

## Chief executive's message



Sustainable development is at the core of our business strategy and integrated into everything we do. As we pursue greater value for our shareholders, we also deliver value for our other stakeholders, including communities, customers, host governments, suppliers, our employees and partners. Our activities aim to bring long-term benefits to the places where we work.

It is through living our values – accountability, respect, teamwork and integrity – we gain and maintain the reputation that gives us our licence to operate. This licence supports our access to people, resources and capital, and enables us to continue delivering value for our shareholders and other stakeholders, for longer.

I'm pleased with our sustainable development achievements and progress in 2012, but deeply disappointed that we had two fatalities at our operations. [Safety](#) reflects how we care for our people. While good safety supports good operational performance and is thus good business, it is the personal tragedy of serious workplace incidents which is at the heart of our approach. We continually seek to improve all aspects of our safety performance, but particularly our leadership and employee engagement which are critical to long-lasting excellent safety performance. We will continue to strive for a year in which I can report that we have had no workplace fatalities.

In 2012, we strengthened our commitment to [integrity and compliance](#) by launching new standards in anti-corruption and conflicts of interest, and by introducing new compliance training modules for our employees. We also refreshed our [human rights](#) training programme – introducing more tailored, practical training for high-risk sites and functions – and published [Why human rights matter](#), a guide for integrating human rights into our communities work.

Our engagement with [communities](#) is a core part of our sustainable development approach and we remain the largest private sector employer of Indigenous Australians. We also signed further participation agreements with native title groups across the Pilbara region of Western Australia.

The numbers clearly show how our activities help bring prosperity to the regions where we work. In 2012, our direct [economic contribution](#) totalled US\$56 billion. This includes wages, payments to suppliers and governments, and returns to capital. We also spent US\$292 million on community contribution programmes, in areas like education, local business development, culture, health and the environment.

We realise that there is more we can do to improve our sustainable development performance, and to build on the strong foundations we have already created. Among our priorities, we must continue forging strong, transparent relationships with our [stakeholders](#). We must continue developing a workforce of outstanding [employees](#), who represent the increasingly diverse regions in which we operate, and who can lead our business into the future. And above all we must continue to improve our safety performance to reach our goal of zero injuries and zero fatalities, through the support of strong leadership, engaged employees and smart technologies.

It is not just about what we say, but about what we do on the ground at our operations every day. I encourage you to explore our 2012 Sustainable development report, to find out more about how we contribute to social wellbeing, environmental stewardship and economic prosperity within our strong governance systems – and to see our approach in action around the business.

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**Sam Walsh**  
Chief executive

## Our business



Rio Tinto is a leading international mining group headquartered in the UK, combining Rio Tinto plc, a London and New York Stock Exchange listed company, and Rio Tinto Limited, which is listed on the Australian Securities Exchange.

Rio Tinto's business is finding, mining, and processing mineral resources. We produce metals and minerals – aluminium, copper, diamonds, thermal and metallurgical coal, uranium, gold, industrial minerals (borax, titanium dioxide and salt) and iron ore – that help fulfil vital consumer needs and improve living standards.

We operate in more than 40 countries and employ about 71,000 people whose health and safety is paramount. The nature of our business means that a mine or smelter may operate for many decades. We therefore make long-term commitments to our operations, and to the people and land that are impacted by our activities. This commitment continues long after a mine has produced its last tonne of ore, or a smelter has produced its last tonne of metal.

The locations of our mines are driven by the locations of good orebodies. This often means we have to overcome the challenges of remote, undeveloped locations and construct significant infrastructure to get our minerals and metals to our customers. As well as the railways, mining camps and warehouses that we need to run our operations, we often build roads, ports, schools and hospitals that are of wider benefit to local people and national economies.

Our aim is to unlock greater value for our stakeholders, by investing in the best quality opportunities that will deliver returns across the cycle. Mines and mineral processing plants can have dramatically positive effects on the communities, regions and countries where they are established, and so we make careful decisions throughout an operation's life in order to maximise those opportunities. We believe this is complementary to our Group strategy to maximise value for our shareholders.

Successful sustainable development outcomes help us achieve not just a licence to operate, but also a licence to grow.

### Life of our operations

Sustainable development is embedded at every stage of our business model. Our focus on long-life operations means we are an active part of a community, usually for many decades, bringing direct and indirect contributions to local, regional and national economies.

It can take ten to 20 years from initial exploration through project evaluation to reach the stage of investment approval, construction and operation. Then, the active life of our mines or other facilities may last for many decades more. Our Bingham Canyon copper mine in Utah, for instance, is still in operation after more than a century.

Finally, when an operation reaches the end of its life, we close it safely and rehabilitate the land, often restoring such natural biodiversity to the area that you would never know that a mine, smelter or refinery had once been there. Our sites are restored for the sustainable benefit of local communities and the natural environment. For instance, they might be transformed into housing, industrial facilities, leisure or community assets, or into landscapes that are farmed or returned to nature.

We need to evaluate all the risks – both opportunities and challenges – that our operations can have on a region, and how we will address them. For instance, they can bring opportunities for local employment, local supply, and infrastructure development. But they may also lead to additional demands on resources like water, or necessitate the resettlement of local people.

Some of our sustainable development work is continuous throughout all stages of our operations – such as our focus on safety, health and stakeholder engagement. In other areas, the work may be more specific to a particular part of the lifecycle – like product stewardship during the operations phase.

### Exploration

Exploration is an integral part of the sustainable development equation for Rio Tinto. Its purpose is to discover or acquire mineral resources that add value to our business, in line with our strategy. Our experienced, in-house exploration team has a proven track record of discovering large, long-life orebodies, and also for identifying opportunities for brownfield expansion of existing assets.

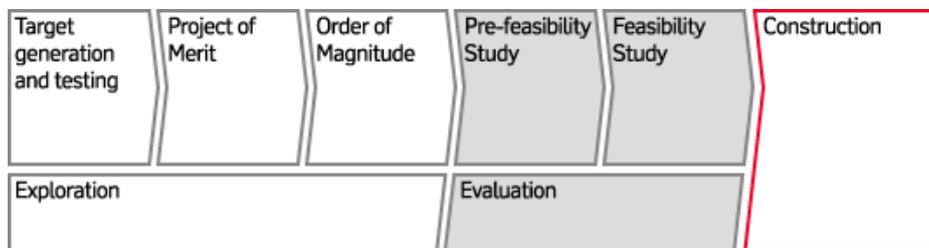
Wherever our exploration teams operate, we find ways to work to the highest international standards. These teams are often the first contact that we have with our future neighbours. From the earliest stages of exploration, we make sure we engage fully with our new host communities to understand and respond to their needs. Respecting the diversity of local communities, they engage in a direct and personal way that is tailored to the specific needs of each region, village, or individual stakeholder.

Rio Tinto Exploration operates its own exploration programmes where possible. This gives us the ability to direct the technical aspects of the programme towards our goal of discovering Tier 1 mineral deposits. And it also gives us direct control of the health, safety, environment and communities aspects of the programme. On a day-to-day basis our Exploration group contributes to improvements in local health and safety practices, community involvement and consultation, and employment of local people.

## Our business continued

### Projects

We have a structured approach to project development that we apply consistently throughout the Group.



Moving a project through the development stages represents a progressive increase in confidence that the project meets the technical and economic parameters of our investment criteria. We allocate investment only to the highest return opportunities. If we take the decision to invest, the project moves into an implementation phase, which includes detailed engineering, procurement and construction management, and then into production.

To meet demand for our products, we are moving into parts of the world that are increasingly remote and undeveloped, and have more complex geologies. Having a disciplined approach to project planning is more important than ever, and sustainable development is always at the forefront of our thinking.

### Operations

We are [strongly represented in Australia, North America and Europe, and we have significant businesses in South America, Asia, and southern Africa](#). Some of our interests are in [operations and ventures](#) that we do not manage. In our dealings with joint venture partners and non-managed operations, we make every effort to ensure that the principles of [The way we work](#) are respected at all times.

### Closure

[Closure](#) planning is an essential part of the lifecycle for every Rio Tinto operation, to ensure we achieve sustainable development objectives when a mine or plant comes to the end of its working life. We integrate closure planning throughout an asset's lifecycle, from the earliest stages of project development. Good performance in closure management can enhance our reputation and enable us to maintain access to land and capital, to continue establishing new projects with the support of local communities.

### Mine of the Future™

For future access to resources, we are looking beyond our current licence to operate and thinking about better ways of mining. With our Mine of the Future™ programme we are demonstrating improvements to mining processes that include unprecedented levels of automation, and remote operations that are revolutionising the way mining has been conducted for more than 100 years.

Mine of the Future™ helps us improve our sustainable development performance in several areas. The programme is designed to create next-generation technologies for mining operations that result in greater efficiency, lower production costs, improved health, safety and environmental performance, and more attractive working conditions.

The future involves reducing our footprint through improved capability for underground operations; relying more on technology such as remote-controlled equipment; and ensuring we are at the top of our game on environmental management.

## Our sustainable development strategy



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>. While it cannot be achieved by one organisation on its own, we believe that our business can make an important contribution to the ongoing, global transition to sustainable development.

Because we recognise that we have a responsibility to all our stakeholders and to the wider world, our commitment to sustainable development is integrated into everything we do. Our operations give us the opportunity to bring long-lasting positive change to the communities, regions and countries where we work, and our metals and minerals are transformed into end products that contribute to higher living standards.

To build and protect our reputation, we have a relentless focus on embedding and living our values – accountability, respect, teamwork and integrity – and on deepening our sustainable development capabilities.

We must maintain safety as our absolute priority – eliminating workplace fatalities, and continuing to reduce incident, injury and illness rates towards our goal of zero harm. Recognising that strong leadership is essential for achieving our safety goals, we will continue to improve our leaders’ engagement around safety risks.

Our approach to sustainable development and business integrity are, we believe, competitive advantages for us. They help us gain access to high quality resources and business development opportunities. In addition they allow us to attract talented people, engage with communities, reduce environmental impacts, manage risks effectively and decrease operating costs. This enables us to give more confidence, and deliver higher returns, to our stakeholders.

### Delivering sustainable contributions

Our strategy of investing in large, long-term, low cost mines and businesses means that we operate on extended time horizons. Some of our projects last 40 years or more from mineral discovery through to closure, representing large-scale, long-term investments in fixed capital, often situated in remote locations.

These long-term commitments provide opportunities for us to plan, implement and deliver sustainable contributions to social wellbeing, environmental stewardship and economic prosperity, within our strong governance systems.

The [minerals and metals](#) produced at our operations contribute to society’s needs, creating wealth to support community infrastructure, healthcare and education programmes, and delivering financial returns for our shareholders. Our activities also provide the means and opportunity to develop new approaches to solving the world’s environmental and human development challenges, such as climate change and poverty. And our metals and minerals themselves have a role to play in the transition to sustainable development – being used in end products that can bring about environmental and social benefits.

We also recognise that, if not managed appropriately, some aspects of our activities have the ability to detract from sustainable development, such as options for the future use of water and land; amenity impacts on local communities; and greenhouse gas emissions from our operations and the use of our products.

### Management framework for sustainable development

We have a structured framework that enables us to deliver industry-leading performance, and effectively manage risks. Our approach begins with [The way we work](#) – our global code of business conduct – supported by our corporate [policies, strategies and standards](#) that lay down the minimum acceptable requirements for behaviour or operating conditions. Our policies are also supported by management systems to ensure appropriate implementation across the Group.

We monitor and report against [our performance](#) using established indicators and metrics with a suite of Group-wide [goals and targets](#).

By communicating and raising awareness of our approach to stakeholders, we are embedding a sustainable development culture that influences every part of our organisation.

We constantly challenge ourselves, reviewing and refreshing our approach to make sure that it remains focused on the risks that matter most to us and to our stakeholders. These will help us to manage our key material risks and improve our performance. For instance, we are developing an improved framework on how we analyse and communicate our water programmes, and other environmental risks. We have also recently been focusing on strengthening the quality of our risk management, particularly around high-consequence, low-probability events.

### Our approach to engagement

A culture of trust and transparency is key to successful mineral development that brings benefit to all parties. We establish this through honest engagement with all our stakeholders. We consider anyone who has an interest in our activities – whether individuals or representatives of groups or organisations – to be one of our stakeholders. This includes people who influence our decisions as well as those who are affected by our decisions.

To achieve our sustainable development goals, we often work in partnership with others outside Rio Tinto who possess specialist expertise, such as leading universities, non-government organisations and industry suppliers. We work with others to explore how together we might help solve some of the global challenges we face – including biodiversity loss; climate change and its impact on water and energy; poverty and corruption. By building relationships with our stakeholders, and by applying risk analysis and management effectively throughout our business, we can create opportunities out of external challenges, and extend our licence to operate. We’ll continue improving our existing relationships and exploring opportunities for forging new ones.

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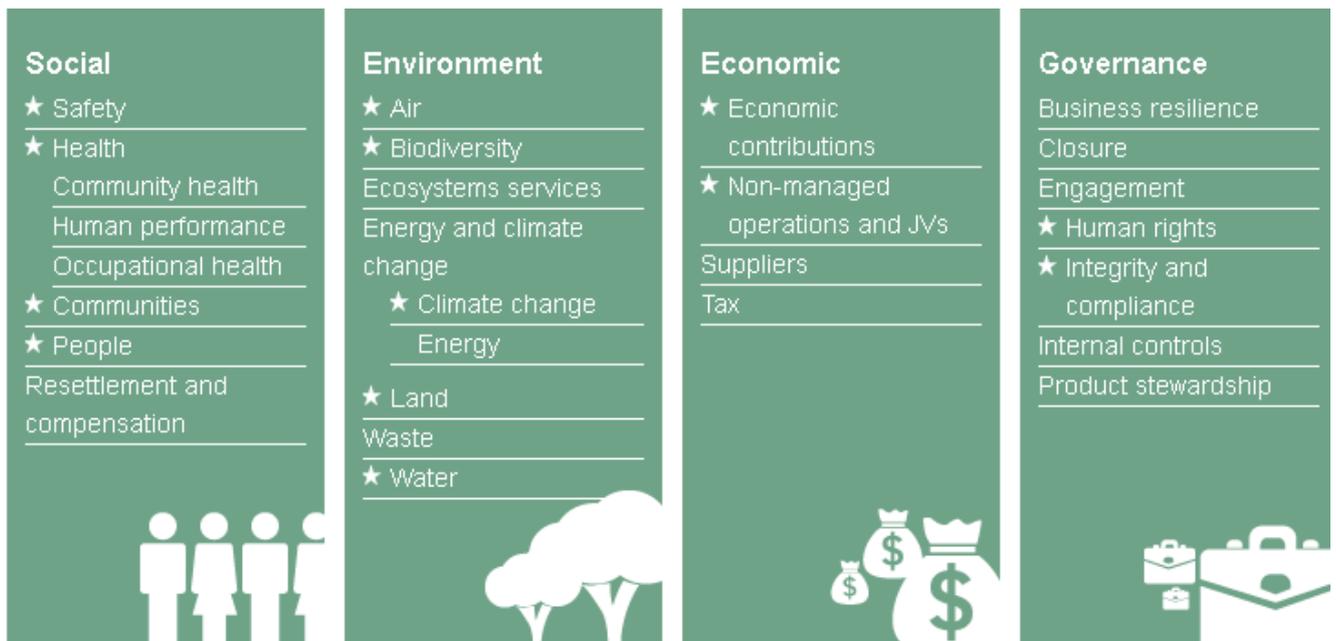
## Our sustainable development strategy continued

The mining and natural resource sector is occupying an increasingly strategic and exposed position in the thinking of governments and other stakeholders. Through proactive leadership and by building relationships with all our stakeholders, we can turn this area of challenge and complexity into a source of competitive advantage.

The resource sector in general is also facing heightened competition for skilled labour. However, by maintaining a reputation for being an employer that focuses on areas like safety, health, diversity and inclusion, and respect for the environment and stakeholders, it helps us to attract and retain the people we need for our future growth. In turn, as we enable our people to develop, we help facilitate growth both of individuals and of local economies. Further details on our approach to sustainable development and our performance can be found in our [Annual report](#), in this Sustainable development report and in our business units' own local [sustainable development reports](#).

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 on the website.

## What is important to us



★ Issues of highest materiality reported in the Annual report

Across our operations, on a daily basis, we take accountability for sustainable development issues. These considerations come into our business planning, into our operating and monitoring activities, and into our engagement with stakeholders.

The diversity of our operations, and the varied environments and geographies where we work, mean that each of our sites has its own set of sustainable development priorities that it must integrate into its activities.

However, many of the broader issues that we address are common across multiple sites. Water, for instance, is important at all of our operations. But the specific issues for our iron ore mines in the hot, dry Pilbara region of Western Australia, are different from those for our hydropower facilities in Canada.

### Our materiality process

In order to be as transparent and clear as possible in reporting our sustainable development performance and approach, we use a materiality process. This tells us which issues are most important, or material, to our stakeholders and to our business. It helps us focus our reporting on these issues. We run this process annually as part of our corporate reporting cycle, to make sure that each year we provide the information that our stakeholders are looking for.

We developed our materiality process in line with the [Global Reporting Initiative](#) (GRI) guidance on materiality and completeness. The GRI's mission is to make sustainability reporting standard practice for all organisations.

A third-party provider helps gather information and feedback from our stakeholders, to help give us a broad and balanced view of the issues and views. We use the outcome of the materiality assessment to select the issues that should be included in our reports.

### External and internal perspectives

We gather information and opinion from a wide range of external stakeholders, including NGOs, suppliers, customers, partners and the media. From this, we assess the impact that sustainable development issues have externally, in terms of society and the environment, and our compliance with policies and commitments. We also consider how important the issues are for our stakeholders when they're making judgments about our sustainable development performance. And we look at how relevant the issues are to the wider mining and metals sector, and other industries.

We also evaluate how important the issues are to our business. We look at their potential impact on our financial performance, our brand and reputation, our stakeholder relationships, our production and ability to meet our customers' needs, and the possible legal and financial ramifications of non-compliance.

## What is important to us continued

Level of concern to stakeholders	HIGH			Issues of highest materiality 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

### Materiality matrix

We create a matrix, which plots the level of concern to external stakeholders against the current or potential impact on our business. Each issue is given a rating of "low", "medium" or "high", from both internal and external perspectives. An impact can be either positive or negative.

Issues that are highly important to both our external and internal stakeholders are reported in our [Annual report](#). Those of medium or high importance to external or internal stakeholders are reported on this website. We don't publicly report on all topics, but just because a topic is not reported here, it doesn't mean that we aren't managing it internally.

## Our products

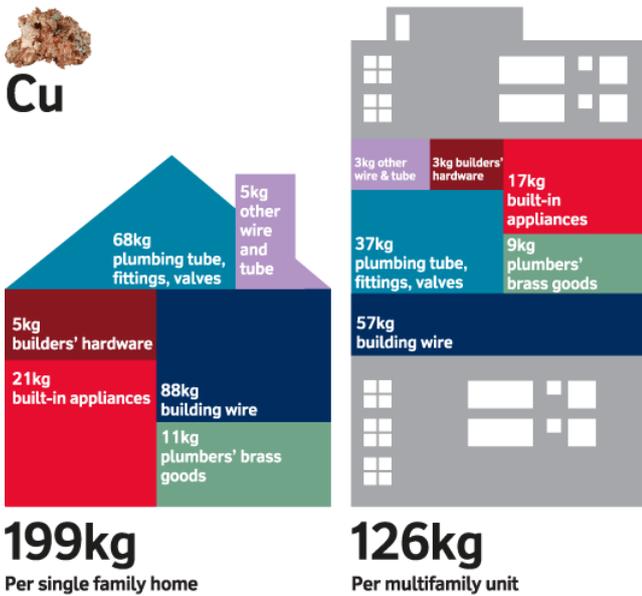


Our products make modern life work. It is hard to imagine living a day without using a metal or a mineral in one of their numerous downstream applications.

