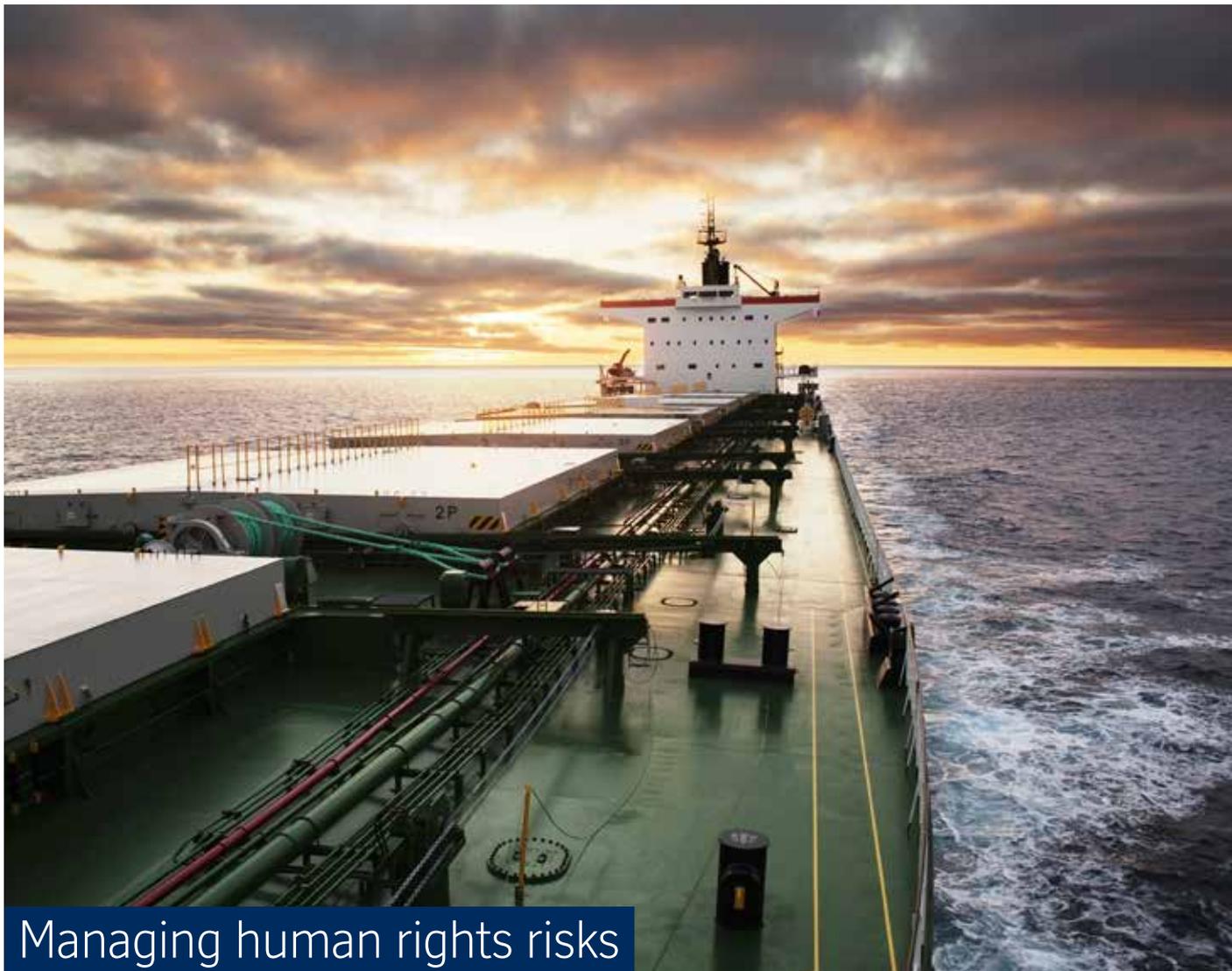
- Remediating tailings and waste rock dams in accordance with the International Commission on Large Dams and Indonesian dam safety unit standards;
- Re-contouring and rehabilitating waste dumps;
- Mining alluvial gold areas and constructing wetlands to treat pit discharge;
- Converting the 6,750 hectare area to “protection forest” status;
- Establishing trust funds to:
  - provide ongoing funding for monitoring and maintenance of the area post closure; and
  - provide short-term funding for the administration costs of Anum Lio Foundation, which hosts a local agricultural high school; and

- Establishing a site management company which has been monitoring and maintaining the site since 2008 and will continue in perpetuity. The ongoing site activities include monitoring permanent structures including the tailings and waste dams, rehabilitation maintenance and monitoring, and wetland maintenance and forest protection through the establishment of forest rangers.