Switch on your kettle or toaster at breakfast? We need copper wires to bring electricity into our homes. The daily commute? Our transport infrastructure depends on iron ore, coal and aluminium. Catch up with the news on your smartphone or tablet? Borates are used to make the screen thin and strong.

And on and on throughout the day – at home, at work, in transportation, and for recreation and communications – minerals and metals make their way into every part of our lives.

### Copper used in the average home



Source: Copper Development Association Inc.

### Sustainable benefits

Rio Tinto's activities make a major contribution to economic growth, and deliver other diverse benefits too, like the development of skills and infrastructure. But our products themselves also have a role to play in the transition to sustainable development.

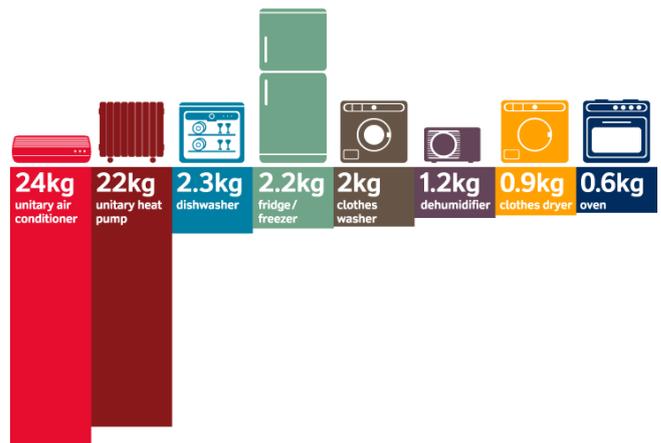
For instance, many of our metals and minerals are used in environmentally beneficial applications. Aluminium is used to make lighter weight vehicles that have lower fuel consumption. Borates are used in insulation and the blades of wind turbines.

Uranium is one of the most powerful natural sources of energy. Its chemical properties can be harnessed to produce electricity without generating carbon dioxide.

Our products can have positive social and economic impacts too. Access to electricity, for instance, can transform lives, and the power generated by the energy minerals we produce is playing a role in alleviating poverty in developing countries.

Metals and minerals can also help look after our health, like titanium dioxide, which is an important compound in sun protection creams. Or copper, which is used for fixtures and fittings in hospitals because it has natural anti-microbial properties.

### Average quantities of copper found in major appliances



Source: Copper Development Association Inc.

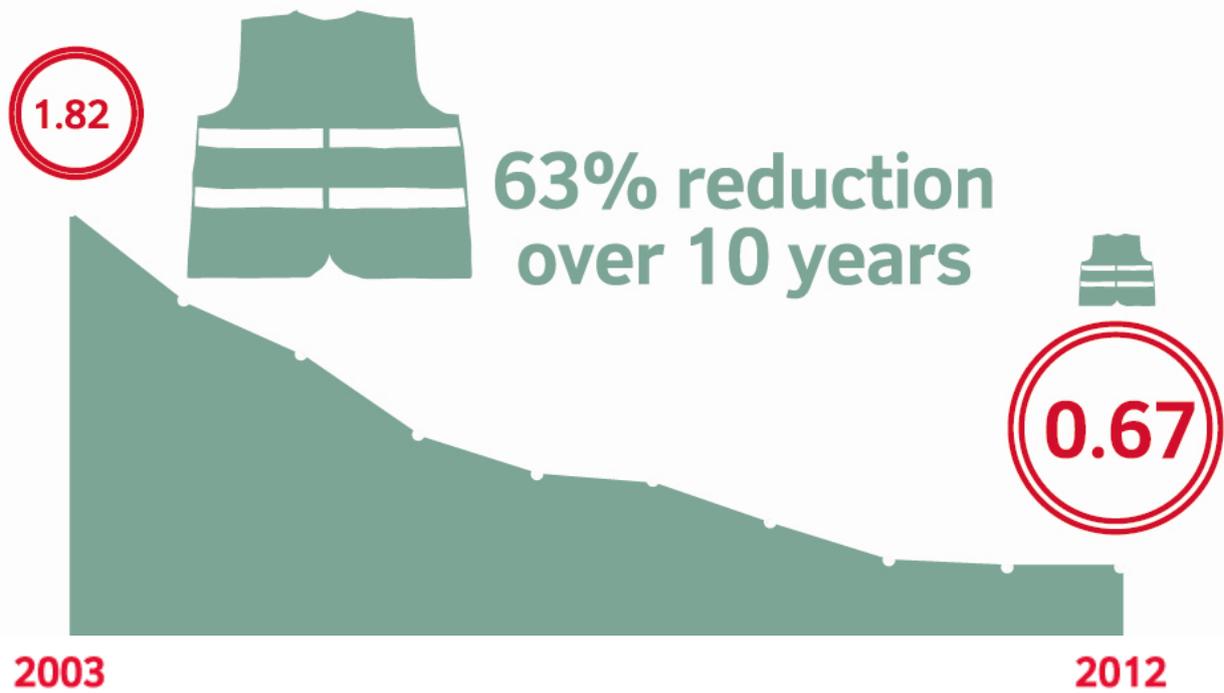
### Product stewardship

Just as we take responsibility for our operations throughout their working life and beyond, we also take a lifecycle approach to [product stewardship](#). Our product stewardship programme is focused on understanding, managing and communicating regulatory, social, health and environmental risks – both opportunities and threats – throughout the full lifecycle of our products.

We focus on maximising the opportunities and minimising the threats that come from the use, production and disposal of our products. We don't do this in isolation, but work closely with scientists, customers, suppliers, communities, regulators and NGOs to improve our collective understanding.

Our sustainable development performance and our product stewardship activities help set us apart from our competitors as a preferred supplier of metals and minerals. For instance, we can leverage the fact that 96 per cent of the power supply for our aluminium business is carbon free. Or that we were the first mining company to be certified by the [Responsible Jewellery Council](#) (RJC) for our supply of diamonds, gold and silver to the jewellery industry.

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



### A safe and healthy workplace

#### Social

We're committed to providing a safe and healthy workplace for our employees where their rights and dignity are respected. We set out to build enduring relationships with our neighbours that demonstrate mutual respect, active partnership, and long-term commitment. In the long run, the trust that is built on these solid relationships will reinforce our ability to gain preferential access to resources.

# Safety

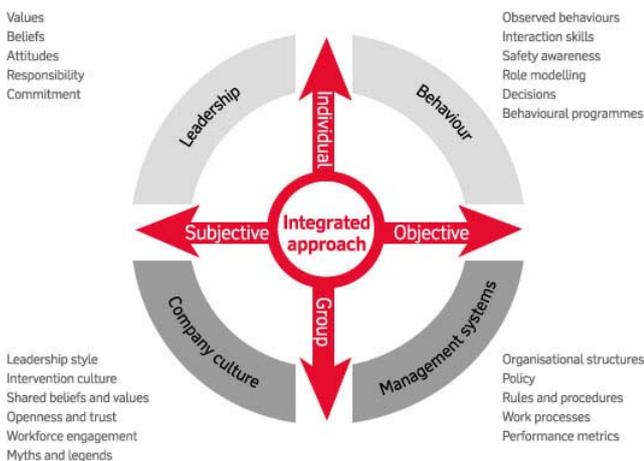
## Introduction

Our safety vision is that together we will create an injury and illness-free workplace where everyone goes home safe and healthy each day of their working life.

Safety is not about numbers - it's about people. The [policies, standards](#) and programmes we implement are important; they alone will not deliver our safety vision. We are progressing on our journey toward a zero harm culture where everyone knows that they make a difference and where all employees and contractors have the knowledge, competence and desire to work safely.

## Our safety approach

Our safety strategy provides an integrated approach to building a zero harm culture at each of our operations. It includes well designed systems to support working without harm and recognises the importance of understanding the beliefs, experiences and attitudes of our people.



An integrated approach is important as we look to build a culture where everyone is committed to zero harm and takes responsibility for working safely.

Leadership remains central to our safety strategy. We expect our leaders to be visible and passionate champions for safety. They willingly accept accountability for the safety of everyone working in their teams and consistently set high standards through their behaviour.

Our leaders seek to create a working environment where team members take ownership of their own safety and also look out for the safety of their workmates.

Our safety programmes are built upon the foundation of our [Health, Safety, Environment and Quality Management System](#) (HSEQ MS) and our safety performance standards.

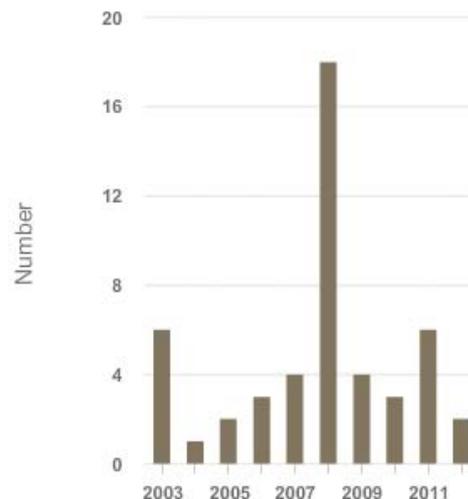
Our approach to building a zero harm culture has six core focus areas:

1. Leaders are trained and demonstrate genuine commitment to improve safety.
2. All incidents are reported and thoroughly investigated, and learnings are shared.
3. Employees and contractors are actively engaged in all areas of safety management.
4. Employees and contractors see and effectively manage the risks in the workplace.
5. World class systems that support our journey to zero harm.
6. Behaviour that is aligned with our values is expected and actively encouraged.

## Results

Regrettably, two people lost their lives due to safety incidents while working at Rio Tinto managed operations in 2012. The events were a rail incident at Rio Tinto Alcan Roberval-Saguenay in Canada and an incident during maintenance work on a crusher at Palabora in South Africa. We provided support and counselling to the families and colleagues affected by these events. We conducted in-depth investigations of the causes of these incidents and ensured that the conclusions were communicated across the Group. We are determined to learn from all incidents to prevent similar events from recurring in the future.

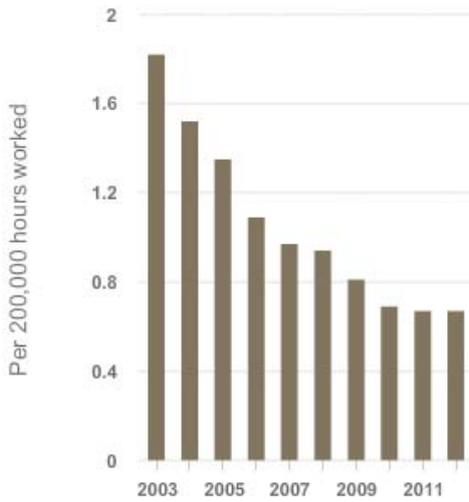
## Fatal incidents



**KEY**  
Number  
■ Fatal incidents

We measure progress toward our goal of zero injuries through the all injury frequency rate (AIFR) which includes data for employees and contractors. This measure includes any injury that has required medical treatment. At the end of 2012 our AIFR was 0.67 which is a similar injury rate to 2011. Our lost time injury rate for 2012 was 0.37. Our focus on contractor safety management during 2012 resulted in a six per cent reduction in contractor injury rates.

### All injury frequency rate



**KEY**

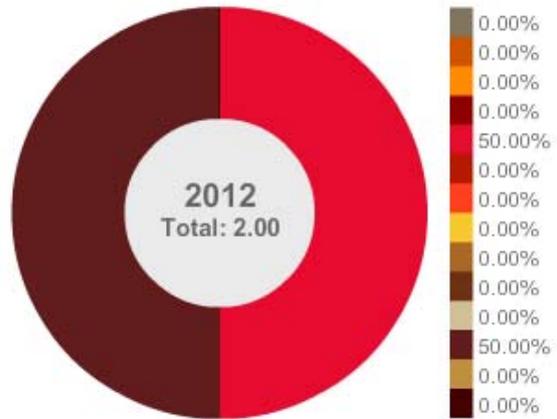
Per 200,000 hours worked  
 ■ All injury frequency rate

Lower injury rates do not mean that serious incidents will not occur. We use significant potential incident reporting and remedial action closure measures to promote identification, investigation, management and sharing of lessons learned from near-miss events with potentially fatal consequences.

Critical safety risk management is another important element of our safety approach to ensure that the low probability/high consequence risks are understood and effective controls are in place at every site. Every operation has identified their critical safety risks using Semi Quantitative Risk Assessment (SQRA™) and has developed and implemented control plans to ensure the risks are managed.

We gave great focus to construction safety during 2012 given the significant growth projects under way. We undertook a global benchmarking study of major resource construction projects to understand the critical success factors for safe execution of large construction projects. The learnings from this work are now integrated into our project management approach.

### Types of fatal incidents



**Key**

**Number**

- Types of fatal incidents - Aircraft
- Types of fatal incidents - Caught in or between
- Types of fatal incidents - Drowning
- Types of fatal incidents - Electrical
- Types of fatal incidents - Fall of ground
- Types of fatal incidents - Lifting or hoisting
- Types of fatal incidents - Machinery or conveyor
- Types of fatal incidents - Other
- Types of fatal incidents - Slips, trips and falls
- Types of fatal incidents - Struck by falling object
- Types of fatal incidents - Theft
- Types of fatal incidents - Vehicles on site
- Types of fatal incidents - Vehicles off site
- Types of fatal incidents - Working at height



### Engagement and leadership bring safety success

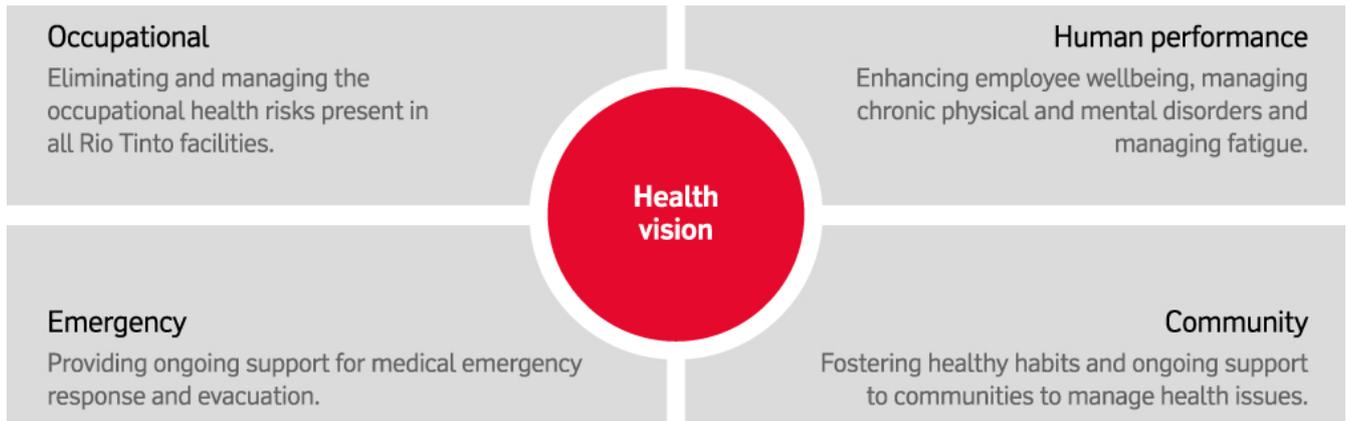
Mount Thorley Warkworth (MTW) is an established coal operation in the Hunter Valley of New South Wales, Australia. The mine had improved its safety performance by focusing on getting the basics right – housekeeping, robust health and safety standards, good safety interactions and leadership development. However, improvement had stalled in recent years.

To better understand what was happening across the site, and secure robust employee feedback, the site participated in a Site Safety Acceleration Programme (SSAP). As a result of this deep engagement process, the site leaders gained a unique insight into how safety was perceived on the front line.

The leadership team took direct action to improve visibility and engagement, and to simplify systems and documentation. A contractor engagement programme, including a contractor supervisor forum, was established to better integrate the contractors into safety at the site.

MTW achieved a 27 per cent reduction in injury rates in 2012. The site is an excellent example of how passionate leadership combined with genuine engagement with their teams and contractors can make a real difference in safety. In recognition of this outstanding achievement, MTW was awarded Rio Tinto's 2012 Chief Executive Safety Award.

## Health



Our employees are our most important asset. Protecting, promoting and enhancing the health and wellbeing of our workers is as vital as protecting their safety. We do this by identifying, and managing, the key health risks to which they are exposed. This includes minimising occurrences of [occupational illness](#), supporting our people in leading [healthy lifestyles and in their fitness for work](#), and helping them to remain healthy as they travel and work at our more remote sites.

We operate in a number of countries where the prevalence of HIV/AIDS, tuberculosis, malaria and other tropical diseases is high, and as well as managing these diseases in the workplace, we are committed to helping establish health programmes for our local [communities](#).

# Community health and medical emergency response

## Introduction

Our health management approach does not just remain in the workplace. At many of our sites, we have recognised the importance of establishing community health programmes (eg HIV/AIDS, malaria and tuberculosis). This is important for our local communities as well as our workforce, who are all exposed to the local health conditions. Travel health issues – including the availability of adequate emergency medical response – are also becoming an important health risk as we expand our operations into less developed regions of the world.

## Approach

Rio Tinto operates in a number of countries where the prevalence of HIV/AIDS, tuberculosis (TB), malaria and other tropical diseases is high.

We are committed to helping our communities enhance their capacity for managing these diseases. As part of this, we work closely with the international community including government agencies and non-governmental organisations (NGOs), as well as local organisations, which are concerned with these problems.

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.

We will continue to pursue opportunities for private-public partnerships, to expand our community health programmes into our communities.

## Dealing with HIV/AIDS and tuberculosis in the workplace

The global epidemic of HIV/AIDS poses a serious threat to the health of employees, their families, and communities surrounding mining and minerals operations. We have had an HIV strategy and an HIV standard in place for several years; these have helped our workplaces to achieve HIV prevalence rates significantly lower than our surrounding communities. However, the success of our workplace programmes will ultimately be influenced by the ability of our surrounding communities to develop effective prevention and treatment responses to the HIV epidemic.

We take our lead from [the International Labour Organization Code of Practice on HIV/AIDS and the world of work](#). We do not tolerate discrimination towards employees who are diagnosed with the disease. Nor do we screen for it during the recruitment process, or use screening as a condition of employment.

We have a global, risk-based standard that has four key workplace components:

- prevention, awareness and education;
- voluntary counselling and testing (VCT);
- wellbeing, counselling and treatment; and
- monitoring and evaluation.

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. In this way, each worker can take the necessary steps to remain infection-free if negative, or avoid spreading the infection and access the appropriate support and treatment if positive. All employees and their nominated partner can have affordable access to treatment, care and support, including antiretroviral drugs (ARVs).

Employees infected with the HIV virus have reduced immunity and are also at increased risk of developing TB, which often leads to death when no treatment is available. We are currently working to characterise the Rio Tinto exposure to TB and raise the profile of TB in high prevalence areas.

## Malaria and other tropical diseases

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 mortality), 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.

Regrettably, one person lost their life to malaria while on international assignment at QIT Madagascar Minerals in 2012. We thoroughly investigated this incident and implemented a Malaria Management Framework and a Malaria Hotline which is available to all employees 24 hours per day/seven days per week. The hotline is intended to provide advice and support to identify the signs and symptoms of malaria as well as general preventative initiatives or measures.

We have developed and rolled out an e-learning module for malaria. A successful malaria control programme must include awareness, education, prevention of mosquito bites, chemoprophylaxis, early diagnosis and treatment, and community aspects of prevention and treatment. We continue to provide support to our businesses in developing effective malaria programmes and we communicate the Rio Tinto requirement for expatriates and visitors to endemic malaria areas to take malaria chemoprophylaxis.

## Travel health issues and medical emergency response

International travel, particularly to developing countries, can pose significant health risks that have a very real possibility of resulting in illness and even death. In addition, serious 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 unavailable. We have mandatory minimum requirements for emergency medical response provisions at our sites.

We have developed pre-travel medical checks, which are being offered to business travellers at most of our key locations since 2010. We have also developed and implemented a pre-assignment medical check programme for international assignees and their families, and have reviewed the medical emergency response capability of our high-risk sites. We maintain ongoing support for medical emergency response and evacuation.

## Results

The number of medical emergency cases among business travellers and international assignees decreased by 12 per cent in 2012 compared with 2011 (184 cases in 2011 and 162 in 2012). The most common cause for a medical emergency among Rio Tinto business travellers and international assignees in 2012 was gastrointestinal disorders, followed by injuries and musculo-skeletal disorders. There were five emergency medical evacuation cases in 2012; three originated in Africa and two in Asia.



### Managing HIV/AIDS at Richards Bay Minerals

Richards Bay Minerals (RBM) is located in the province of KwaZulu-Natal, South Africa and is in the area that has the highest incidence of HIV/AIDS in the world. RBM is therefore more vigilant and proactive in managing the HIV/AIDS pandemic among its employees and community than anywhere else, in order to meet its vision of being "Responsible beyond mining".

RBM is now into its sixth year of rolling out its dedicated HIV/AIDS strategy. This offers a holistic management approach whereby HIV and wellness are inseparable and the disease is managed in the same manner as any other chronic condition. The objectives of the HIV/AIDS management programme are to ensure that all employees have access to specialised HIV/AIDS assistance, to inform and educate employees to ensure high levels of awareness, and to retain HIV positive employees in their appointed jobs.

The following successes have been recorded for the RBM HIV/AIDS programme:

- Treatment success rate is in excess of 90 per cent, which is among the highest in the country.
- The vast majority of HIV positive employees are retained in their jobs through the use of various administrative tools, eg six month ill health retirement.
- At present, more than 80 per cent of the 300 known HIV positive cases have selected the RBM clinic as their service provider, which is a clear indicator of the success of the HIV/AIDS management programme.
- Forty RBM peer educators have been trained to provide information and guidance to employees.

# Managing human performance

## Introduction

Our employees are our most important asset. We strive to protect and promote their health and wellbeing, and believe that by supporting them in leading healthy lifestyles, health-related risks such as fatigue, stress and obesity, and diseases such as HIV/AIDS and tuberculosis will be reduced. Investing in the health of our people, particularly in the context of an ageing workforce and skilled labour shortage, is essential for ongoing business success.

## Approach

The nature of occupational illnesses is changing. Health conditions such as stress, fatigue and the normal results of ageing, such as reduced physical capacity, present different challenges from the traditional mining health issues. We are managing these conditions through the implementation of our fitness for work standard, our wellbeing strategy, our fatigue management framework and associated programmes.

A study involving 1,300 employees in Australia identified that issues such as sedentary lifestyles, obesity, psychological health, nutrition, pain management and fatigue were having a significant impact on our employees. We recognise that as our workforce ages, musculo-skeletal conditions and heart disease will become more prevalent in our workplaces. Our health results also show that stress and fatigue are becoming more common.

We have benchmarked our health and wellbeing performance against other leading companies. In 2009, our Executive Committee approved a strategy that will result in an integrated global framework, with strong regional ownership, to support health and wellbeing programmes across the Group.

The strategy has been piloted at selected sites in Australia and the US, and involved our employees, human resources departments and medical insurers. In Australia, it has resulted in "Achieve Health", a health and wellbeing programme that offers potential wellbeing, safety and productivity benefits. Lessons learned along the way are being shared with our other businesses.

In 2012, we developed regional wellbeing steering committees and assessed the impact of the Rio Tinto Health and Wellbeing strategy at the pilot sites.

And, given the link between fatigue and [safety](#), all of our businesses where people do safety-critical jobs are now encouraged to run fatigue management programmes. Tools to facilitate fatigue management programmes have been developed and technology to manage fatigued drivers has been assessed.

In addition, we will work with our Human Resources teams to define mental health risks. The goal is to develop a business case for the need to manage mental health issues across the Group. We also aim to improve employee awareness of, and access to, support through our employee assistance programmes and other community resources.

The intent is to evolve this work into the broader concept of "human performance", which encompasses enhancing employee wellbeing, managing chronic physical and mental disorders, and managing fatigue.

## Results

Poor health is impacting our ability to achieve our goal of a zero harm workplace. Data from our Australian and North American sites indicate that almost 75 per cent of our workforce is overweight and/or obese; over 70 per cent would benefit from increasing their level of physical activity or improving at least one dietary behaviour; 24 per cent suffer from high blood pressure; 36 per cent from high cholesterol; and seven per cent have high blood sugar levels or diabetes. Stress, tobacco use, alcohol abuse, and sleep deprivation are other risk factors that, in combination with the above, put many of our employees at risk of acute or chronic illnesses.

Our pilot wellbeing programmes have had a positive impact on health risk assessment participation rates and other health participation behaviours, such as increased visits to a doctor for skin cancer and blood pressure screening. The programmes have helped identify at least 50 cases where individuals were at high risk, prompting them to seek urgent medical advice on their potentially life-threatening conditions.



### During 2012 we also:

- developed a Rio Tinto Fatigue Management framework with its associated tools;
- verified that Fatigue Accident Causation Testing (FACT) can complement the existing TapRoot® incident investigation tool;
- implemented a bio-mathematical roster modelling tool (FAST);
- implemented the use of actigraphy to support individual sleep health and education;
- identified and trialled fatigue management technologies; and
- developed a series of frontline assessment tools and supporting guidance for fatigue management.

We also facilitated regional workshops in Australia and Africa and led site-specific fatigue management projects across Australia, North America, Asia and Africa.



### Head start for fatigue management

In 2012 Rio Tinto Coal Australia (RTCA) conducted trials and reviewed a number of technologies to help with a holistic approach to managing fatigue at its operations. The trials primarily focused on supporting haul truck operators. After rigorous trials across several of its sites, the RTCA leadership team selected the Smart Cap technology, a baseball cap that uses forehead sensors to monitor signs of fatigue. Smart Cap measures the brain's electrical activity, in a similar way to what happens in a sleep laboratory.

Smart Cap is a proactive and predictive technology that can give feedback to the operator in real time. This will help our operations reduce fatigue-related risk and prevent injury and illness.

## Managing occupational health risks

### Introduction

Like any responsible employer, we take steps to minimise occurrences of illnesses that develop as a result of conditions and exposures in our workplaces. Because of the nature of our business, we are especially vigilant of diseases caused by exposure to excessive dust, fume, noise, manual handling, vibration and to all forms of radiation. Our goal is no new cases of occupational illness. To support this, our [occupational health policy and performance standards](#), coupled with our targets and our approach to wellbeing and fatigue, have been put in place.

### Approach

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

We introduced our Group-wide occupational [health standards](#) in 2004 to improve identification and management of health risks. These performance standards are integrated with our custom-built [Health, Safety, Environment and Quality \(HSEQ\)](#) management system to ensure consistent Group-wide application. We audit implementation of our standards and also benefit from sharing leading practices across the Group.

Some of our workers are more sensitive than others to contracting workplace-related diseases, so we emphasise prevention through medical surveillance and personal monitoring of the workplace where relevant.

We have rolled out guidance and training in identifying and assessing critical health risks. We have also developed a formal process for identifying material health risks and critical controls, for which critical control monitoring plans are developed. The plans establish an approach that will be applied for monitoring the ongoing performance of critical controls regarded as material risks at individual sites. We do this by establishing performance measures and performance improvement targets for each critical control. To aid consistency of data quality, management and analysis, we continue to roll out an integrated database software package for managing occupational/industrial hygiene and medical surveillance data.

Lung diseases related to long-term dust exposure are now rare in our workforce, demonstrating the effectiveness of our dust and fume control programmes. We have also made significant strides in reducing the number of new cases of occupational asthma within our aluminium smelters, although the potential for chronic disease due to smelter fume exposures remains. As part of our proactive approach, we continue to develop action plans to further reduce the potential risks associated with fumes from aluminium and copper smelting.

Heavy equipment tends to be noisy, which is why noise-induced hearing loss (NIHL) is still a problem for us. While we recognise that further reductions in noise exposures for our employees will prove challenging, we are committed to continuing to improve our performance. We continue to develop engineering solutions and alternative ways of doing our work with reduced noise levels. We have re-established a noise community of practice to share learnings and help develop more effective noise improvement strategies.

Musculo-skeletal disorders remain a common form of new occupational illnesses, despite advances in technology rapidly reducing physical demands on our employees. We are continuing to seek ways of engineering out heavy lifting tasks and are reviewing available and proven ergonomic solutions to see if they can be applied more widely. We use a specifically dedicated software package to improve the assessment and sharing of controls for manual handling risks.

### Results

We have found that implementing our occupational health standards has led to a significant increase in our employees' awareness of health issues, and to noticeable improvements in performance.

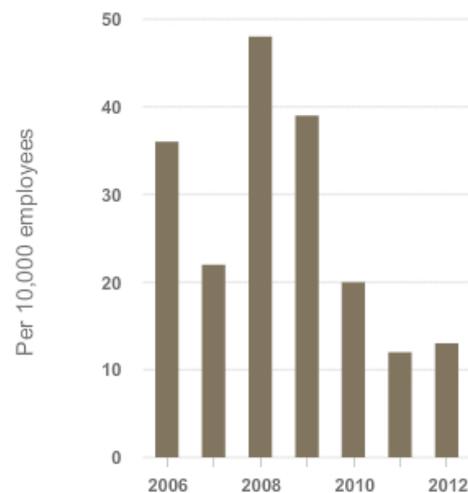
In line with our standards, we continue to work on reducing radiation exposure to as low as reasonably practicable. Our monitoring has not recorded any employee above our 20 milliSievert (mSv) annual exposure limit for over a decade. Rio Tinto's exposure limit is well

below the five year 20mSv and annual 50mSv limits typically found in international protocols.

In recent years, the rate of new cases of occupational illness at Rio Tinto operations has been decreasing.

We are [targeting](#) a 30 per cent reduction in the rate of cases of occupational illness per 10,000 employees between 2008 and 2013. The main types of occupational illnesses recorded in our 2008 baseline are related to musculo-skeletal disorders, noise-induced hearing loss and stress. The baseline excludes operations that were divested or flagged for divestment during 2009.

### New cases of occupational illness



#### KEY

Per 10,000 employees

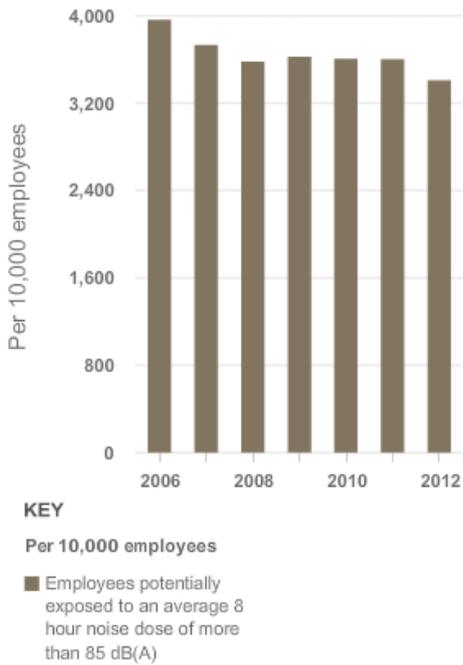
■ New cases of occupational illness - rate of new cases of occupational illness

In 2012, we achieved a 76 per cent improvement in performance compared with 2008, with significant decreases in the number of reported cases of noise-induced hearing loss (75 per cent), musculo-skeletal disorders (85 per cent) and stress (63 per cent).

Ongoing reductions in new cases of occupational illnesses will require further improvements in the management of risks posed by manual handling and noise exposure, as well as managing fatigue and supporting healthy lifestyles through workplace wellbeing and fatigue management programmes.

We are also [targeting](#) a ten per cent reduction in the number of employees potentially exposed to an average eight hour noise dose of more than 85 decibels between 2008 and 2013. We mitigate the risk of hazardous noise exposure (>85 decibels averaged over eight hours) in the business through implementation of hearing conservation programmes, which includes use of hearing protection. However, reducing noise levels through engineering or similar solutions is our preferred approach. The target is designed to drive noise reduction by means other than the reliance on hearing protection.

Employees potentially exposed to an average 8 hour noise dose of more than 85 dB(A)



In 2012, the rate of employees reported as potentially exposed decreased by 3.2 per cent per 10,000 employees compared with 2008. Progress against this target has been slow; based upon business feedback we are expecting that most of the improvements for this target will occur in 2013.



Knowledge sharing in noise management

Across Rio Tinto, many of our operations employ processes that are very similar, and that result in noise exposures to our employees. In the past, there has been duplication of effort, with multiple sites trying to identify and apply controls to the same issue, independently of each other. To avoid this duplication, and help our businesses resolve problems that have already been mitigated elsewhere, we established a noise community of practice.

It brings together those working in noise management and occupational health around the Group. An online forum helps community of practice members exchange information on noise controls with other business units, and promote excellence and cost-effectiveness in noise management. A number of solutions have been shared across Rio Tinto, and new ideas and projects targeting common noise sources continue to be created.

In addition, our knowledge sharing efforts are promoted in our training video for hearing conservation, "Listen to the Warnings", which contains employee testimonials as to the devastating effects of hearing loss on their lives. The video provides comprehensive training in the management of noise hazards in both the workplace and at home.

# Communities

## Introduction

Good community relations are as necessary for our business success as the effective management of our operations. This belief is at the heart of our overall approach to communities work and is why we build good quality relationships with the people in the areas where we operate. It is essential that we understand the social, environmental and economic implications of our activities so we can optimise benefits and reduce negative impacts, both for local communities and for regional and national economies. We accept that we cannot meet everybody's concerns and expectations, but wherever we operate we seek to do so with broad-based community support.

## Approach

Our Communities and Social Performance work is guided by [The way we work](#), our global code of business conduct. Our [Communities policy](#) and [standard](#) provide the framework for the work, while guidance notes provide specific requirements in areas such as consultation and engagement, social impact assessment, complaints, disputes and grievance, community agreements, and [resettlement and compensation](#). We also refer to external policies such as the International Finance Corporation's standards and the United Nations Declaration on the Rights of Indigenous Peoples.

## Our approach to working with communities

### 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
- Partnerships are based 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

We work from a common Communities and Social Performance framework of building knowledge, engaging with communities and developing programmes. 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 customary connections to land. We closely consult with local people to ensure the protection of their cultural heritage sites and values as we manage our businesses.

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 as part of their engagement with communities.

## Community agreement making

We seek to reach agreements, where appropriate, with land-connected host communities to gain access for exploration (land access agreements) and to develop mining operations (mine and regional development agreements). Most, but not all, of our community agreements are with local Indigenous communities. Recognition and respect of mutual interests underpin our agreement making. We make sure that the community groups entering into agreements have access to independent advice and expertise in negotiating them. We apply a participatory process so that local community members understand our operations and what is proposed in the agreement. Agreements arising from this process are evidence of [Free, Prior Informed Consent \(FPIC\)](#) as defined in the [IFC Performance Standard 7](#), although we prefer to secure what we call broad-based, free, prior, informed support.

## Gender

Women in communities often disproportionately bear the burden of change brought about by mining and other developments, as well as the inevitable changes occurring anyway. Recognising the importance of understanding the social dynamics of relationships between men and women, we have developed a comprehensive gender guide, [Why gender matters](#). The guide is designed to help all of 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 impacts on human rights linked to business activity. The Guiding Principles are based on shared responsibility between nation states' "duty to protect" and a corporate "responsibility to respect". To support this initiative and help our own people understand their responsibility, in 2012 we produced [Why human rights matter](#); a resource guide for integrating human rights into communities and social performance work.

Results

Rio Tinto’s global Communities and Social Performance target is:

“All operations have 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](#), by 2013.”

In 2012, 70 per cent of our operations had conforming community targets. We will seek to complete this work in 2013, although more work is likely to be needed in subsequent years to improve the indicators in more complex operating environments.

Rio Tinto signed [participation agreements with native title groups across the Pilbara](#) region of Western Australia in 2011 and 2012.

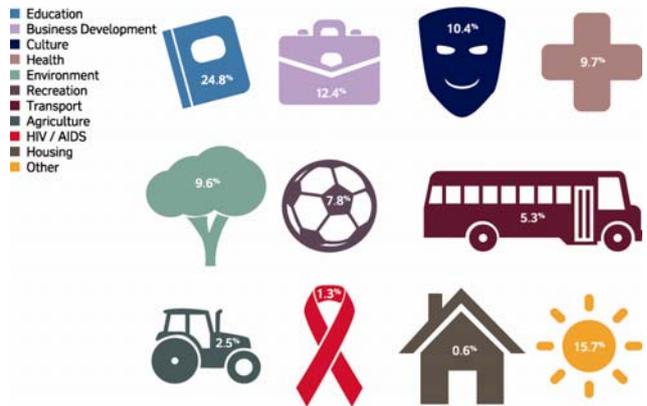
In Michigan, US, our Eagle project signed formal agreements with two community organisations to implement independent [community environmental monitoring](#). Under these agreements, the [Superior Watershed Project](#) (SWP) will independently monitor the mine, the mill, the ore transport route and air quality in Powell Township, the closest to Eagle Mine. The SWP will conduct verification monitoring of what Eagle already does for regulators and additional monitoring over the life of the mine, taking into account feedback from the community and the local Native American tribe.

Energy Resources of Australia (ERA) in the Northern Territory of Australia reached agreement with the Gundjeihmi Aboriginal Corporation and the Northern Land Council, representing the Mirarr traditional owners. The agreement and associated government agreements have been under negotiation for more than a decade. They include provisions on financial benefits for traditional Aboriginal owners, a Sustainability Trust, consultation protocols, cultural heritage, environmental management, employment, training and business development associated with the Ranger Mine.

Rio Tinto is committed to providing employment and career development opportunities to local communities. Local employment contributes directly to growing local economies while providing a stable workforce for our operations. In 2012, over 2,400 (around 7 per cent) of our Australian employees were Indigenous Australians.

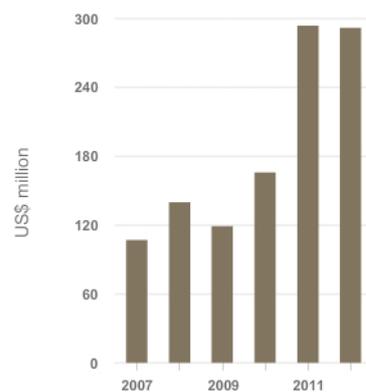
In 2012, Rio Tinto businesses supported just under 2,800 socio-economic programmes covering a wide range of activities including health, education, business development, housing, environmental protection and agricultural development. Overall, we spent US\$292 million on community programmes. Of this sum, 37 per cent went directly to community programmes. A further 51 per cent were direct payments into benefits receiving trusts associated with community agreements. Our management costs for these contributions were twelve per cent.

Breakdown of US\$108 million global socio-economic programme contributions in 2012



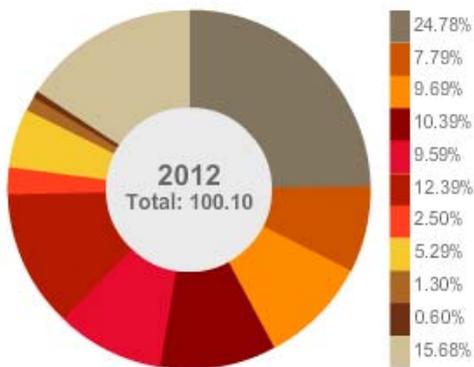
Community contributions for 2012 were one per cent lower than 2011. This reflects a decrease in community programmes. The establishment of major community agreements peaked in 2011, when direct payments into community controlled regional development trusts contributed to the total. Some of these payments were once-only payments associated with agreement commencement.