Since 2008, KEM has achieved and maintained the completion criteria stipulated in the closure plan which outlines the agreements with stakeholders. The Government has recently verified that the agreed completion criteria have been achieved. Handover of the site to the Government is expected to occur in 2016.



# Human rights



## Managing human rights risks in our maritime supply chain

Rio Tinto Marine charters a large number of ships each year to provide efficient shipping services for a broad range of commodities.

In July 2015 it was alleged that the crew of a ship, chartered by Rio Tinto from a commercial operator, were underpaid and forced to live and work in poor conditions. When Rio Tinto was made aware of the allegation, Rio Tinto Marine boarded immediately to investigate. Once the allegation was confirmed, we requested the ship's head owner address the incident with immediate and adequate remedy. Rio Tinto also provided funds to immediately improve the poor work conditions.

Following this event, Rio Tinto has taken a number of measures to mitigate the risk of future incidents. In addition to blacklisting the head owner and commercial operator, Rio Tinto Marine has reviewed its time chartering and due diligence processes leading to an improved approach to time charter vessels. The review also recommended Rio Tinto avoid chartering from disponent owner vessels wherever possible to ensure we have greater visibility of the operations. Rio Tinto Marine also obtains written assurance from its charter counterparties that the ship crews have timely remuneration and adequate living conditions.



# Business integrity



## Helping our people make the right choices

In January 2015, Rio Tinto launched a new Business integrity standard – bringing together four previously separate standards on anti-corruption, fraud, anti-bribery due diligence and conflicts of interest. This streamlining of the former standards came in response to feedback from the business, and has created a new standard that is more concise, easier to read, and takes a more risk-based approach.

The standard outlines the key principles that employees must consider when faced with decisions to make in areas like the treatment of conflicts of interest, benefits, sponsorships and donations. It is designed to help employees apply these principles quickly when they need to make a judgement about a situation. The standard is supported by a manual, which is a practical “how to” guide that outlines procedures, examples, scenarios and tips to help employees manage business integrity issues.

During 2015 we also improved our guidelines for assessing business integrity risks, to ensure that businesses evaluate these as part of the overall risk management framework. The guide also includes practical tips and examples for the business to think through when conducting these risk reviews.

We have received positive feedback and support from the business for our new and improved approach. The improvements, coupled with our refreshed training style, have helped us to show that learning how to work with integrity is a rewarding journey.

We are now working on enhancing our existing investigations and third-party due diligence processes.





### Building sustainable businesses in Mongolia

Rio Tinto's Oyu Tolgoi team has partnered with the American Center for Mongolian Studies and the Royal Roads University of Canada to improve the sustainability of native Khanbogd suppliers.

The supplier development programme helps businesses enhance their skills in critical operational areas such as safety, human resources management (including human rights), stock and warehouse management, order tracking, cash flow management, and marketing. The team also works with suppliers to create sustainable business development plans.