Community contributions



KEY  
 US\$ million  
 ■ Community contributions

### Community contributions by programme type

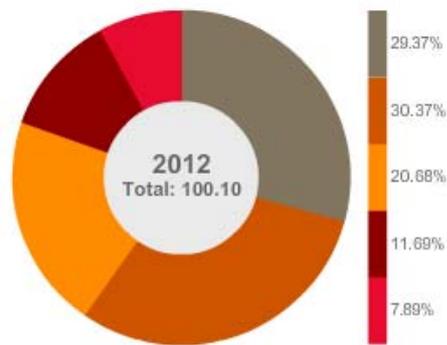


**Key**

per cent

- Community contributions by programme type - Education
- Community contributions by programme type - Business Development
- Community contributions by programme type - Recreation
- Community contributions by programme type - Agriculture
- Community contributions by programme type - Health
- Community contributions by programme type - Transport
- Community contributions by programme type - Culture
- Community contributions by programme type - HIV AIDS
- Community contributions by programme type - Environment
- Community contributions by programme type - Housing

### Community contributions by region



**Key**

per cent

- Community contributions by region - North America
- Community contributions by region - Asia
- Community contributions by region - Australia and New Zealand
- Community contributions by region - South America
- Community contributions by region - Europe/Africa



### Participation agreements with Pilbara Aboriginal Traditional Owners

In 2012, Rio Tinto continued implementing participation agreements with six Aboriginal native title groups across the Pilbara region of Western Australia, securing support for our current and future operations and ensuring participation opportunities for the native title groups.

Negotiated over several years, participation agreements have been reached with the Ngarluma, Kuruma Marthundunera, Puutu Kunti Kurrama and Pinikura, Nyiyaparli, Ngarlawangga and Yinhawangka groups.

The agreements provide Rio Tinto with business certainty. For Aboriginal people they help to create a future where culture and law is sustained and celebrated, and where future generations will have better health and education opportunities, and jobs and wealth creation.

Agreements' benefits are paid into trust structures managed by the native title groups with advice from independent trustees.

Benefits will be directed to community development and growth, health, education, and alleviation of poverty, vocational training and Aboriginal business development.

There is an overarching regional agreement that is optional for any native title group which has signed a participation agreement with Rio Tinto. The regional agreement sets out the way Aboriginal groups and Rio Tinto will work together. It includes seven regional standards that measure performance, covering employment and training, business development and contracting, cultural heritage management, land access, environmental management, cultural awareness training, and life of mine planning.

Rio Tinto is continuing negotiations with the two remaining Pilbara native title groups on whose land our mining or infrastructure operations are situated.

# People

## Introduction

A skilled and diverse workforce is critical to our business performance. Just as we carefully manage our capital investments to optimise the long-term value of our mineral assets, we use human capital planning to maximise the value of our people assets. At the same time, we build the requisite skills and capabilities to make sure our workforce will reflect our future needs. Our People strategy, together with our employee commitment, forms the framework that guides how we attract, develop, engage and retain talented people, while ensuring alignment with our business strategy.

## Approach

In alignment with our People strategy, we invest in and engage people over the long term. We do this by fostering diversity, providing challenging and exciting work and development opportunities, and rewarding for performance, driven by quality leadership at every level. Together, we bring our collective strengths to work, creating value for both the organisation and our employees.

Our Group-wide performance, talent and remuneration systems support consistent and transparent assessment of our workforce. These drive a performance-focused culture by making clear linkages between performance and reward, and enable employees to articulate their career aspirations.

We recruit based on skills and experience, to meet the requirements of each role. We do not discriminate on grounds of age, ethnicity, nationality, gender, sexual orientation, politics, religion or physical abilities and we do not employ forced, bonded or child labour. We actively favour employment where local candidates meet job requirements and laws provide. Where local capacity does not meet our employment standards we – in partnership with communities and government – implement programmes to develop skill levels and work readiness. We help Indigenous people engage in the local economy through various strategies, including direct employment.

## Gender breakdown within Rio Tinto in 2012



Our employees' diversity of skills, ideas and experiences helps to ensure that we respond innovatively to the challenges faced by our business. We encourage collaboration within and across our businesses, cultures and countries to build cohesiveness and raise performance.

We are committed to increasing the representation of women, and achieving a better balance in gender in the short term, and in ethnicity and nationality in the medium term. We are also committed to developing a more diverse leadership cadre, specifically to ensure that local nationals in emerging regions have the capability and experience to lead our operations.

Our Group diversity targets for 2015 are:

- 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 upon formal surveys that give our employees the opportunity to provide feedback on their experiences of the business and working environment. We held our third employee engagement survey in 2011, which showed improvement in overall levels of employee engagement.

We also have *Speak-OUT*, a confidential, free telephone line for our people to bring any concerns to the attention of senior management.

We continue to have a strong focus on development at all levels within the Group and offer an integrated and customised suite of development programmes. This is to make sure we have effective and comprehensive leadership in support of our business objectives. 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.

We offer our employees a rounded total rewards package, the principles of which are consistent across the Group. They are designed to be competitive, in compliance with all applicable laws and regulations, and appropriately balanced in favour of variable pay linked to performance. Our global banding structure supports equity in both base salary and variable pay systems. Each role within our organisation is banded using the global banding structure and each band has a target variable pay opportunity.

## Results

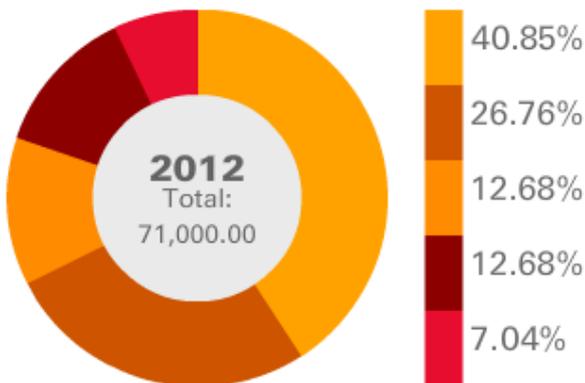
In 2012, women represented 15 per cent of senior management, 18 per cent of our total workforce and 30 per cent of our graduate intake. Our graduate intake in 2012 included 24 per cent of nationals from regions where we are developing new business.

Throughout 2012, we remained the largest private sector employer of Indigenous Australians.

Approximately 980,000 attendances were recorded for training in leadership, technical and operational skills, and health, safety, and environment courses during 2012.

As a result of our graduate talent strategy, we now have a Group graduate development framework in place. This provides the foundation for how our graduates will be developed over their two year programme.

## Regional distribution of employees



### Key

#### Number

- Regional distribution of workforce - Australia
- Regional distribution of workforce - North America
- Regional distribution of workforce - Europe
- Regional distribution of workforce - Africa
- Regional distribution of workforce - other



### The Rio Tinto College: a new chapter in learning and development

Developing our people for growth is an essential part of our success, now and in the future. We want to engage our people by providing opportunities for their personal growth, and help them develop to support and enable the growth of our organisation. Meanwhile, the concepts and formats of learning are shifting gear, with people looking for ready access to learning in online as well as traditional classroom environments.

Recognising these needs, our global Learning & People Development team developed a three-year learning roadmap to support the development needs of employees at all levels, in all roles across our operations. The initiatives are aligned with learning offerings available at a local level, to ensure that all employees have access to development for their current and future roles.

Our employees are embracing development opportunities offered by the Rio Tinto College. Following the launch of the College in April 2012, employees can access virtual, mobile, social and classroom-based development opportunities around the globe, 24/7, from home and work.

The addition of the Health, Safety, Environment & Communities, Stakeholder Engagement and Human Resources Academies has strengthened our global offering in 2012. The College is giving all employees the opportunity to access development opportunities, to help them in their current roles and in preparing them for future career options.

## Resettlement and compensation

### Introduction

We understand that the resettlement and economic displacement of people and communities can have significant adverse impacts on their future life, social fabric and livelihoods. Well-planned and well-executed resettlement and compensation can contribute to positive long-term relationships with host communities. Conversely, poorly managed resettlement can negatively impact host communities and also put our social licence to operate at risk.

It is essential that we apply the same rigour to resettlement and compensation that we apply to developing and operating the rest of our business. Our approach is guided by our global code of business conduct – [The way we work](#), our [Communities policy, standard and guidance notes](#). It is also guided by the International Finance Corporation's Performance Standard 5: Land Acquisition and Involuntary Resettlement. From time to time, we acquire new businesses that have existing resettlement, economic displacement and compensation programmes in place. Some of these may not match our standards and we set out to rectify this as quickly as we can.

### Approach

We explore all viable alternative project designs in order to minimise the need to resettle individuals and communities. Only where it is unavoidable do we resettle people or displace existing economic activity. 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 as a result of resettlement – 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. Major social changes such as resettlement can impact women and children disproportionately so we involve women in the resettlement decision-making, planning and implementation.

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. Wherever possible, we resettle communities as groups in order to minimise cultural and social impacts. A complaints, disputes and grievance procedure is set up and complaints are resolved in a timely way.

We provide compensation for economic displacement in a transparent, fair and publicly declared manner. The compensation we provide is equal to or above what is required by law and we aim to reach agreement with host communities on the methodology for calculating compensation. Although compensating for the loss of social capital can be challenging, we consider it 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.



### Resettlement in Guinea

The Simandou iron ore project in Guinea, a partnership between Rio Tinto, the Government of Guinea, Chalco and the International Finance Corporation (IFC), is in the early stages of development. The project involves constructing a major port facility, over 670 kilometres of railway line, a mine site and a number of logistical supply camps. Up to 350 households may need to be relocated and up to 5,000 households may require compensation and replacement land for economic displacement. The process we are following involves engagement with each of the affected communities. This is followed by extensive land custodianship studies that identify traditional lineages at a village and family level, user and occupancy rights, agronomy and land usage data, and the valuation of land, crops, and other assets. It closely adheres to IFC and Rio Tinto standards and the Guinean Mining Code, and is achieved with help from a national ministerial technical committee.

In practice, there are regional Land Commissions which help identify, acquire and distribute replacement land. At the local community level, there are village level resettlement committees. All impacted households will have an individual agreement that legally binds Simandou to compensation commitments.

Resettlement began in 2012. Two hundred individual agreements were made with households, family estates and communities to acquire land for the construction of the port at Forecariah. However, only ten individual households were physically relocated. All agreements were overseen by a third party under the Guinean legal system to ensure a transparent and fair process.

At a workshop on resettlement convened by the Guinean Minister for Mines, the Secretary General of the prefecture of Forecariah stated publicly:

“Rio Tinto is respectful with local authorities and people affected by the project. There is a permanent dialogue between Rio Tinto and the communities. That’s why Rio Tinto is highly respected by people affected by the project and by the population of Forecariah”.

## Resettlement and compensation continued



### Resettlement in Mongolia

In 2004, the Oyu Tolgoi project in the South Gobi region of Mongolia found it was necessary to resettle ten herder families from the area of its mining lease. This meant moving winter shelters and helping the herders establish a new pattern of seasonal nomadic grazing. The work was completed in 2005.

In 2011, due to the secondary effects of the earlier resettlement and the building of a new airport, power transmission lines, a water pipeline and new roads in the region, it was necessary to recognise and compensate for the economic displacement of 89 additional herder families. No permanent residencies or animal shelters needed to be moved and compensation related to reduced pasture land access.

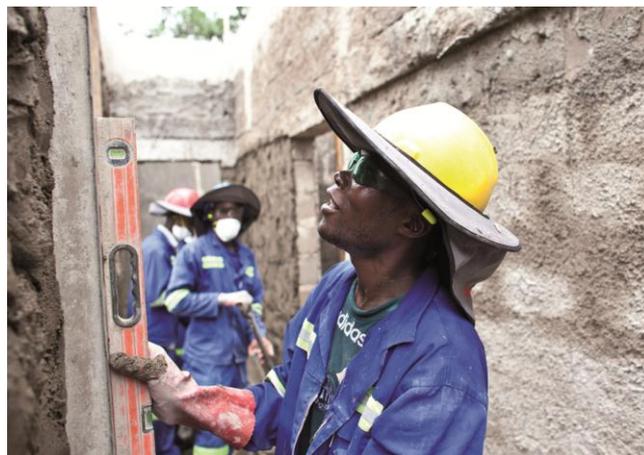
The overarching compensation framework for both the 2004 and 2011 programmes was established with the involvement of a working group of herders selected by the affected families. The working group meets regularly, at least nine times in 2012, and signed off on each element of the compensation process, including eligibility and entitlement matrices.

Depending on the proximity to construction projects, the severity of pasture impact, disruption to herding activity and cumulative impacts experienced by different herders, each affected household is entitled to a different package.

Compensation packages include in-kind elements such as replacement water bores, fencing around winter shelters, mainstream employment options, education support and access to training and business development support. By November 2012, all compensation packages had been agreed and signed.

In October 2012, the Mongolian non-government organisation 'OT Watch' submitted a complaint regarding resettlement and compensation on behalf of some of the herders living in the project area to the Office of the Compliance Advisor/Ombudsman (CAO) – the IFC and the Multilateral Investment Guarantee Agency's (MIGA) independent accountability mechanism. In November, the CAO visited Mongolia to investigate the complaint and met with the complainants and with Oyu Tolgoi. We understand that some of the complainants are herders not included in the original agreements, who are claiming secondary impacts. We expect the CAO to issue a public report in early 2013 summarising its assessment as well as recommendations for resolving the complaint.

Oyu Tolgoi is cooperating fully with the assessment and the complainants to find common ground, particularly around secondary impacts, and is taking steps to refresh and strengthen herder engagement activities as the project moves from construction to operations.



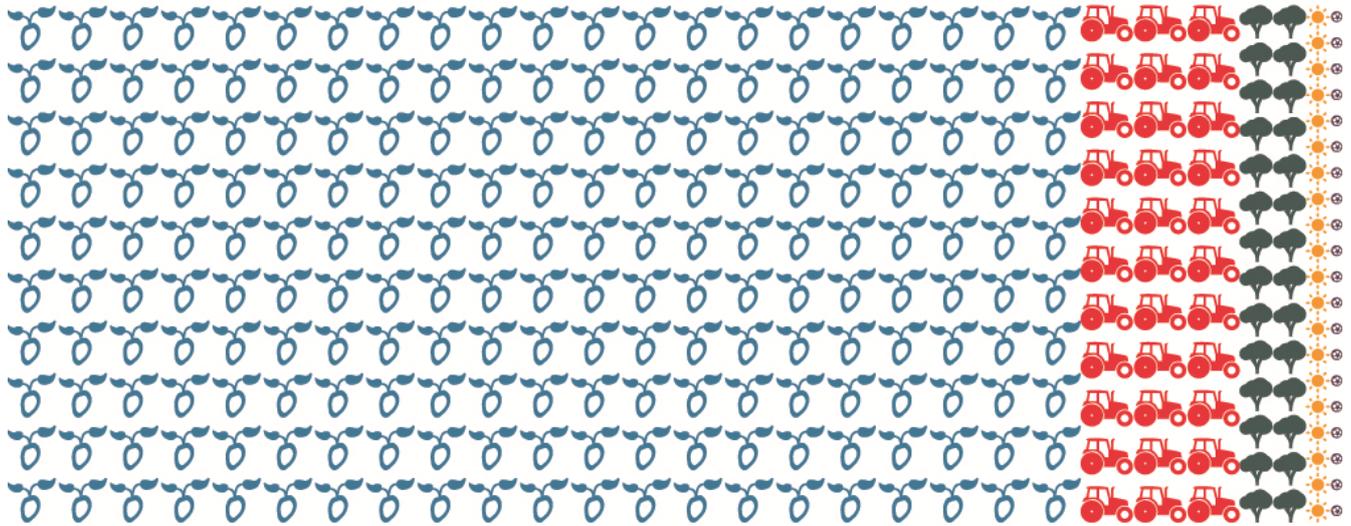
### Resettlement in Mozambique

At our coal operations in Mozambique, we are working with the Danish Institute of Human Rights (DIHR) to make sure resettlement practices that were started before we became the assets' owners are in line with our own standards.

In late 2010, we acquired substantial coal mining leases and assets in the Moatize District of Tete Province in Mozambique. Resettlement of 84 households had already begun, to areas selected by the Mozambique Government. The areas were chosen under a resettlement plan in part designed by the Government and agreed with the previous owners of the mining leases.

In February 2012, Southern Africa Resource Watch published a report on the resettlement of the communities from Vale's and Rio Tinto Coal Mozambique's lease areas. The report highlighted community complaints about lack of consultation before the resettlement and insufficient livelihood options in the resettlement areas. Rio Tinto commissioned the DIHR to review the situation, a full report is expected in 2013 and resources and expertise are being deployed to bring the situation up to Rio Tinto standards.

## Land footprint rehabilitated



Total land rehabilitated 2012: 445.2km<sup>2</sup>

### Sustainable uses for our rehabilitated land

#### Environment

Respect for the environment is central to our approach to sustainable development. Wherever possible we prevent – or otherwise minimise, mitigate and remediate – harmful effects of our activities on the environment. We have developed a number of practical programmes for environmental management, which include input from our local communities, as well as from experts in these fields.

# Air

## Introduction

We understand that our operations release gases and particulates into the atmosphere that may have an effect on people and the environment. These emissions are the result of burning fossil fuels, moving ores and wastes, and smelting metals.

In line with our air quality strategy and our [air quality control standard](#), we constantly review our emissions, look for ways to improve our performance and apply controls to minimise related health or environmental impacts. We also monitor particulate gas and vapour exposure in the workplace, in line with our [occupational health standards](#).

## Approach

Our air quality strategy contains a statement of our principles for air management, supported by air quality objectives and associated programmes of work.

Our air quality objectives are to:

1. Improve air emissions performance
2. Achieve industry leading practices
3. Engage and influence on air issues

We audit our operations against the Rio Tinto air quality control standard, and implement any required corrective actions.

There are four major air emissions from our operations. Additionally, this year we are reporting mercury air emissions at the Group level. The sections below describe what those emissions are and how they are released from our operations.

## 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.

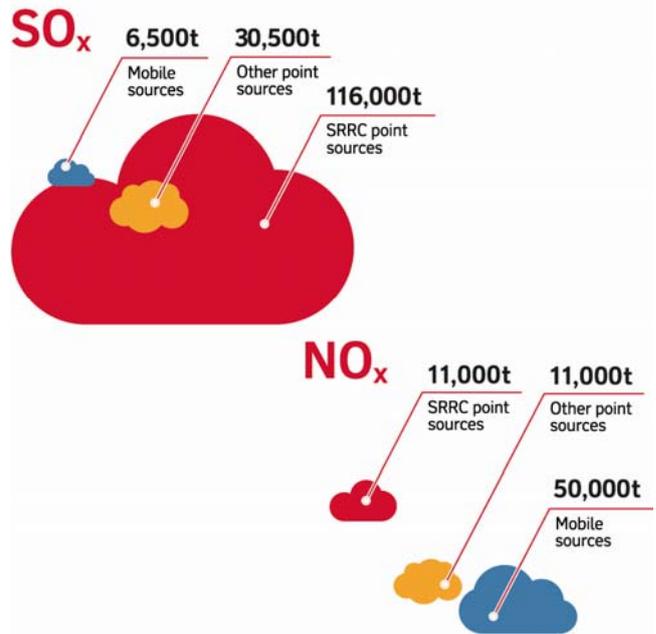
- SO<sub>x</sub> emissions from our copper smelters result from separating metal from sulphur-rich materials in the raw ore we mine
- SO<sub>x</sub> from our aluminium smelters is released during the production of carbon anodes which are an essential part of the smelting process
- SO<sub>x</sub> emissions from our power stations are a result of the naturally occurring sulphur in the fuel source – coal or fuel oil

SO<sub>x</sub> emissions have been associated with effects on human lung function and on vegetation, and can also lead to acid rain under specific processes, though this has significantly declined in the last few decades.

## NO<sub>x</sub>

Oxides of nitrogen (NO<sub>x</sub>) come from burning fossil fuels. They can cause respiratory problems and contribute to the formation of fine particulates in the atmosphere.

## SO<sub>x</sub> and NO<sub>x</sub> air emissions



SRRC - emissions from stationary sources such as smelters, refineries, roasters and concentrators

## 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. Fluoride has been associated with effects on human health. It can be taken up by plants, enter the food chain, and affect the strength of teeth and bones.