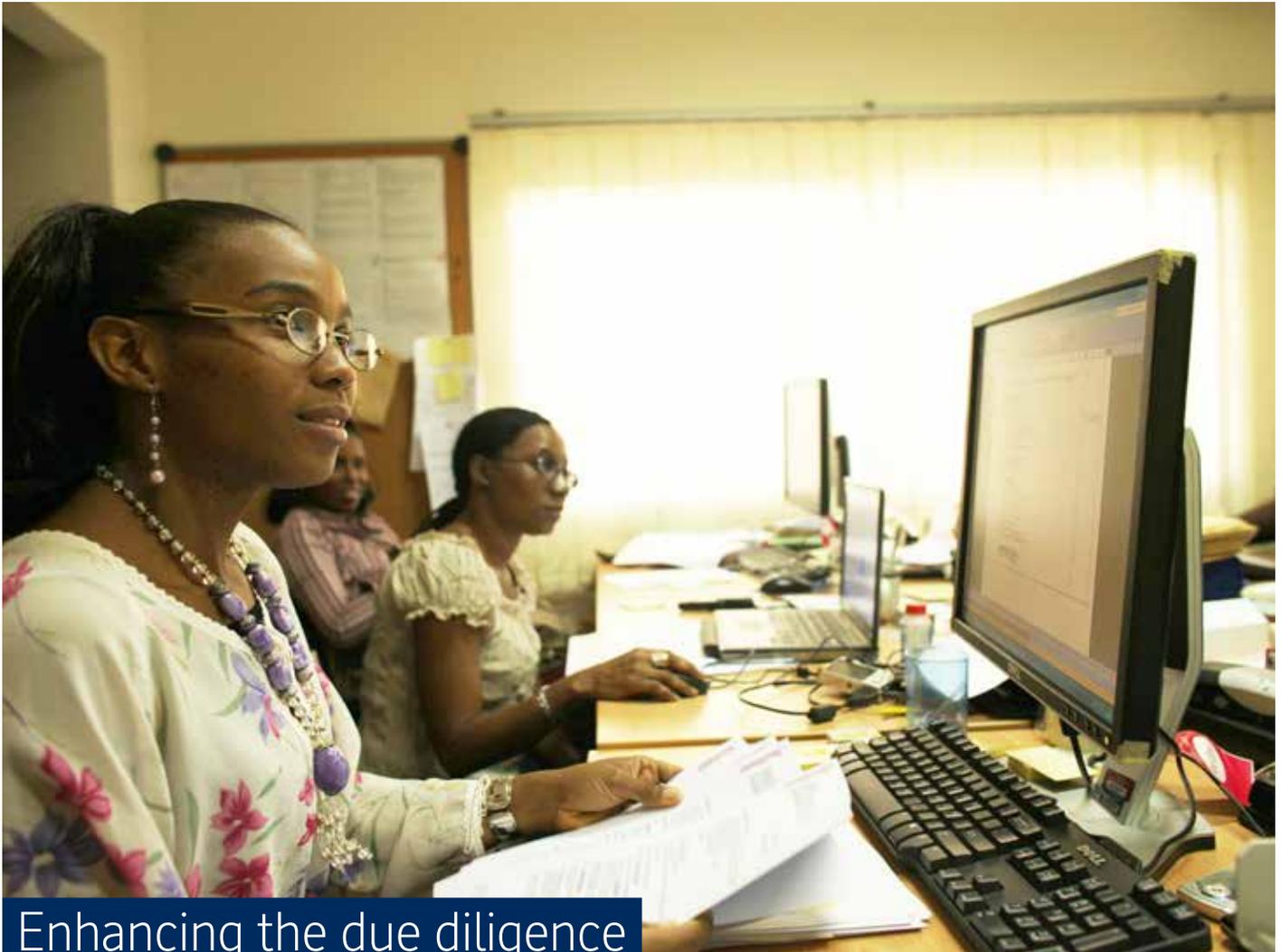
As part of the programme, Mongolian and Canadian business school graduates spend four weeks working closely with the suppliers to identify improvement areas, develop tailored business plans, and provide support as the businesses begin to implement the improvements.

During the past three years, the programme has helped eight local businesses achieve tangible improvements to their business performance. As a result of the programme, a number of businesses have broadened their client portfolio by extending into other markets, increasing the sustainability of their business by making them less reliant on Oyu Tolgoi. Five of the participating businesses have also been recognised in Oyu Tolgoi's prestigious supplier recognition award ceremony, "Gobi Gem".

The programme also delivers benefits to Oyu Tolgoi, making the project's supply chain more reliable and sustainable. The benefits of the programme have also flowed to other local businesses in the South Gobi region, through improved safety, business continuity and business integrity standards.