## Particulate emissions

Particulate emissions are recognised as a general nuisance as well as a potential risk to health. Depending on the operation, dust can be generated by fuel combustion, the transfer of raw materials, windblown erosion of exposed areas and stockpiles, wheel-generated dust, and during blasting operations.

Particulates smaller than ten micrometres in diameter (PM10) can be retained in the lungs. The composition of PM10 has an important influence on potential health impacts. PM10 from fuel combustion is generally more harmful than PM10 from diffuse sources such as the windblown erosion of exposed areas and wheel-generated dust.

Particulate emissions are associated with increased respiratory symptoms, such as aggravation of asthma and some lung diseases.

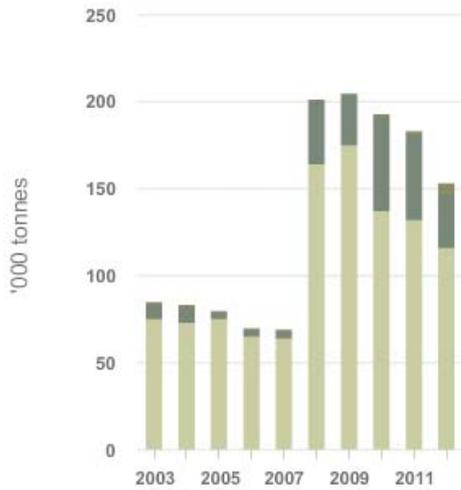
## Mercury

Mercury is a naturally occurring element that can be mobilised in the environment from natural sources and as a result of human activities, such as industrial combustion or other industrial processes.

Consistent with our commitment as a member of the [International Council on Metals and Mining \(ICMM\)](#), and its Mercury Risk Management Position Statement, we are reporting mercury air emissions at the Group level. Many of our businesses already report such emissions at the national or local level through pollutant release inventories or other reporting frameworks. Air emissions of mercury are released from some of our alumina refining operations, other metal production processes, and our fossil fuel power generation.

Results

SOx emissions

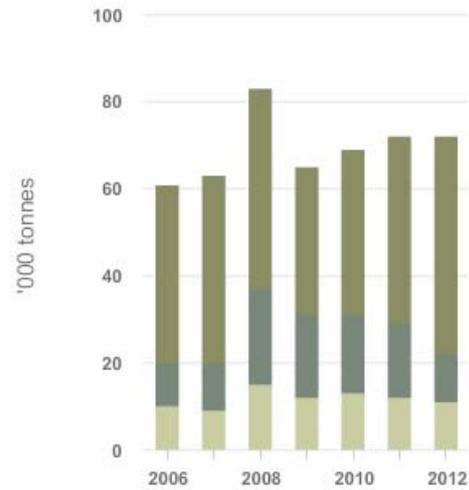


KEY

'000 tonnes

- SOx emissions - SRRC point sources
- SOx emissions - Other point sources
- SOx emissions - Mobile sources

NOx emissions



KEY

'000 tonnes

- NOx emissions - SRRC point sources
- NOx emissions - Other point sources
- NOx emissions - Mobile sources

Rio Tinto's sulphur dioxide (SO<sub>2</sub>) and sulphur trioxide (SO<sub>3</sub>) emissions are expressed as sulphur dioxide equivalents (SO<sub>x</sub>).

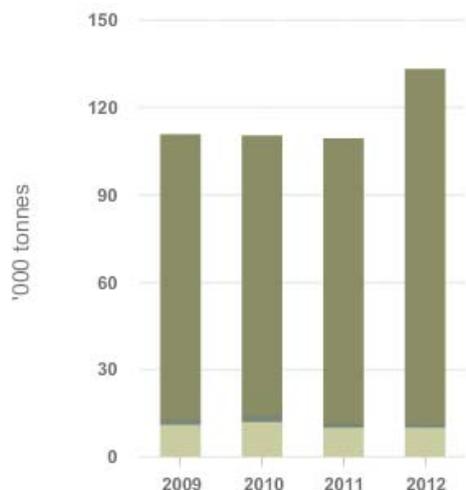
In 2012, our operations emitted 152.7 thousand tonnes of SO<sub>x</sub> gases to the atmosphere, a decrease of 30.9 thousand tonnes compared to 2011. Emissions from stationary sources such as smelters, refineries, roasters and concentrators (SRRC sources) and power stations continue to account for the majority of our emissions (96 per cent in 2012).

Capture of SO<sub>x</sub> gases before they were emitted to the atmosphere was 80 per cent, the same as for 2011.

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>).

During 2012, total NO<sub>x</sub> emissions were 72.2 thousand tonnes, an increase of 0.7 thousand tonnes from 2011. This was the result of increased fuel use, partly offset by divestment of our power station in Lynemouth, UK. Emissions from stationary sources accounted for 22.5 thousand tonnes, with 49.7 thousand tonnes being emitted from mobile sources.

### Particulate (PM<sub>10</sub>) emissions



**KEY**

'000 tonnes

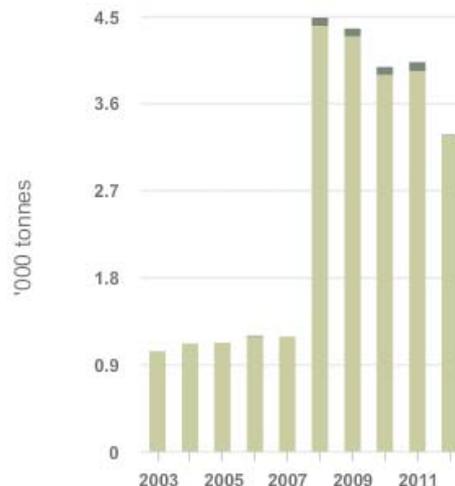
- Particulate (PM<sub>10</sub>) emissions - SRRC point sources
- Particulate (PM<sub>10</sub>) emissions - Other point sources
- Particulate (PM<sub>10</sub>) emissions - Fugitive sources

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

In 2012, we released 133.2 thousand tonnes of PM<sub>10</sub>, an increase of 23.8 thousand tonnes from 2011, primarily due to increased activity at Oyu Tolgoi. Emissions in 2012 were:

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

### Fluoride emissions



**KEY**

'000 tonnes

- Fluoride emissions - SRRC point sources
- Fluoride emissions - Other point sources

In 2011, our aluminium smelters contributed 99 per cent of our 3.28 thousand tonnes of fluoride emissions. This was a decrease of 750 tonnes from 2010 due to reduced production at five of our smelters.

### Mercury

In 2012, total reported mercury air emissions from our metals processing and fossil fuel power generation was 455kg. This is the first year we have reported mercury emissions to air.



### Air and energy benefits at new molybdenum plant

In 2012, Kennecott Utah Copper began commissioning the most modern and environmentally advanced molybdenum (known locally as "moly") processing plant in the world. The facility will produce chemical-grade moly products, which are used in a number of manufacturing processes such as the production of low-sulphur fuels and rhenium, which is critical to the aerospace, power generation and petroleum refining industries.

Although Kennecott has been recovering moly from its ore since 1936, it has traditionally been shipped to roasters and processors in Europe. The new plant – known as the Molybdenum Autoclave Processing (MAP) facility – will allow the moly to be processed on-site. It therefore reduces the energy use and emissions that were associated with shipping moly concentrate overseas.

The facility also features a number of energy-efficiency innovations, including a heat recovery system. By recovering heat from the autoclave, it can be used in downstream processes like crystallisation. The plant will also have a 5.6 Megawatt (MW) combined heat and power (CHP) system. This will produce steam to operate the MAP facility, while at the same time generating clean electricity as a by-product.

The CHP system offers significant benefits over a system that takes power from the local grid and steam from a natural gas boiler. We estimate that it will effectively reduce NO<sub>x</sub> emissions by 84 per cent, SO<sub>2</sub> emissions by nearly 99 per cent and annual CO<sub>2</sub> emissions by more than 35,000 tonnes, compared to having separate heat and power. The carbon emission reductions of the CHP unit are equivalent to the CO<sub>2</sub> emissions from more than 6,800 cars.

# Biodiversity

## Introduction

External expectations around the private sector's management of biodiversity are growing. This is driving new regulatory and financial requirements that are creating change in the mining industry. Rio Tinto's activities impact biodiversity, making our mining and refining projects increasingly high profile and sensitive for communities, governments, investors and others.

In 2004, anticipating the risk and opportunities for our business, we launched our biodiversity strategy. This includes our goal of achieving a net positive impact (NPI) on biodiversity in the regions where we operate. For Rio Tinto, achieving a net positive impact means ensuring that our presence in a region ultimately has positive effects on biodiversity. The actions we are undertaking at sites are designed, to not only balance, but be broadly accepted to outweigh the inevitable disturbances and impacts associated with mining and mineral processing.

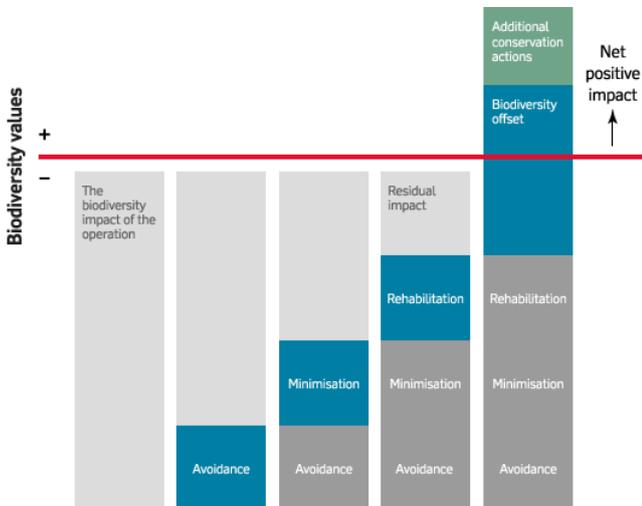
## Approach

Rio Tinto's biodiversity goal is to achieve a net positive impact on biodiversity before, or by closure, of the operation. It is our goal to be NPI positive as early in the life of the operation as possible. We've set ourselves targets to ensure that our priority sites are implementing NPI programmes within defined timeframes.

We aim to achieve our goal by:

- Avoiding unacceptable impacts to biodiversity
- Reducing the impacts that may occur
- Restoring impacted ecosystems
- Compensating for residual impacts through offsets
- Seeking additional opportunities to contribute to local conservation

We refer to this approach as the "mitigation hierarchy".



Over the past 15 years, we have developed a number of procedures, tools and methodologies to help us with our goal of achieving a net positive impact on biodiversity. These have been developed following rigorous debate both inside and outside Rio Tinto, and with the help of our biodiversity partners, external specialists and NGOs. They include a set of NPI and offsets [principles](#) that our operations work towards.

We acknowledge the contributions made by BirdLife International, Conservation International, the Earthwatch Institute, Fauna & Flora International, Hardner and Gullison, the International Union for Conservation of Nature, Royal Botanic Gardens, Kew and The Biodiversity Consultancy in the design and development of the biodiversity strategy policy tools and methodologies.

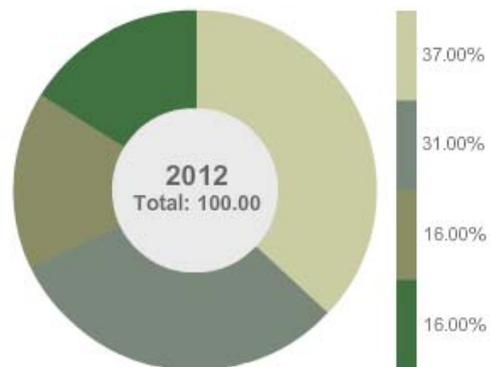
## Results

In 2007, we introduced an annual Group-wide Global Biodiversity Values Assessment Protocol (GBVA) to help us identify which of our operations are located in the most sensitive areas.

The GBVA assesses the biodiversity values of our landholdings and surrounding areas. It looks at land in proximity to biodiversity-rich habitats, species of conservation significance, additional site-specific biodiversity values and threats, and the external conservation context.

Operations are ranked as being in areas that have either "very high", "high", "medium" or "low" biodiversity values, which helps us prioritise our actions and channel resources where they are most needed – the very high and high sites.

## Biodiversity values assessments



### Key

- per cent
- Biodiversity values assessments - Very high
  - Biodiversity values assessments - Moderate
  - Biodiversity values assessments - High
  - Biodiversity values assessments - Low

## Biodiversity continued

All of our sites that rank as very high or high must have a [Biodiversity Action Plan](#) (BAP) in place. The BAP requires an operation to work with biodiversity stakeholders to identify the important biological features – both on and off site – in the area in which it operates. A site must understand the impacts and risks that its activities might have on those features, and develop and implement a plan to avoid, mitigate, restore and offset those impacts.

The BAP provides the framework that plans and guides an operation's progress towards NPI.



### NPI verification: reviewing our progress

Since our NPI announcement in 2004, Rio Tinto has been working with others on ways to measure our impacts – both losses and gains. Our methods for accounting have undergone, and continue to undergo, scrutiny – both internally and externally. A number of operations are piloting, then using, our tools and guidance, and their feedback inevitably leads to further revision.

While these tools and metrics have been developed jointly with leading international conservation organisations, we think it is vital that our NPI progress and achievements can be independently reviewed. We are currently working with the International Union for Conservation of Nature (IUCN) to develop an appropriate Net Positive Impact Review Protocol to enable this.

A Net Positive Impact Protocol & Review Panel Team (NPIP&RPT) was established in 2010. It comprises six IUCN designates – encompassing specialists from the IUCN secretariat, its expert commissions, and its member institutions – and six Rio Tinto representatives. The team has been appointed based on biodiversity expertise, review process experience, geographical diversity and mining sector experience.

The main objective of the team is to develop, pilot and refine a review process that serves as an independent evaluation of the planning, assessment and progress towards achieving NPI at any Rio Tinto site. It also identifies potential limitations to achieving NPI. It is anticipated that the NPI reviews will be repeated at regular intervals over the life of the operation.

## Ecosystems services

### Introduction

Global ecosystems are under severe stress. Ecosystem degradation is highly relevant to business because companies not only impact ecosystems and the services they provide – such as water purification and supply, carbon sequestration and air purification – but they also depend on them. Increasingly, competition for these diminishing resources is driving the emergence of Payment for Ecosystem Services (PES) programmes, also known as "green" markets.

PES programmes offer payments to those who provide ecosystem services, conditional upon them exhibiting acceptable conservation performance. The past successes of markets for carbon and other environmental commodities (like water, sulphur dioxide and nitrogen dioxide) have demonstrated the potential for using investment-based solutions to internalise the external costs of pollution, natural resource exploitation, and unsustainable development.

### Approach

We are a major user and owner of land, biodiversity and water resources. This can present significant risks to our operations when coupled with the changing ecosystem service legislative frameworks. Three of the most significant risks include biodiversity compensation (through offsetting), rights to access and use water, and mitigation and offsetting of our carbon emissions. These present both financial and reputation threats but also opportunities for our operations. Without a rigorous management process, the business risk we face will continue to grow significantly.

We are designing and implementing a number of ecosystem service valuation projects to investigate the business case and methodologies around designing and implementing ecosystem service offsets, and investments in non-operational, land-based assets.

Although there are challenges, we believe that ecosystem service assessment and valuation have great potential to contribute to solutions for global environmental issues. For us, they present a potential vehicle to drive sustainable development outcomes as part of our operational activities.

### Results

These projects have begun exploring the ecosystem service values of our extensive non-operational landholdings. Through our collaboration with the [International Union for Conservation of Nature](#) (IUCN) economics group, we have undertaken a preliminary assessment of the biodiversity value of forest conservation projects in Madagascar. This groundbreaking work has now been published as part of the IUCN/Rio Tinto technical series on biodiversity and ecosystem services. In 2013, we are undertaking two major ecosystem assessment and valuation projects: the value of non-timber forest projects at the QMM operation in Madagascar and the value of ground water projects at Rio Tinto's iron ore operations in the Pilbara region of Western Australia.



### Restoring pastoral ecosystems in the Pilbara

At some of Rio Tinto's iron ore operations in the Pilbara region of Western Australia, we will be accessing ore that lies below the water table. This means that these operations need to dewater their mines, reuse some of the water and discharge the surplus water to the environment. Through a new project, Rio Tinto is routing some of that water to pasture land, where it has the potential to improve the local ecosystem.

Our Iron Ore group manages pastoral leases that cover around 1.5 million hectares in the Pilbara. The land has been managed for cattle production since European settlers arrived, and now shows some degrees of degradation.

Rio Tinto Iron Ore (RTIO) is evaluating the impact of expanding its Marandoo iron ore operations, which will involve abstracting and managing up to 110 megalitres of groundwater a day. The project is a joint effort involving RTIO and Rio Tinto's Health, Safety, Environment & Communities, the International Union for Conservation of Nature (IUCN), and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Part of the surplus water will be used to grow grass that will be harvested for hay. Feeding cattle hay means the station managers are able to contain them in a relatively small area, where the cattle can be better managed. It provides an opportunity for potential restoration of the ecosystems that have been disturbed by pastoral activities.

The aim of this joint project is to develop an analytical framework, including ecosystem valuation, which has the potential if successful to be replicated around Rio Tinto's other operations. This project will also provide tools that can be used to assess net positive impact (NPI) on biodiversity outcomes.

## Energy and climate change



Rio Tinto recognises the reality and scale of the challenges posed by an increasing demand for reliable and secure forms of energy, and the need for urgent action to reduce global emissions of greenhouse gases (GHGs). Our strategy is to maximise shareholder returns by making our assets more resilient against uncertain carbon and energy market risks.

### Our business and products

Rio Tinto consumes [energy](#) in its operations and we also produce it. Our smelting and mineral processing operations are energy intensive and depend heavily on electricity, coal, oil, diesel and gas to keep them running, although the majority of our electricity use is from GHG-friendly hydro and nuclear power.

We also produce coal and uranium, two important mined sources of energy. Our businesses have a positive future in a world facing global carbon constraints and our products have an essential role to play in building a low carbon infrastructure of the future economy. For example:

- We are one of the world's leading producers of uranium, used in low carbon power generation.
- Our high purity ductile iron is used in the production of wind turbines and borates are used in the turbine blades.
- The high strength to weight ratio of aluminium allows its use to make cars lighter and reduce the amount of fuel used by them. It can also be efficiently recycled.
- Copper is used in high efficiency electrical motors. Increased electrification will be a major element in the transformation towards a lower carbon economy.

We are a leading supplier of coal to the Asian seaborne market. Due to global energy demand, coal will remain a significant source of energy for the foreseeable future.

### Our response to the energy and climate challenge

We recognise the need to understand and adapt to the physical impacts of [climate change](#), which will affect our operations, particularly through the availability of water and the occurrence of extreme weather events.

We believe the global energy and climate challenges are best met by companies, governments and society working together. Energy demand growth will require increased energy efficiency, and the use of all available energy sources: fossil fuels, nuclear and renewable energy sources. The goal should be to continually improve the cost-security-low emissions equation, by fully recognising and addressing the risks involved and benefits achievable.

As a capital intensive business, changing our emissions profile and the transition to low-carbon assets and products is a long-term challenge. We have targets to improve the energy- and GHG-intensity of all our operations. New technologies offer step-change opportunities to improve our performance when developing large projects. During this transition, we focus on securing competitively priced energy supply, and influencing policy design.

The mitigation of energy security risk could either conflict with or complement climate change risk management, but the two have to be managed simultaneously.

Our energy and climate programme focuses around four key areas:

- Engaging with governments and other stakeholders to design effective mitigation and adaptation approaches
- Measuring and reporting our energy use and emissions
- Reducing the energy intensity and emissions of our operations and optimising our energy use
- Securing a reliable energy supply and, where possible, reducing the carbon intensity of our energy supply

## Climate change

### Introduction

We recognise that climate change is occurring and that it is largely caused by human activities. It poses significant risks for a broad range of human and natural systems, and is already affecting them. Climate change will create risks and opportunities for our businesses that will affect shareholder value. It will lead to significant changes in the physical environments in which we operate. Over the longer term, climate change threatens the stability of natural, social, economic and political systems, which risks significantly damaging the prospects for our businesses.

### Approach

The scale of the necessary emissions reductions and the need for adaptation – coupled with the world's increasing requirements for secure, affordable energy – create large challenges which require worldwide attention. Our climate change programme focuses on reducing the energy intensity of our operations as well as the carbon intensity of our energy. This includes the use of renewable energy and reduction in emissions intensity from chemical processes. It also addresses emissions from other sources including landholdings.

Setting targets, and regularly reporting against them, is a priority and helps us to manage our performance. We are seeking a substantial decarbonisation of our business by 2050. Following the creation of Pacific Aluminium, the majority of the energy used in Rio Tinto Alcan's smelters is from low-carbon sources.

Reduction of our greenhouse gas (GHG) intensity index is one of seven Group key performance indicators. We are targeting a reduction in the emissions intensity of our products by six per cent by the end of 2013, and by a further four per cent by 2015, compared to 2008.

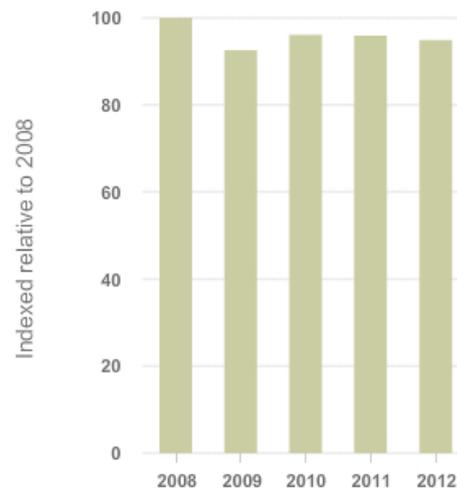
To achieve this target, we are making major investment in new plants and technology. The operating efficiency of our ongoing operations is also critical.

### Results

In 2012, our total GHG emissions were 41.0 million tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e), a decrease of 2.2 million tonnes from 2011, as a result of decreased production of aluminium, principally the shutdown of the Lynemouth smelter.

Between 2008 and 2012, Rio Tinto's GHG emissions intensity had reduced 5.1 per cent, largely due to the 2009 divestment of the Ningxia aluminium smelter in China, the 2012 closure of the Lynemouth aluminium smelter and reduced intensity for the alumina commodity with the installation of the Yarwun cogeneration plant and improved performance at the other alumina refineries over the period. We remain on track to achieve our emissions intensity targets in 2013 and 2015.

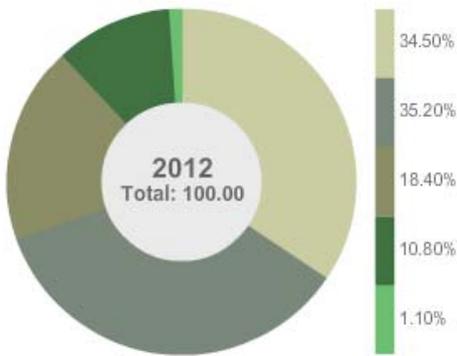
### Greenhouse gas emissions intensity



#### KEY

Indexed relative to 2008  
■ Greenhouse gas emissions intensity - Group intensity

### Sources of total greenhouse gas emissions



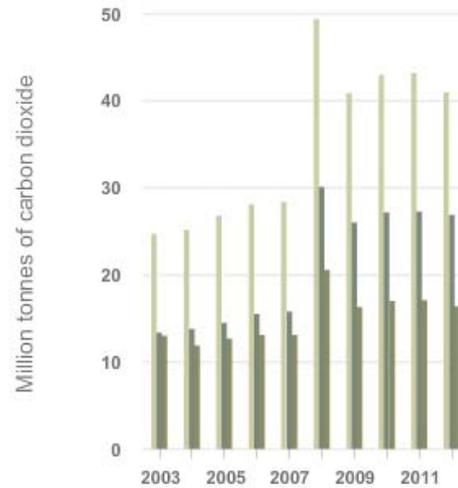
**Key**

Per cent

- Sources of total greenhouse gas emissions - Net purchases electricity and steam
- Sources of total greenhouse gas emissions - Fuel
- Sources of total greenhouse gas emissions - Anodes and reductants
- Sources of total greenhouse gas emissions - Process gases
- Sources of total greenhouse gas emissions - Net land management

Please see the [Performance data](#) section for a breakdown of greenhouse gas emissions by product group and country.

### Greenhouse gas emissions



**KEY**

Million tonnes of carbon dioxide equivalent

- Greenhouse gas emissions - Total emissions
- Greenhouse gas emissions - Scope 1 emissions
- Greenhouse gas emissions - Scope 2 emissions

The majority of Rio Tinto's GHG emissions are generated as a result of energy use (electricity, fuel and anodes and reductants) during mining, milling and smelting activities at our sites.

We recognise that there are also significant GHG emissions associated with the transportation, processing and use of our products. In 2012, the three most significant sources of indirect emissions associated with our products were:

- Approximately 5.4 million tonnes of CO<sub>2</sub>-e associated with third party transport of our products and raw materials.
- An estimated 141 million tonnes of CO<sub>2</sub>-e associated with customers using our coal in electricity generation and steel production.
- Approximately 374 million tonnes of CO<sub>2</sub>-e associated with customers using our iron ore to produce steel (these emissions are not in addition to the coal-use emissions above, as some customers use both our iron ore and our coal to produce steel).

Rio Tinto businesses report emissions to regulators in seven countries or regions, including under the Australian National Greenhouse and Energy Reporting (NGER) Act.



### Wind energy working at Diavik

In October 2012, Diavik Diamond Mine in northern Canada commissioned a four-turbine wind farm, with the expectation that it would be able to provide 17 Gigawatt hours of renewable energy a year. As the site was too remote to be on the electric grid the mine relied exclusively on diesel generation. In order to keep the diesel generators operating the mine required a large amount of on-site diesel storage. Supplies could only be replenished during a critical two-month period when the seasonal winter ice-road was available.

In 2007, a 50 metre high meteorological tower was installed at the mine site. This helped gather data for a three-year wind resource assessment study. When this revealed that there was a viable wind resource, a pre-feasibility study began. This went on to show that the economics of a wind farm were robust as well. A US\$30 million investment was approved by mine owners Rio Tinto and Harry Winston Diamonds. The 2012 winter road was used to transport 60 loads of components for the turbines to the site.

Diavik's initial goal was to displace ten per cent of the diesel generation, and avoid 12,000 tonnes of greenhouse gas emissions per year. Early results are promising. Although the plan is still to replace ten per cent of diesel generation, short-term and seasonal opportunities have replaced as much as 38 per cent.

Diavik has donated the meteorological tower to a First Nations business consortium in the Northwest Territories, which is investigating the feasibility of wind power around Yellowknife. The company plans to share what it has learned with communities in the area.

# Energy

## Introduction

A secure, energy- and cost-efficient electricity supply is a key part of helping our operations respond to energy and climate challenges. As well as improving the energy efficiency of our operations, we try to reduce the energy intensity of new projects by using energy-efficient asset design and alternative sources of energy, and developing step-change technologies for our products.

Technology development will be at the heart of improved energy solutions. The starting point is to understand our current and future energy use and emissions. To support this, we have developed a solid technical and economic understanding of current and future power generation technologies, including trials of identified, prospective generation technologies.

## Approach

Rio Tinto has an industry-leading knowledge and understanding of fossil fuel, nuclear and renewable generation technologies. We have built a portfolio of renewable energy demonstration projects, and carry out research into renewable energy technologies.

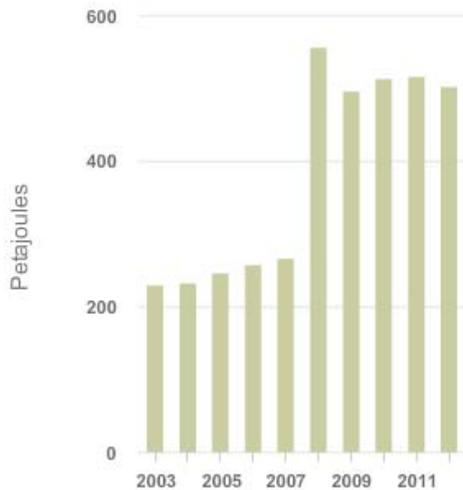
At an early stage in our project development process, we conduct Energy Innovation Workshops. These provide an assessment of how we can use energy-efficient technologies.

We also provide guidance and expertise to our businesses as they undertake energy supply option analysis.

## Results

In 2012, our operations used 502 petajoules of energy. The 14 petajoule decrease from 2011 was a result of decreased production across the aluminium and copper commodities. However, through our coal and uranium sales, we supplied 4,372 petajoules of world energy demand. Our energy supply was over eight times our own energy use in 2012.

### Total energy use



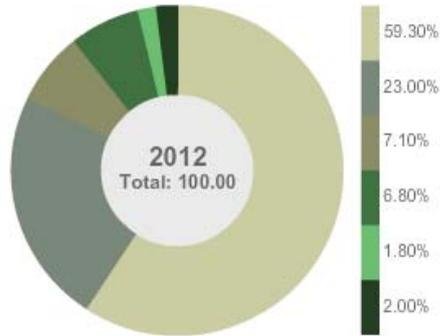
#### KEY

Petajoules

■ Total energy use

Sixty eight per cent of our total electricity use was sourced from hydro, nuclear and other renewable power sources. We have significant hydropower generation facilities in Canada and Scotland.

### Sources of electricity used



#### Key

Per cent

■ Sources of electricity used - Hydro

■ Sources of electricity used - Coal

■ Sources of electricity used - Nuclear

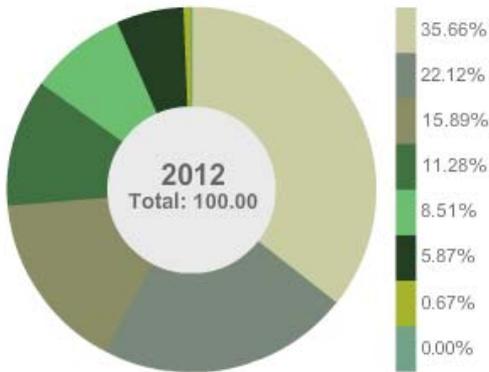
■ Sources of electricity used - Natural Gas

■ Sources of electricity used - Other renewable

■ Sources of electricity used - Other

Forty six per cent (230 petajoules) of the energy we used in 2012 was electricity. Of that total, 142 petajoules was electricity purchased from commercial networks and 126 petajoules was electricity we generated at our hydroelectric, natural gas, coal, diesel and fuel oil power stations. We exported 38 petajoules of the electricity we generated to remote communities near our operations or to commercial networks where our generation exceeded our needs.

### Primary sources of energy used



**Key**

**Per cent**

- Sources of primary energy used - Coal
- Sources of primary energy used - Hydro
- Sources of primary energy used - Natural Gas
- Sources of primary energy used - Diesel
- Sources of primary energy used - Nuclear
- Sources of primary energy used - Fuel Oil
- Sources of primary energy used - Other renewable
- Sources of primary energy used - Other



### Boron's overburden strategy cuts fuel use

Our Boron mine in California is developing an innovative approach to disposing of overburden, which will lead to a significant reduction in its diesel use. Overburden is the rock that lies above the ore, and which is removed during the mining process. Traditionally, it is hauled outside the actively mined area and disposed of in a secured area away from the pit. Disposing of overburden within mined-out areas of a pit minimises haulage distance and time, saves on fuel, and reduces the footprint of our external overburden storage. However, this method requires proper risk assessment so that the overburden slope does not fail, covering active mining operations and leading to an economic loss.

Boron's new approach began with extensive geological engineering analysis. This characterised the risk of slope failure and the ensuing economic losses. This cost was then compared to the benefits of in-pit dumping, which include fuel savings, and decreased use of machinery. Boron's analysis suggests that in-pit dumping will reduce diesel use by an average of four million litres per year over the life of the mine, due to reduction in distance and travel time required to complete a cycle.

# Land

## Introduction

As the global population moves towards nine billion by 2050, competition for land-based resources is growing, increasing the tension between mining and other land uses, particularly food and fibre production. In response, Rio Tinto has developed an internal [Land Use Stewardship standard](#) for use across our operations. The intent of this standard is to develop management plans, programmes and procedures to ensure sustainable stewardship of the land that we own, lease or manage. This enables us to fulfil corporate, community and other stakeholders' expectations for beneficial land uses that can be supported and sustained into the future.

## Approach

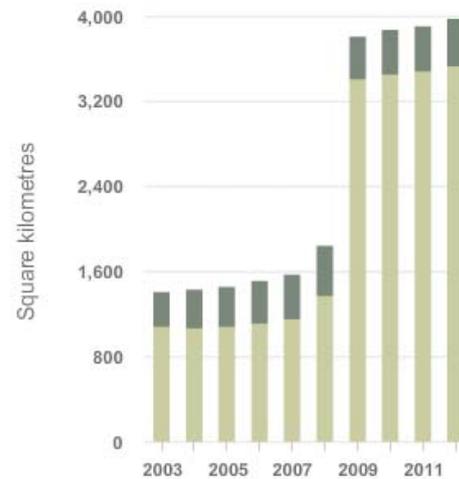
We face changing expectations around land use management and conservation that have the potential to affect the delivery of our longer-term business objectives. Restrictions on land access represent a material risk for our organisation. This increasingly makes mining and processing projects the subject of greater scrutiny by regulators, local communities, investors, non-government organisations (NGOs) and employees. The public, NGOs and regulators look to performance-based evidence to measure our real commitment to land use stewardship.

This evolving operating environment is not confined to the OECD countries in which Rio Tinto operates. Increasingly tighter regulations, for instance relating to project assessment requirements and offsets, are being imposed in non-OECD countries.

Rio Tinto's land management strategy puts an emphasis on will be improving rehabilitation performance. This relates to improvements both in the size of the area rehabilitated, and the quality of the rehabilitation. We are committed to restoring the land we have disturbed in accordance with leading environmental practice.

In 2012, we completed a review of our approach to rehabilitation and broader land management at the Group level. The priority for 2013 and beyond will be to engage new projects and existing operations, to improve their performance and develop an integrated approach to land management. Integration involves ensuring that Rio Tinto is on track to deliver post-mining land uses and landforms that are aligned with community and regulatory expectations and meet sustainability criteria.

## Land footprint

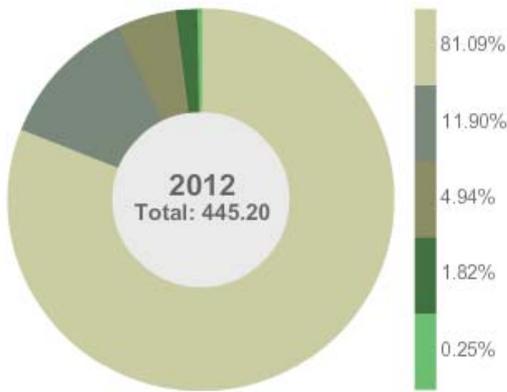


### KEY

- Square kilometres
- Land footprint - Disturbed
- Land footprint - Rehabilitated

By the end of 2012, 24 per cent of our disturbed land (excluding land disturbed for hydroelectricity dams) had been rehabilitated. External stakeholders play an important role in deciding what type of land is returned in our rehabilitation. In most cases (81 per cent), land we disturbed is returned to native vegetation.

## Types of rehabilitation



### Key

#### Square kilometres

- Types of rehabilitation on footprint - Native
- Types of rehabilitation on footprint - Agriculture
- Types of rehabilitation on footprint - Forestry
- Types of rehabilitation on footprint - Other
- Types of rehabilitation on footprint - Recreation

"Other" includes recreation and a variety of other categories including waste management facilities, grasslands and unknown land types.

Rio Tinto is rolling out a strategy that, by the end of 2013, will have established a rehabilitation management system to drive continuous improvement. Over time, this will enable our sites to achieve leading practice.

We work with a number of external organisations, including the [Royal Botanic Gardens, Kew](#), and foster strong working relationships with research institutions. This enables us to access the necessary expertise to improve our rehabilitation performance. As a member of the [International Council on Mining and Metals](#), we also help to develop industry policies and practices on protected areas and long-term access to land.



### Leading practice land rehabilitation in Australia's north

It sounds daunting: rehabilitating Ranger Uranium Mine to close to the same condition as the Kakadu World Heritage site which surrounds it – but the team at Energy Resources Australia (ERA) will be well prepared.

Ranger, in Australia's Northern Territory, is regulated by both the Australian and Northern Territory Governments and, although it is not part of Kakadu at present, the plan is that, on relinquishment, it will be absorbed into the park.

Dr Ping Lu – ERA's manager, Ecology – and his team have established an eight hectare trial landform site which they are mining for information on multiple fronts. "It has given us the ability to assess the performance of revegetation strategies, erosion characteristics, rainfall runoff and water characteristics," says Ping.

"The purpose of the trial landform is to ensure that we are on a trajectory to achieve the rehabilitation we need to do," says Ping. "We are learning a great deal and results to date have been very successful."

The timely approach of the trial landform has put ERA at the forefront of research and development on rehabilitation within Rio Tinto.

It has been critical for the team to understand the role that water retention plays in promoting vegetation. Says Ping, "Water, not nutrition, is the key challenge in these soils. When we re-profile mined areas we need to find a composition of growth media which can enable plantings to survive the annual six months dry season."

Trials involve different combinations of waste rock and weathered laterite. The best solution appears to be creating a compacted layer, one to two metres beneath the new surface.

The trial landform is now a thriving block, colonised by native animals such as the common rock-rat and lizards, many native birds and insects such as grasshoppers and ants.

# Waste

## Introduction

We generate both mineral and non-mineral waste during our mining and processing operations. By characterising, planning and managing waste effectively, we limit the negative environmental impact of our waste and reduce our operating costs and risks.

Our waste strategy allows us to improve our understanding of the true cost of managing our wastes. This in turn helps when planning for acquisitions, new projects and for closure, as costs associated with wastes have traditionally been underestimated. Our main focus is on the highest risk area: chemically reactive waste. This is a minor percentage of our total mineral waste but potentially the most harmful. It requires careful management to avoid creating long-term legacies.

Effective waste management programmes don't only lead to improved environmental performance. They also help us protect biodiversity and water quality. Four of Rio Tinto's nine environment standards are devoted to managing our various waste streams. These enable us to set Group-wide benchmarks for mineral and non-mineral waste. Given the importance of reactive chemical waste, we have one standard dedicated to this area.

## Approach

### Waste management

#### Mineral waste

Mineral wastes include waste rock, tailings and slag:

- Waste rock is composed of soils or bedrock that must be removed to uncover or access ore during mining.
- Tailings consist of finely ground rock mixed with process water. They are what remain after the minerals of economic interest have been removed from the ore.
- Slag is generated by smelting operations and is the glassy material that remains after metals, such as copper, have been separated during the smelting process.

Mineral wastes are typically produced in very large volumes. Handling and storing them directly impacts the land and can lead to long-term legacy issues if not managed effectively. Mineral wastes are generally stored permanently on site where they can be used as in-pit backfill or held in engineered repositories. Most wastes are chemically inert, but some are chemically reactive and must be carefully managed to avoid impacts on water quality, biodiversity and stakeholders.

We manage the potential environmental impacts of mineral waste by:

- comprehensively characterising the wastes;
- designing the repositories to minimise environmental impacts;
- undertaking progressive rehabilitation, implementing risk assessment programmes; and
- networking externally and internally to share best practices and develop best practice control technologies.

Careful management of mineral waste during mining and processing is critical in reducing costs while maximising the recovery of minerals and metals. Due to the large volumes of material involved, any improvements in mineral waste management can be very cost effective. Benefits can range from daily savings in energy consumption through to the minimisation of future treatment and closure costs.

### Mineral waste management plans

All operations that generate mineral waste are required to develop a mineral waste management plan. These are designed to ensure appropriate management that minimises environmental impacts and controls all chemical and physical hazards posed by the waste.