## Value chain



### Enhancing the due diligence process across our supply chain

Rio Tinto understands the importance of adequately assessing the identity, capability and potential risks represented by the third parties we may engage. These risks may relate to human rights issues, bribery and corruption, trade sanctions or denied party transactions.

In order to enhance engagement of the most appropriate parties in our supply chain, in 2015 we initiated a pilot project in which around 100 third parties were assessed against a new standardised business integrity diligence process, which is supported by a new online platform. The findings helped us to improve our ability to effectively identify, analyse and manage risks relating to certain third party relationships.

Following the success of the pilot, Rio Tinto will establish a centralised third party due diligence process that will improve our ability to conduct due diligence across our customers and supply chain. This new process will be rolled out during 2016.



# Glossary

## General

Term	Definition
GRI	The Global Reporting Initiative (GRI) provides the generally accepted framework for reporting on an organisation's economic, environmental and social performance. The framework contains general and sector specific content that has been agreed by a wide range of stakeholders.
GRI G4 core option	G4 core option contains the following: <ul style="list-style-type: none"><li>– GRI G4 organisational profile disclosures</li><li>– Management approach disclosures for each material indicator category</li><li>– Respond to each material core G4 and Sector supplement indicator with due regard to the materiality principle by either a) reporting on the indicator, or b) explaining the reason for its omission.</li></ul>
HSEC management system	The Rio Tinto Health, Safety, Environment and Communities management system supports standardisation of corporate and business HSEC management processes. The system is designed on the principles of continuous improvement and generally follows the layout of common international standards such as ISO14001:2004, ISO9001:2001 and the Plan, Do, Check and Review cycle.
Materiality assessment	<p>The information in a sustainable development report should cover topics and indicators that reflect the organisation's significant economic, environmental, and social impacts or that would substantially influence the assessment and decisions of stakeholders.</p> <p>Materiality is the threshold at which an issue or indicator 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. In defining material topics, we take into account external factors, including:</p> <ul style="list-style-type: none"><li>– The main sustainability interests/topics and indicators raised by stakeholders;</li><li>– The main topics and future challenges for the sector reported by peers and competitors;</li><li>– Relevant laws, regulations, international agreements, or voluntary agreements with strategic significance to the organisation and its stakeholders; and</li><li>– Reasonably estimable sustainability impacts, risks, or opportunities (eg global warming, HIV/AIDS, poverty) identified through sound investigation by people with recognised expertise, or by expert bodies with recognised credentials in the field.</li></ul> <p>In defining material topics, we take into account internal factors, including:</p> <ul style="list-style-type: none"><li>– Key organisational values, policies, strategies, operational management systems, goals, and targets;</li><li>– The interests and expectations of stakeholders specifically invested in the success of the organisation (eg employees, shareholders, and suppliers);</li><li>– Significant risks to the organisation;</li><li>– Critical factors for enabling organisational success; and</li><li>– The core competencies of the organisation and the manner in which they can or could contribute to sustainable development.</li></ul>
Sustainable development	<p>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.”<sup>(1)</sup> Rio Tinto has made a commitment that its businesses, projects, operations and products should contribute constructively to the global transition to sustainable development.</p> <p>(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: <a href="http://www.un-documents.net/ocf-a2.htm">http://www.un-documents.net/ocf-a2.htm</a></p>