### 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, batteries and office waste, as well as more specialised waste streams such as spent pot liners from aluminium smelters.

It is produced in much smaller volumes than mineral waste, and is most commonly managed through recycling, off-site treatment and disposal, or being placed in on-site engineered landfills.

We limit the potential impacts of non-mineral waste by trying to reduce the volume and hazard of the wastes that must be generated. We promote reuse and recycling where possible and ensure responsible storage, treatment and disposal for the remaining waste.

We found off-site opportunities for reuse or recycling of 381,400 tonnes of our non-mineral waste in 2012, including 106,700 tonnes of bulk processing materials from aluminium smelting and 102,400 tonnes of hazardous waste.

As part of managing our waste, we network internally and externally to share best practice and risk assessment programmes.

### Acid rock drainage

Acid rock drainage (ARD) from reactive mineral waste is one of the major environmental risks for the mining industry. ARD is created when rocks that contain naturally-occurring sulphide minerals are disturbed and exposed to air and water. This accelerates the natural weathering process and may lead to the release of low pH (acidic) or neutral drainage water with elevated salinity and metals concentrations. If not managed, ARD can impact the re-vegetation of mining wastes, and degrade surface and groundwater quality. Treatment of ARD can last into perpetuity and represents an enormous cost and legacy.

We are an active and founding member of [The International Network for Acid Prevention](#) (INAP). Through INAP, we continue to promote important research on ARD prediction and control. We promote knowledge-sharing within the mining industry on ARD management strategies, and support our commitment to responsible mineral waste management.

Internally, we have developed a number of programmes to improve mineral waste management and limit potential environmental impacts. Through these programmes, outlined below, we build awareness across the Group of the importance and value of strategic waste management, particularly where there are significant ARD risks.

### Acid rock drainage management

To prevent or minimise potential environmental impacts of ARD, we have adopted leading practice in mine planning, operation and waste management. New projects are designed to ensure that the risk is minimised and that any low-quality drainage will be captured and treated or retained on site.

Our strategies are also being refined to:

- improve characterisation of acid generating materials;
- improve mineral waste handling procedures;
- develop effective closure strategies; and
- improve collection and treatment of ARD.

We use a number of techniques to prevent or control ARD. These include selective handling and encapsulation, sub-aqueous (under water cover), blending waste materials, and using either synthetic or engineered earth covers.

We have developed an ARD Hazard Screening Tool to identify high-risk projects, operations, mine expansions and acquisitions. All operations where ARD could occur must maintain a management plan that has to be reviewed every four years by an external expert. Our internal ARD risk reviews have been undertaken for all of our higher-risk operations. They are regarded as the industry benchmark in this key risk area. These include reviews by leading external and independent experts, notably in the field of geochemistry.

## Results

### Mineral waste and ARD management

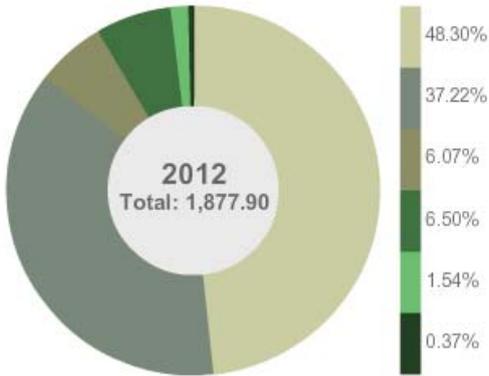
All existing mines and advanced projects where ARD could pose a significant risk have been visited by the ARD risk review programme. Twenty four operations' ARD hazards and management strategies have been assessed since 2004. Significant progress is being made to address the issues raised by the site visits. Given the long-term strategic nature of many of the ARD issues identified, and the long lead

## Waste continued

times to design and implement some of the studies and corrective actions, we anticipate that this work will continue for many years. All managed operations where an ARD risk review or mineral waste optimisation programme has been completed were in compliance with the relevant government regulations and permit conditions.

An estimated 1,878 million tonnes of mineral waste (predominantly waste rock and tailings) were disposed of or stored in 2012. About 48 per cent of this mineral waste was used as in-pit or underground backfill. This is an important use for our mineral waste as it ultimately allows open pits to be reclaimed and re-vegetated and enables safer disposal of certain reactive wastes.

### Management of mineral waste



#### Key

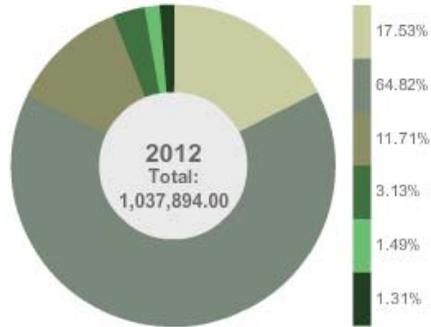
##### Million tonnes

- Management of mineral waste - In pit backfill
- Management of mineral waste - Rock dumps
- Management of mineral waste - Tailings dams
- Management of mineral waste - Storage
- Management of mineral waste - Ocean/River/Lake
- Management of mineral waste - Others

Eighteen per cent of the mineral waste that we disposed of or stored in 2012 is considered to be geochemically reactive. Approximately 39 per cent of the land surface used for reactive mineral waste disposal has been covered or capped to preserve water quality and allow vegetation to be re-established.

We disposed of or stored 1,038,000 tonnes of non-mineral waste in 2012. Aluminium smelters contributed 37 per cent of this total. The amount of non-mineral waste disposed of or stored has increased compared to 2011 due to several large demolition and remediation projects during the year.

### Management of non-mineral waste



#### Key

##### tonnes

- Management of non-mineral waste - Landfill off site
- Management of non-mineral waste - Landfill on site
- Management of non-mineral waste - Storage
- Management of non-mineral waste - Incineration
- Management of non-mineral waste - In pit backfill
- Management of non-mineral waste - Other

Aluminium smelters generate specialist wastes produced through the smelting process. These waste products include spent cell lining, bath, carbon fines and refractory bricks. Our largest managed copper producer disposes of significant quantities of non-mineral wastes to landfill and other disposal locations.

Our operations disposed or stored 157,000 tonnes of hazardous non-mineral waste in 2012. Forty four per cent of this total was from aluminium smelters (spent cell lining and kiln grade spar). At the end of 2012, 11 per cent of hazardous waste generated during the year was placed in storage pending final disposal or recycling/reuse.



### Restoring the environment in Superior

Resolution Copper will be part of the Superior, Arizona community for decades. We want our presence to contribute to a better tomorrow, which is why we are dedicated to our clean-up efforts. In keeping with our commitment to the community and its economy, this work is being done largely by local contractors.

Our comprehensive clean-up and reclamation of 1,500 acres aims to serve three important purposes: to improve and restore the environment, to provide an aesthetically pleasing landscape, and to return a historic mine area to a more natural state. The process is carefully planned to include a variety of activities that help us meet these objectives. This includes carrying out monthly monitoring of the surface structure in all rehabilitated areas, and additional monitoring during storm events.

As an example, Resolution Copper has done extensive clean-up and reclamation work on several historical Magma Mine tailings impoundments, which were an eyesore in the town of Superior. These areas were rehabilitated by re-grading the material to a more natural looking landform. This involved erosion control and stormwater management, covering the material with growth media and planting with native seeds. Restoring vegetation not only makes the area more attractive, but also prevents erosion and keeps moisture away from old mining wastes.

# Water

## Introduction

Access to water is critical to Rio Tinto's operations. We use water at every stage of our business: for exploration, mining, processing, smelting, refining, rehabilitation and drinking. We also use water to generate hydroelectric power.

Each operation has its own set of water challenges and opportunities. Some are located in water-scarce environments. Others need to manage surplus water from storms or groundwater, or the quality of water we use and discharge to the environment. We work with neighbouring communities to manage the impacts we make, and look for opportunities to provide clean drinking water in countries where water is contaminated or insufficient to meet community needs.

## Approach

In 2005, after broad internal and external consultation, we developed a comprehensive framework for managing water, and for improving our performance across the social, environmental and economic aspects of water management. We focus on ways to minimise the amount of water we remove from the environment, reuse it whenever we can, and return it to the environment meeting regulatory limits.

We use water from different sources and of different qualities, such as groundwater, surface water (sourced from rivers, lakes, rain and snow), seawater or water from dams that we build on site. We use recycled water where possible. Some sites have been able to recycle up to 70 per cent of their water; others source it from external treatment plants. At many sites, we replace use of high quality (potable) water with poorer quality water to conserve local water supplies.

Although concern about water availability is global in nature, water impacts are experienced at the local level. Our activities can impact the quantity or quality of nearby water resources. These impacts may then pose risks to production, access to water supplies, our reputation, and costs, all of which can affect our licence to operate. They can also lead to regulatory changes.

Over the past five years, Rio Tinto has experienced some production losses as a result of water-related impacts, for example, storm water flooding our mines. The potential impacts of climate change will bring greater uncertainty to our water supplies and water management into the future.

We have developed a number of programmes to help improve our performance, including:

- A **Group water target** that aims to reduce freshwater use per tonne of product by six per cent by 2013 from a 2008 baseline.
- A **water standard** that is audited and sets the minimum expectations for each operation when managing water. As part of the standard, each operation is required to measure water use, to reduce potential impacts on water resources, and to understand current and future water requirements of upstream and downstream stakeholders. They are also required to maintain compliance with government water quality limits for mine discharges.
- A **water risk review** that helps an operation assess its water risk and opportunities.
- **Long-term water strategies and water management plans** for businesses with significant water risk.

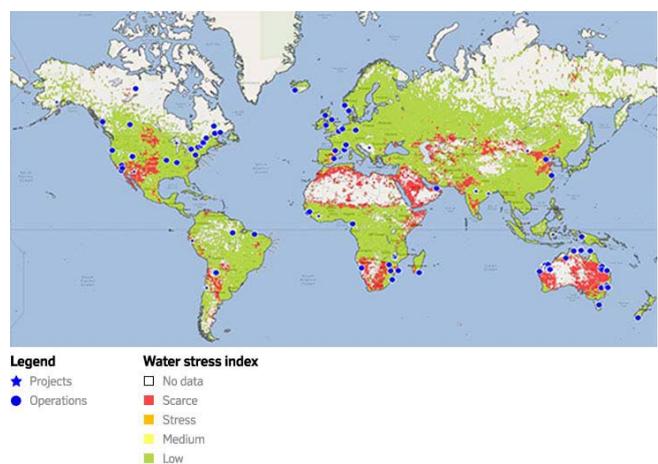
For our approach to water to succeed, we need good working relationships with those directly or indirectly affected by our businesses, for example indigenous and other land owners, communities, governments, investors, the scientific and financial communities, and employees. We have worked with international organisations committed to sustainable water management, the [International Council for Mining and Metals](#) (ICMM), governments and national industry water organisations to support the development of water policy.

## Our water strategy framework

Objectives	Improve Improving water performance	Value Accounting for the value of water	Engage Engaging with others on water
Programmes	<ul style="list-style-type: none"> <li>• Water standard</li> <li>• Water target</li> <li>• Water risk review</li> <li>• Climate change</li> <li>• Closure</li> </ul>	<ul style="list-style-type: none"> <li>• Framework for social, environmental and economic value</li> <li>• Ecosystems services</li> </ul>	<ul style="list-style-type: none"> <li>• Government water policy</li> <li>• Partnerships</li> <li>• Internal collaboration</li> <li>• Community and water</li> </ul>
Outcomes	<ul style="list-style-type: none"> <li>• Reduced operating costs</li> <li>• Reduced social and environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>• Water understood as key business resource</li> <li>• Non-financial aspects of water incorporated into business decisions</li> </ul>	<ul style="list-style-type: none"> <li>• Recognition as leaders in water management</li> <li>• Reliable access to affordable water</li> </ul>

We have used the [World Business Council for Sustainable Development](#) global water tool to identify which of our operations and projects are located in water scarce environments. Approximately 12 per cent of our freshwater withdrawal is from 25 operations in water scarce environments. The map below shows that our greatest exposure relates to many of our Australian operations.

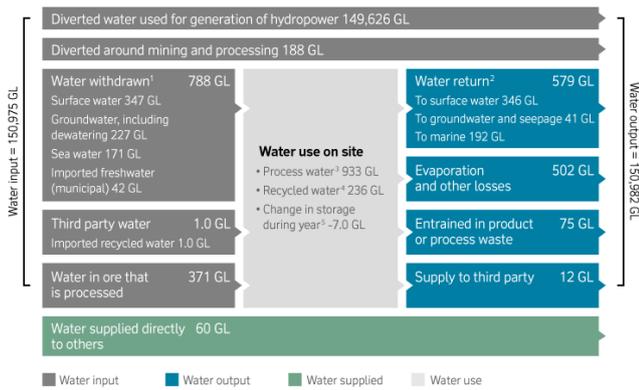
## Operations and projects located in areas of water scarcity



## Water continued

### Results

#### Water balance 2012



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

1 GL = 1 gigalitre of water (1 billion litres)

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

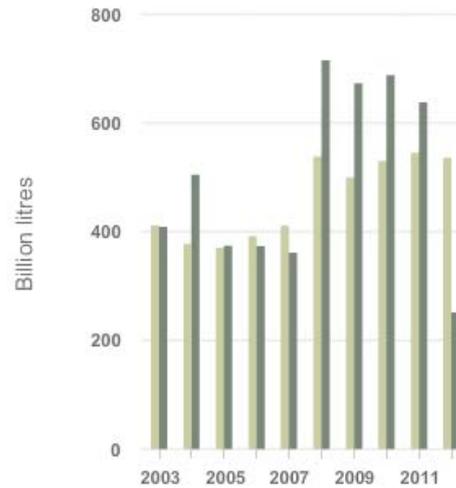
#### Our water target

We are targeting a six per cent reduction in our freshwater use per tonne of product between 2008 and 2013. Between 2008 and 2012, our freshwater use per tonne of product has decreased by 3.6 per cent.

Businesses have improved water efficiency during the target period through specific programmes, such as improved water metering, and improved methodologies for recovering water from tailings which is then recycled. The decrease in freshwater user per tonne of product also reflects higher production levels, and lower rainfall than in 2011. The Group freshwater use efficiency target is heavily influenced by local climatic conditions, which can result in higher or lower freshwater use independent of efficiencies in core production processes. We are developing post-2013 water targets which focus on improved management of water within different climatic and environmental settings.

### Water sources

#### Sources of water withdrawn



#### KEY

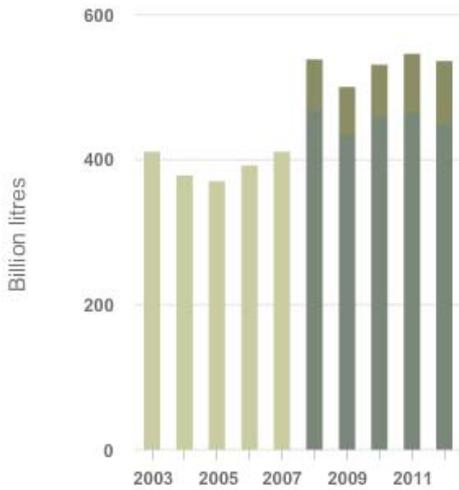
Billion litres

■ Sources of water withdrawn - Fresh

■ Sources of water withdrawn - Poor

About 20 per cent of our water withdrawn is marine water, primarily used as cooling water at our power stations. We also use significant quantities of water to generate hydroelectric power, mainly for our Canadian aluminium smelters. The source and quality of the water change from operation to operation.

### Freshwater withdrawn



**KEY**

**Billion litres**

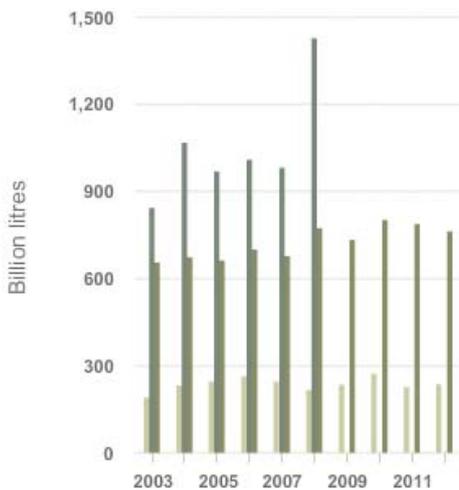
■ Freshwater withdrawn

■ Freshwater withdrawn and used

■ Freshwater withdrawn and discharged without use

As there is generally a higher community and environmental demand for freshwater than for poor quality water, we consider how much freshwater we withdraw to be one of the key indicators for our water performance.

### Water used and recycled



**KEY**

**Billion litres**

■ Water recycled in process

■ Water use including marine water

■ Water use

Water use decreased in 2012 due to decreased mining and groundwater extraction at some operations and reduced rainfall and associated water being stored on site. There has been an increase in the amount of water recycling compared to 2011, mainly associated with improvements in metering.



### Growth opportunity from mine dewatering

In the arid Pilbara region of Western Australia, our Hamersley Agricultural Project is using quality water piped from our mine dewatering process to grow hay for animal feed.

Our expansion plans for the Marandoo iron ore mine required us to start extracting ore from below the water table. In order that we could safely and effectively access the orebody, we needed to abstract 110 megalitres (ML) of groundwater a day, and find uses for the mine water we removed.

We identified various alternative options for the water, to minimise the amount of water we need to discharge to the surrounding natural drainage lines. One of the solutions was to use the discharged water for irrigating the production of hay to feed our 25,000 head of cattle. Rio Tinto currently owns six pastoral properties – Hamersley, Rocklea, Juna Downs, Karratha, Yarraloola and Yalleen Stations – covering around 1.5 million hectares. All stations except Yalleen are managed and operated by Rio Tinto Iron Ore.

Some of the water is also sent to a dam, where it is held for use by the agricultural project. In addition, we are supplying water from Marandoo to Tom Price town and mine, reinjecting it into the Fortescue Borefield, supplying the Marandoo mine and camp, and a contingency discharge of minor amounts into the creek system.

The agricultural operations consist of 18 pivots covering 840 hectares. Sixteen of the pivots will be used for growing Rhodes grass for hay production; the remainder for growing flora for mine rehabilitation, and potential biofuel crops. Planting began in November 2012, and the yield is expected to be around 30,000 tonnes of hay per annum. Surplus not used for feeding Rio Tinto's herd will be sold to local pastoralists.

One of the challenges we faced with the agricultural project is that irrigation is not only demand-driven, but also supply-driven, which is opposite to normal agricultural practices. Nutrients already exist in the groundwater, so the balance of fertiliser is critical to ensure there is no build-up in the soil. We also needed to establish monitoring practices that would address the proximity of the threatened grassland, and also take into account the location of the nearby Karijini National Park.

While it is still early in the project's life, the sustainable use of quality water from mine dewatering is resulting in positive social, environment and economic outcomes for our operations, local towns and agriculture.

## Economic overview

### Total tax payments 2010-2012 (US\$)



### Our contribution to public finances

#### Economic

Sustainable development is underpinned by sustainable economies. Our continuing financial success is based on our ability to secure access to land, people and capital. We use our economic, social, environmental and technical expertise to harness these resources and create value for our shareholders, employees, communities, governments and business partners.

# Economic contributions

## Introduction

We are committed to contributing to the social, economic, and institutional development of the communities in which we operate. It is important to our shareholders, employees and many other stakeholders that we contribute to societal stability through local employability and employment opportunities, local procurement, civic governance and the transparent payment of tax and dividends. We aspire to bring sustainable and net economic benefit to the regions and countries in which we have a presence. This approach helps us build a reputation as an organisation that facilitates economic growth. In turn, this helps us earn our social licence to operate.

## Approach

Due to the scale and capital intensity of our mining and processing activities, we are often a major employer and tax contributor to the local, state, and national jurisdictions in which we operate. Along with the primary economic contributions that we make, it is important that the benefits of natural resource endowment flow into increasingly diversified and sustainable economies. Major stakeholders, particularly governments, seek to work with us in facilitating responsible economic growth that can leave a positive legacy after our operations close.