### Operations and products

Term	Definition
Brownfield exploration	Exploration directed at sustaining or growing existing Group business units. With processing infrastructure already in place, capital expenditure requirements for developing brownfield orebodies are usually lower than in a greenfield setting.
Cradle to gate life cycle assessment	An LCA covering all life cycle phases from production to that business's gate and not beyond.
Cradle to customer gate life cycle assessment	An LCA covering all life cycle phases from production to customer gate, and therefore including transport to customer. Cradle to (customer) gate assessments are sometimes the basis for environmental product declarations (EPD).
Greenfield exploration	Exploration which aims to establish completely new operating business units, involving geographic or commodity diversification away from existing Group operations.
Industry level life cycle assessment	An LCA compiled by an industry or commodity association or related body for a generic product based on aggregated data collected from industry sources (ie not company specific).
Key products	Products from which major business revenue is obtained (>10% of revenue per product). This would include major products sold by businesses from which >10% 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 (LCA)	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 LCIA). Described by ISO 14040 series.
Managed operation	A managed operation is defined as an operation where: <ul style="list-style-type: none"> <li>– Rio Tinto wholly owns the operation; or</li> <li>– A management agreement is in place which names Rio Tinto as the manager; or</li> <li>– Rio Tinto HSEC systems and processes are fully implemented.</li> </ul>
Partial life cycle assessment	An analytical procedure to compile and evaluate the environmental inputs and outputs and the potential environmental impacts of a product where the scope has been limited to address a specific impact category (for example global warming potential or ecotoxicity) or a life cycle phase.
Product specific life cycle assessment	A life cycle assessment completed in-house for a specific product produced by the business.
Tier 1 resources	Low-cost, expandable resources that are profitable at all parts of the natural price cycle and deliver a sustainable competitive advantage.

## Environmental

Term	Definition
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.
Ecosystems system services	Ecosystems services are the benefits we obtain from ecosystems. The UN Millennium Ecosystem Assessment grouped these into four categories: provisioning (production of food and water), regulating (control of climate and disease), supporting (nutrient cycles and crop pollination), and cultural (spiritual and recreational benefits).
Emission (air)	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.
Energy use	<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> <li>– 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</li> <li>– For Australian operations: The National Greenhouse and Energy Reporting (NGER) 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 0.5 per cent of the facility's energy use or energy produced and is less than 15,000 GJ. The total of these incidental sources must be less than two per cent of the facility's inventory and less than 60,000 GJ</li> </ul> <p>Energy conversion factors are consistent with Australian National Greenhouse and Energy Reporting (NGER) Measurement Determination and for non-Australian operations default factors from IPCC and IEA are used unless a more suitable factor is available from local suppliers or Government</p>
Environment	The surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation.
Freshwater	Potable water or good quality raw water with total dissolved solids less than 1,500 milligrams per litre, pH 5-9, and individual dissolved constituents (metals, anions, etc) at concentrations suitable for agricultural, livestock or irrigation use (based on local, regional or national guidelines).
Freshwater withdrawn	<p>Freshwater withdrawn includes:</p> <ul style="list-style-type: none"> <li>– Imported surface water (water provided by a third party for Rio Tinto use)</li> <li>– On-site impounded water used in process applications</li> <li>– Imported groundwater</li> <li>– On-site groundwater</li> <li>– 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.</li> </ul> <p>Freshwater withdrawn does not include:</p> <ul style="list-style-type: none"> <li>– Poor quality water</li> <li>– Overflow of water in heavy rain conditions from impoundments that has not had the quality significantly altered by inputs and seepage</li> <li>– Water diverted to avoid contamination but not subsequently withdrawn or intercepted for use</li> <li>– Water withdrawn and directly supplied to others, eg (i) for use in agricultural or pastoral properties; (ii) for export to third parties or (iii) for town use</li> <li>– Freshwater withdrawn and used for hydropower generation.</li> </ul>
Freshwater withdrawn and not used	<p>Freshwater withdrawn and not used includes:</p> <ul style="list-style-type: none"> <li>– On-site groundwater which is extracted for ground control (dewatering) and discharged without use in the process.</li> </ul>

### Environmental continued

Term	Definition
Freshwater withdrawn and used	<p>Freshwater withdrawn and used includes</p> <ul style="list-style-type: none"> <li>– Imported surface water (water provided by a third party for Rio Tinto use):</li> <li>– On-site impounded water used in process applications</li> <li>– Imported groundwater</li> <li>– On-site groundwater, except that which is extracted for ground control (dewatering) and discharged without use</li> <li>– 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 and / or is returned to the environment with a temperature change of greater than five degrees.</li> </ul>
Greenhouse gas emissions	<p>Rio Tinto reports emissions of all six groups of greenhouse gases included in the Kyoto Protocol: carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorinated carbon compounds and sulphur hexafluoride.</p> <p>Under Rio Tinto's reporting guidelines, individual operations that are not expected to exceed 3,000 tonnes of carbon dioxide equivalent (t CO<sub>2</sub>-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:</p> <p>For non-Australian operations: Individual sources that can be excluded should be less than 1,000t CO<sub>2</sub>-e. 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 Energy Reporting (NGER) 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 0.5 per cent of the facility's emissions (scope 1 plus scope 2 emissions) and is less than 3,000t CO<sub>2</sub>-e. The total of these incidental sources must be less than two per cent of the facility's inventory and less than 12,000t CO<sub>2</sub>-e.</p> <p>The global warming potential (GWP) emission factors for all greenhouse gasses are consistent with the IPCC Second Assessment Report (SAR – 100 year).</p>
Local water performance target	<p>Local water performance targets are set by managed operations with material 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 material water risk.</p> <p>A material change is one that alters the level of performance necessary to meet to a local water performance target or internal water target trajectory. A material 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 material change requires approval from the relevant product group chief executive and the Global Practice Leader–Environment before adoption.</p> <p>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 Global Practice Leader–Environment.</p>

## Environmental continued

Term	Definition
Managed operations with material water risk	<p>Rio Tinto initially identified managed operations with material 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 material water risk unless, at the commencement of the target performance period on 1 January 2014:</p> <ul style="list-style-type: none"> <li>– the operation was a project that had not reached operation stage; or</li> <li>– the operation had been divested; or</li> <li>– the operation was included within an active divestment or closure process; or</li> <li>– the operation had not been managed by Rio Tinto for at least three years;</li> </ul> <p>In addition, any managed operations with an initial categorization 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 categorization prior to the commencement of the target performance period, were excluded from the population of managed operations with material water risks.</p>
Material water risk	A water-related risk 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. Material water risks require proactive management by the specific managed operation.
Mineral waste	<p>Mineral wastes include waste rock, tailings and slag:</p> <ul style="list-style-type: none"> <li>– Waste rock is composed of soils or bedrock that must be removed to uncover or access ore during mining.</li> <li>– Tailings consist of ground up rock mixed with process water that remains after the minerals of economic interest have been removed from the ore.</li> <li>– 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.</li> </ul> <p>Mineral wastes are 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 wastes are inert, but some are chemically reactive and must be appropriately handled to protect people, wildlife and water quality.</p>
Mobile sources	Emission release points that move, such as haul trucks. Compare with “stationary sources”.
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.
On-site greenhouse gas emissions	Scope 1 greenhouse gas emissions, ie 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	<p>Our operational land holdings fall into two categories:</p> <ul style="list-style-type: none"> <li>– All land disturbed for mining, processing and related activities, including rehabilitated land. This is known as our operational footprint.</li> <li>– 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.</li> </ul>
Process	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.

## Glossary

### Environmental continued

Term	Definition
Scope 1 greenhouse gas emissions	<p>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).</p> <p>Scope 1 emission factors are consistent with the IPCC Guidelines for National Greenhouse Gas Inventories (2006). Scope 1 emissions are presented on a managed operations basis.</p>
Scope 2 greenhouse gas emissions	<p>Scope 2 emissions are greenhouse gas emissions from the imports of electricity, heat or steam from third parties (indirect emissions).</p> <p>Scope 2 emission factors are consistent with the Australian National Greenhouse and Energy Reporting (NGER) 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.</p>
Scope 3 greenhouse gas emissions	<p>Scope 3 emissions are other indirect greenhouse gas emissions.</p> <p>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, SD webpages and Rio Tinto's submission to CDP (formerly Carbon Disclosure Project). All other sources are immaterial to the group inventory</p>
Significant environmental incident	<p>Rio Tinto measures 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.</p>
Stationary sources	<p>Emission release points that do not move, such as power stations, smelters, refineries and concentrators. Compare with "mobile sources".</p>
Total greenhouse gas emissions	<p>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.</p>
Total greenhouse gas emissions intensity index	<p>An indexed measure of the change in emissions per unit of product compared to 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.</p> <p>Rio Tinto's total greenhouse gas emissions intensity target is evaluated as the per cent 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.</p> <p>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.</p>
Water target performance tracking	<p>A managed operation with material 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.</p>

## Glossary

### Social

Term	Definition
All injuries	The sum of lost time injuries and medical treatment cases.
Antiretroviral drugs	Medications for the treatment of infection by retroviruses, primarily HIV.
Biometric assessment	A part of health risk assessment, involving the measurement of such parameters as height, weight, body mass index, blood pressure, heart rate, waist girth, etc.
Contractor	<p>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 have been classified into three categories:</p> <ul style="list-style-type: none"> <li>– Category 1: Individuals engaged on temporary contracts to work within existing operations</li> <li>– Category 2: Companies or individuals engaged for a discrete project which will be carried out in a designated area separate from existing operations</li> <li>– Category 3: Companies or individuals engaged under contract to carry out specific tasks or provide specified services within existing operations areas.</li> </ul>
Employee	A person in full or part time employment at a Rio Tinto business and listed on the payroll of a business.
Fatal injury or occupational illness	When one or more person(s) die as a result of a work-related injury or occupational illness occurring during their employment. Lost and restricted days are not calculated for fatalities.
Frequency rates	<p>The measures of performance for each of the metrics of injury or illness, eg:</p> <ul style="list-style-type: none"> <li>– All injury frequency rate (AIFR) = number of all injuries x 200,000/hours of exposure</li> <li>– Lost time injury frequency rate (LTIFR) = number of lost time injuries x 200,000/ hours of exposure</li> <li>– Rate of new cases of occupational illness = number of new cases of occupational illnesses x 10,000/ number of employees (based on average monthly statistics)</li> </ul> <p>Rio Tinto uses AIFR to assess performance against the goal of zero injuries and zero fatalities. This assessment includes employees and all categories of contractors.</p> <p>Rio Tinto's health targets (rate of new cases of occupational illness and implementation of CCMP) are 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 31st Dec RY-1 are excluded when assessing performance against these targets. Divested and closed operations are removed from the baseline when assessing performance against these targets</p>
Generalised HIV epidemic	Where HIV prevalence has passed the one per cent mark in the general population, based on national estimates of HIV prevalence using data generated by surveillance systems that focus on pregnant women who attend a selected number of sentinel antenatal clinics, and in an increasing number of countries on nationally representative sero-surveys.
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	<p>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.</p> <ul style="list-style-type: none"> <li>– 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.</li> <li>– 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.</li> </ul>
Injury	Any injury such as a cut, fracture, sprain, amputation, etc, 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.

## Glossary

### *Social continued*

Term	Definition
Incident	<p>A single event or continuous/repetitive series of events that results in, or could have resulted in, one or more of the following impacts:</p> <ul style="list-style-type: none"> <li>– An occupational injury or illness</li> <li>– Damage to physical assets (eg plant and equipment), the environment, process, product, or reputation</li> <li>– Disruption to a community</li> <li>– Exposure to legal liability</li> <li>– Security threat</li> </ul>
Lost day injury or occupational illness	An injury or occupational illness that results in one or more days/shifts away from work, excluding the day of the incident.
Lost time injury or occupational illness	The sum of fatal, lost day and restricted work day injuries or illnesses.
Medical treatment case injury or occupational illness	<p>An 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.</p> <p>Medical treatment includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>– Administration of prescription medication</li> <li>– 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</li> <li>– Use of devices with rigid stays or other systems designed to immobilise parts of the body</li> <li>– Use of eye patches (except for use as a precautionary measure, and not extending into the next shift)</li> </ul> <p>Medical treatment does not include:</p> <ul style="list-style-type: none"> <li>– 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</li> <li>– 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.</li> </ul>
Musculo-skeletal illnesses	<p>A case is reportable where a medical practitioner diagnoses musculo-skeletal 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 musculo-skeletal conditions. Recurring musculo-skeletal conditions 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.</p> <p>Purely subjective symptoms without limitation of movement or physical or laboratory signs are not reportable. Contractors of category 2 or 3 are not included. Occupational injury cases are excluded – defined as arising from a work related event of less than one shift in duration.</p>
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

### Social continued

Term	Definition
Noise induced hearing loss (NIHL)	<p>To be diagnosed as being related to noise exposure requires evidence of a hearing loss on a technically satisfactory audiogram at 4 or 6kHz, preferably with recovery of hearing at 6 or 8kHz. A loss without recovery plus a history of noise exposure is also regarded as NIHL. For cases meeting these criteria the following steps are required to determine whether or not a case of NIHL meets Rio Tinto's reporting criteria:</p> <ol style="list-style-type: none"> <li>1. Occupationally exposed to noise &gt;85dBA time weighted average; and</li> <li>2. Has sustained a standard threshold shift; and</li> <li>3. Average hearing loss over 1, 2 and 3KHz after age adjustment of the audiogram of &gt;25dBA as compared to audiometric zero.</li> </ol> <p>Hearing loss due to age, disease or a onetime exposure is excluded. The latter is considered an injury. Contractors of category 2 or 3 are not included.</p>
Occupational asthma	<p>A case is reportable if a medical practitioner following the International Council on Mining &amp; 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.</p>
Occupational exposure	<p>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.</p>
Occupational exposure limit (OEL)	<p>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. Rio Tinto has defined a number of OELs that apply across all of its operations.</p>
Occupational illness	<p>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; ie noise induced hearing loss (NIHL), carpal tunnel syndrome, etc. 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.</p> <p>All diagnosed occupational illnesses must be recorded for employees and Category 1 contractors, regardless of whether they are labour, executive, hourly, salary, part-time, seasonal or migrant workers. Diagnosed occupational illnesses affecting Category 2 and Category 3 contractors do not need to be recorded (unless required by local legislative or regulatory requirements), and are not reportable to Rio Tinto.</p>
Permanent damage injury or illness	<p>Is a measure of the severity of an injury or occupational illness from which:</p> <ol style="list-style-type: none"> <li>1. there has not been, or is not expected to be, full recovery after two years; and/or</li> <li>2. there has been substantial negative consequences for the individual, that is prolonged hospitalisation, prolonged inability to work, loss of ability to continue normal social and home life, major damage to body or body function (eg paraplegia, lung disease, blindness or amputation – a traumatic loss of a limb or other external body part such as a limb or appendage that has been severed, cut off or amputated (completely or partially and with any loss of bone)); and/or</li> <li>3. the person is unable to work and has been retired.</li> </ol> <p>Lost or restricted shifts and calendar days are counted until either of the following occur:</p> <ol style="list-style-type: none"> <li>1. the person returns in a full time unrestricted capacity to their pre-injury role; or</li> <li>2. the person is permanently redeployed into another role; or</li> <li>3. two years have passed from the date of the injury; or</li> <li>4. the person leaves the service of the company.</li> </ol>

## Glossary

### Social continued

Term	Definition
Restricted work day injury or occupational illness	<p>Occupational injury or illness where, as a result the employee:</p> <ul style="list-style-type: none"><li>– Was assigned to another job on a temporary basis, or</li><li>– Worked at a permanent job less than full time, or</li><li>– Worked at his or her permanently assigned job but could not perform all the duties normally connected with it.</li></ul> <p>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.</p>
Similar exposure group (SEG)	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.
UNAIDS	Joint United Nations programme on HIV/AIDS
Voluntary counselling and testing	With regard to HIV/AIDS programmes, voluntary counselling and testing (VCT) is the process by which an individual undergoes confidential counselling to enable the individual to make an informed choice about learning his or her HIV status and to take appropriate action. If the individual decides to take the HIV test, VCT enables confidential HIV testing. Counselling for VCT consists of pre-test, post-test and follow up counselling.
Wellbeing / Wellness programme	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.

### Economic

Term	Definition
Direct economic contribution	The total value of all sales made to third parties during the year.
Value added	The value that a business adds to the materials and services it has bought. It is equivalent to the sum of all labour payments, payments to governments, plus all returns to capital – including interest payments, profits paid out to shareholders, and money retained in the business for future investment and to replace depreciated assets.