Total economic contributions to Australia



Total economic contributions to Australia



Total economic contributions to Australia



## Economic contributions continued

### Total economic contributions to Australia



To achieve this, we model and monitor the economic impact of our presence in the places where we operate. Wherever possible we hire locally, and source goods and services local to our operations. Our tax and sovereign equity contributions enable governments to develop and maintain public works, services and institutions. We work closely with governments, academics, NGOs, and other multilateral organisations to monitor the impact of these contributions on GDP and other relevant indicators.

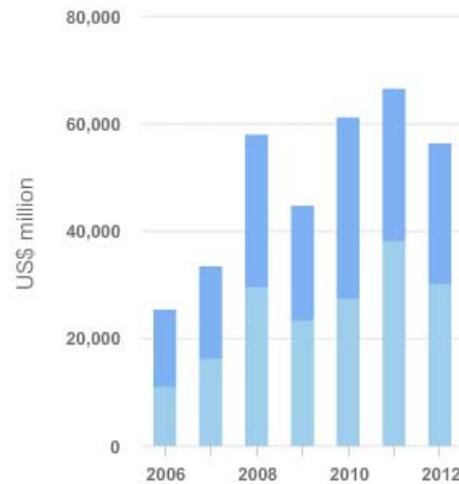
It is important to us and our host communities that an equitable proportion of resource endowments actually flow to the regions that host the operations. Historically, resource rents and economic linkages have often leaked from resource-endowed regions entirely, leaving regional civic infrastructure bereft of sustaining capital and locally affected people without a net benefit. To counter this tendency, a focus is needed on economic impacts at the regional level, robust analysis, transparency and broad inter-sector collaboration.

### Results

The best way to see our economic contributions at a global level is in the numbers. In 2012, Rio Tinto's global direct economic contribution was US\$56,466 million. This includes employee salaries and wages, payments to governments, payments to suppliers, dividends and interest, and capital reinvested<sup>1</sup>. This represents a decline of approximately 15 per cent from our economic contribution in 2011. As our employees spend their wages locally on diverse goods and services, this leads to a further, indirect economic contribution. We do not measure this indirect and induced economic effect globally, but it is important to keep this in mind when considering Rio Tinto's contribution to host economies.

<sup>1</sup> For further information on the types of payments included see our [Taxes paid in 2012](#) report.

### Direct economic contribution

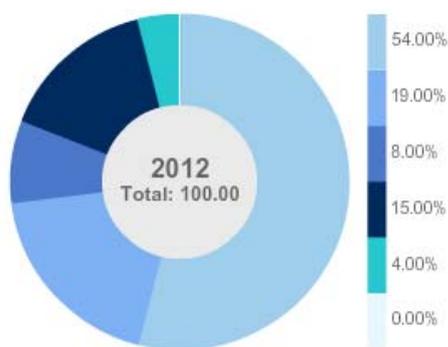


#### KEY

##### US\$ million

- Direct economic contribution - payments to suppliers
- Direct economic contribution - value added

### Distribution of direct economic contribution



#### Key

##### per cent

- Distribution of direct economic contribution - Payments to suppliers
- Distribution of direct economic contribution - Wages and employee benefits
- Distribution of direct economic contribution - Reinvested
- Distribution of direct economic contribution - Tax (accrued)
- Distribution of direct economic contribution - Dividends and interest
- Distribution of direct economic contribution - Outside interest

## Economic contributions continued

### Discretionary contributions

Direct community programmes – US\$108m Benefit receiving trusts – US\$148m Management costs – US\$36m	Total US\$292m
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### Direct contributions



### Our contribution to Australia

Over many decades, Rio Tinto has played an integral role in the development of the Australian economy, often described as a resource-based economy. In 2012, we again made a significant contribution to the Australian macro, regional and local economies in which we operate.

Our operations employ approximately 23,000 employees, and the total of salaries and wages paid (not including employee income tax) to our people in the country was US\$3,961 million in 2012. Payments to Australian suppliers totalled US\$10,625 million; payments to governments, dividends and interest totalled US\$558 million.

## Non-managed operations and JVs



Rio Tinto holds interests in companies and joint ventures that it does not manage, including 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 The way we work are respected at all times.

### Escondida

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

### Grasberg

A subsidiary of the mining company Freeport-McMoRan Copper & Gold, Inc. (Freeport-McMoRan), PT Freeport Indonesia, owns and operates the Grasberg mine in Papua, Indonesia. We are a participant in a joint venture interest attributable to the 1995 expansion of the mine, which entitles us 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 have the ability to engage and influence through our representation on the Operating, Technical & Sustainable Development Committees.

Regrettably, there were two industrial fatalities at the Grasberg operation in 2012; one underground and one at the surface.

The operator of the Grasberg mine manages complex social, community and environmental issues. There have also been instances of violence in areas near the mine, including a series of shooting incidents that resulted in seven injuries and three fatalities in 2012.

Freeport-McMoRan has responded with prudent measures of enhanced security for both personnel and material transport to and from site. Both Rio Tinto and Freeport-McMoRan support the Voluntary Principles on Security and Human Rights and work together to ensure practice is consistent with these principles. Rio Tinto continues to monitor the situation closely.

The Grasberg mine employs controlled riverine tailings disposal, a process the World Bank does not consider as good industry practice, on the basis that it is contrary to the International Finance Corporation's 2007 Environmental, Health, and Safety Guidelines for mining. However, several independent expert reviews have concluded that riverine tailings disposal represents the best practicable management method at Grasberg because of the extremely rugged topography, high rainfall and significant seismic activity. We continue to believe that this method is appropriate given these conditions.

Significant improvements have been made to limit the surface area disturbed by tailings disposal, enhance retention within the engineered deposition area, minimise the geochemical risks posed by the tailings, protect adjacent river systems and rehabilitate inactive tailings surfaces. In addition, Freeport-McMoRan continues to evaluate alternative uses for tailings, such as making cement to support local infrastructure projects.

# Suppliers

## Introduction

Social licence to operate is becoming more difficult to attain and retain. Stakeholders are demanding more benefits. Shareholders are demanding lower costs. Stakeholders expect that through the money we spend we are achieving value for money, while minimising adverse impacts to the environment and to our workers, and behaving with integrity. By working closely and effectively with our suppliers we can create positive outcomes for all of our stakeholders.

## Approach

It is strategically important that wherever we operate, we have a secure, sustainable and internationally competitive supply chain. By seeking a balance of global, national and local supply capability we drive value for our shareholders and deliver economic benefits for the communities in which we operate.

2012 has seen us focus further on enhanced local supply and supplier development, which benefits communities, local suppliers, governments and shareholders alike.

Our Procurement function works with our suppliers in diverse ways, and remains flexible to meet market needs. These are some of the plans, programmes, systems and partnerships that are in place:

- Supplier development and partnerships with government and non-government organisations. This work creates an internationally competitive supply chain and delivers economic benefits to local communities through local, indigenous or black economic empowerment.
- Supplier recognition programmes rewarding positive supplier behaviours.
- Due diligence and governance to minimise adverse impacts in the development, packaging, use and disposal of the products procured through the supply chain.

Our [Rio Tinto Procurement principles](#) is our global statement of business conduct in relation to procurement. This reflects how our corporate philosophy meets the operating demands of our business units. It makes sure that we do our procurement in a way that upholds Rio Tinto's values of accountability, respect, teamwork and integrity.

## Results

Through our operations, we make a significant direct and indirect contribution to the local<sup>1</sup>, regional and national economy, through:

- export revenue
- purchasing goods and services from suppliers<sup>2</sup>
- paying salaries and benefits
- paying rates, royalties and other taxes to governments, which are used for the provision of services and infrastructure
- community investments

Payments to suppliers are a major benefit to the economy, generating employment and creating wealth. Across the world, we spent US\$30,271 million on goods and services with 48,656 suppliers in 2012.

The table below shows our major material purchases for 2012

Material <sup>3</sup>	Amount ('000 tonnes)
Petroleum coke	1,601
Caustic soda <sup>4</sup>	830
Diesel	1,309
Fuel oil	953
Sulphuric acid	750
Explosives	508.9
Coal tar pitch	330
Aluminum fluoride	27
Lubricants and greases	25.8

Most of the materials outlined above are globally procured. Most mine-related services are procured within the local areas, states, territories and provinces where we operate.

- 1 What do we mean by local? Communities have a way of defining themselves and definitions vary according to stakeholder interests. Rio Tinto has adopted the view that "local" refers to those communities which are adjacent to, or impacted by, our operations. An area generally narrower than the state, territory or province but could cover multiple local government areas. In frontier countries, stakeholders often prefer to recognise the entire country as local. In some uses the term equates with "locally owned", and sometimes it is used simply to describe any business that maintains a permanent operational office within a given area. The key consideration is whether a business contributes to building local economic capacity. Each Rio Tinto business unit crafts its own definitional area(s) relevant and appropriate to their operation.
- 2 Selection criteria when procuring: each operation has different sustainable development priorities. For example, if an operation is located in a desert, then ensuring that water consumption is minimised may be a priority of the management team. If the operation is in a frontier country and external stakeholder expectations around economic development are high, then local content may be a priority. It is for this reason that Procurement remains flexible when weighting the selection criteria for any goods and services. As outlined in Rio Tinto Procurement principles, contract awards will only be made to suppliers who are able to:
  - meet Rio Tinto's health, safety and environment standards;
  - comply with all bidding requirements;
  - meet the internal customer's stated needs and required standard;
  - make the best bid in reference to the relevant selection criteria; and
  - meet the values articulated in [Rio Tinto Procurement principles](#) and Rio Tinto's global code of business conduct [The way we work](#)
- 3 Material volumes purchased includes Pacific Aluminium's share of tonnes excluding any joint venture partner share. It also includes purchased tonnes for Tomago Aluminium.
- 4 Caustic soda is on a dry metric tonne (DMT) basis, not liquid metric tonne (LMT).

Examples of this include:

### Australia

In addition to developing Local Procurement Plans, Rio Tinto has partnered with Enterprise Connect. This Australian government initiative connects local small and medium enterprises to the knowledge, tools and expertise necessary to improve productivity, increase competitiveness and capitalise on their growth potential.

Watch the [YouTube](#) video on about Enterprise Connect

The Indigenous Business Development Programme has a team of five advisers who work with Indigenous suppliers in the Pilbara and Kimberley regions. The number of Indigenous suppliers has grown from six businesses in 2009 to 104 in 2012. The exponential increase has been linked to the success of regular Indigenous business forums held throughout the region.

## Risk and governance

### China and India

Rio Tinto recognises the commercial, technical and sustainability risks associated with outsourcing to suppliers in emerging markets. Rio Tinto's Emerging Markets Team has developed and implemented a supplier pre-qualification due diligence process encompassing all aspects of [The way we work](#), including human rights, ethical business practices, safety, the environment and working conditions.

## Supplier engagement

### Europe, Middle East, Africa

In 2012, Rio Tinto Procurement hosted its fourth annual Europe, Middle East, Africa Supplier Day to engage with suppliers about current and future priorities. The event included focus group discussions on sustainable development. As part of our commitment to rewarding positive supplier behaviours, we presented four supplier recognition awards, for exceptional performance in HSE, innovation and value.

## Suppliers continued



### Developing suppliers for growth

As we develop our new operations in Mongolia and Mozambique, we are also developing our local suppliers. The Oyu Tolgoi Local Business Development programme is focusing on communities within Mongolia's South Gobi region. It is run by a team of 13 business development specialists who work with local people to provide training in business, health, safety, the environment, and other skills.

Local suppliers are now providing a wide range of goods and services to our Oyu Tolgoi copper-gold operations, including clothing, carpentry, vegetables, camel dairy products, construction, transport and IT.

In 2012, we opened a new business centre in Tete, home of our Rio Tinto Coal Mozambique operations. The centre is providing local businesses the opportunity to get to know our organisation, and to present their products and services to us. As well as helping local companies register their interest in becoming our suppliers, the centre also offers training to local suppliers to assist them in doing business with Rio Tinto.



As part of our continuing commitment to transparency, this report brings together information on the payments we make to governments in each of the main countries in which we operate, as well as the taxes and net earnings of business units and other Group tax information. This is the third report of its kind and we will continue to publish this information annually.

At a time when the spotlight is increasingly being trained on the tax payments made by the world's leading businesses, this report demonstrates the significant contribution Rio Tinto makes to public finances in the countries where it operates around the globe.

Tax transparency also assists in the fight against corruption and enhances the scope for communities and citizens to hold their governments to account.

The Rio Tinto Group paid US\$11.6 billion of taxes during 2012, with almost US\$9 billion of that in Australia. This represents an eight per cent decrease from 2011 (restated to exclude refunds of sales taxes, fuel taxes and other indirect taxes), which primarily reflects our lower profits in 2012. Our total underlying tax charge for the year, including final payments due after 2012, was US\$7.5 billion, which represents 44% of our underlying profit before all taxes.

The disclosures contained in this report ensure that the Group remains transparent about its payments to governments and are consistent with Rio Tinto's support for the principles of the Extractive Industries Transparency Initiative (EITI). Rio Tinto was a founding member and continues to engage actively with EITI processes in the countries where it operates, including in the new multi-stakeholder groups in the US and Australia.

As part of its commitment to showing leadership in tax transparency, Rio Tinto publishes this report on a voluntary basis because the Group believes that transparency makes good business sense. Rio Tinto is leading the way in this area as governments move to adopt a regulatory approach to declaring all tax payments.

In August 2012, the US Securities and Exchange Commission adopted regulations requiring resource extraction businesses to disclose certain payments to governments. Similar requirements are also proposed for companies listed in the European Union, and are increasingly being debated in other jurisdictions. The UK Prime Minister has also made this area a priority for the UK's Presidency of the G8 in 2013.

Rio Tinto encourages governments to work together to adopt a consistent global approach and establish disclosure requirements and thresholds that are proportionate. Otherwise, global companies will face additional costs and compliance obligations which are unnecessary. Mandatory reporting must remain focused on the ultimate objectives of disclosure requirements for both companies and governments: good tax governance, accountability, transparency and the fight against corruption.

Rio Tinto also welcomes constructive debate on natural resource taxation policy as part of the overall contribution to economic development that responsible mining investments can make. We believe that it is essential for tax policy and design to take into account the cyclical nature of the industry and to respect agreements under which investment capital has already been committed. For an industry that makes multi-decade investments, with significant up-front capital expenditure, the risk of fiscal instability will influence the global flow of capital and a country's ability to attract and retain investment. Above all, tax law should never be retrospective.

The 2012 Taxes Paid report has been compiled using valuable feedback from previous reports. This year Rio Tinto identified the specific bodies at "Local government" level where tax payments have been made. Rio Tinto is committed to maintaining and improving its reporting and transparency procedures, and welcomes feedback on this report.

Read our [report on taxes paid in 2012](#).

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**Guy Elliott**  
Chief financial officer

March 2013

## Governance overview

### Rio Tinto metal in the London 2012 medals



### From mine to medals

#### Governance

Our reputation for acting responsibly plays a critical role in our success as a business and our ability to generate shareholder value. That reputation stems from our four core values: accountability, respect, teamwork and integrity. *The way we work*, our global code of business conduct, forms the basis of our governance systems. It's supported by our global [policies, standards and guidance notes](#), and our voluntary commitments, in conjunction with the requirements of local law. For information on [corporate governance](#), visit our Group website.

## Business resilience

### Introduction

Rio Tinto's operations could face a range of incidents that may threaten our business. While it is impossible to predict every kind of incident we could face, we have adopted a Group-wide approach to business resilience and recovery to address a range of possible events.

This approach brings together our collective experience to protect our people, the environment, our assets and our reputation. It is an essential part of our Health, Safety, Environment and Quality Management System, which aims to prevent or control risk and the consequences associated with these events.

### Approach

Rio Tinto's Business Resilience and Recovery Programme (BRRP) elements are aligned to the "plan, do, check, review" model of continuous improvement:

1. Plan: Appoint a BRRP steering committee and identify hazards, conduct risk assessments and business impact analysis.
2. Do: Design business resilience management plans, emergency response plans, business continuity plans and information technology recovery plans.
3. Check: Establish a business resilience centre, a centre of expertise database, and establish/align incident notification, reporting, recording and communication processes.
4. Review: Test/validate the BRRP.

### Results

Historically Rio Tinto has taken a variety of approaches across the Group to manage situations with potentially catastrophic implications. In 2009 we reviewed our approach to ensure consistent management of incidents, using a common language, sharing best practices, eliminating overlaps and clarifying accountabilities.

As a result, our previously separate plans for emergency response, business continuity and information technology recovery are now integrated into one streamlined Business Resilience and Recovery Programme. This programme requires all our operations to allocate appropriate resources, including trained personnel, facilities and equipment, to effectively mitigate the impact of, control and recover from, major incidents.

Now every Rio Tinto site, whether an office, mine or plant, has a business resilience and recovery programme with plans and teams to prepare for, and respond to, the risks they face. Our Health, Safety, Environment and Quality Management System requires every team 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 with realistic and credible exercises. These exercises 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.



### Exercises in business resilience

Every year Rio Tinto exercises its Business Resilience teams. The most senior team to be exercised is the Corporate Business Resilience Team, chaired by the chief executive.

In 2012, the exercise simulated an underground collapse at the Kestrel Mine Expansion in Queensland, Australia. As the exercise progressed and the nature of the problems became more strategic, the Corporate Business Resilience Team was formed to provide the strategic direction needed. Although desktop-based, the exercise was realistic, and tested the team members and their alternates who were spread between different locations in Australia, the UK and the US.

The team generated a simulated press response, and social media stories appeared on participants' screens. After an intense few hours, the exercise culminated in a press conference activity where the team leader gave a statement and faced questions.

This exercise provided valuable lessons, including the need to continue rehearsing the escalation of incidents to make sure that there is the appropriate level of support. Also, the need to have well-trained alternate members of the team available to provide strategic direction to the business at very short notice. And the importance of continuing to integrate the different teams and the plans that may be needed to respond to major or catastrophic events.

# Closure

## Introduction

Closure planning is essential for every Rio Tinto operation. It is our ambition to make a positive contribution to sustainable development, leaving a legacy after closure that enhances our reputation and helps us secure future access to land and capital. In turn this means we can develop new projects with the support of local communities.

## Approach

When production ceases at a mining operation, the land is rehabilitated for a beneficial post-mining land use. When rehabilitation is complete, leases are relinquished or land that is owned by the company can be sold to a new private owner. The social and economic impact on the region can be enormous. Careful planning, throughout an operation's life cycle, and in consultation with local stakeholders, will make a significant difference to closure outcomes.

Our [Closure standard](#) requires that business decisions must take closure considerations into account from the earliest stages of project development, to minimise financial, social and environmental risks when an operation eventually closes.

Stakeholder consultation is a key element in our closure planning. Both our [Closure](#) and [Communities standards](#) require that our operations engage regularly with stakeholders, including employees, traditional landowners, local communities and governments. Together, we identify options for closure, including potential post-closure land uses, and seek stakeholders' endorsement for a preferred closure option as early as we can in the operation's life cycle.

Closure planning is integrated into operational activities. For example, progressive rehabilitation of disturbed areas and risk-based remediation of contaminated sites minimises the restoration work required at closure.

Closure Management Plans are updated at least every seven years throughout the life of the operation and more frequently as operations approach closure. Financial provisions for closure are also assessed and updated annually. This makes sure that key risks are addressed in a timely way and that financial provisions for eventual closure are adequate. When an operation is five years from closure, we develop detailed decommissioning plans based on sustainable development criteria agreed with stakeholders.

We use multi-disciplinary teams to develop, review and implement closure plans. These teams typically include experts in community relations, environmental management, human resources, finance and engineering. We also have a dedicated and experienced team managing our legacy sites.

## Post-closure legacy stewardship

In addition to those sites that we own and manage throughout their operational life, we also manage a portfolio of non-operational sites that we have inherited through acquisitions and mergers, that are either no longer economically viable in their current form, or that have been closed by their previous owners and require additional 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' ownership history, it is in our interest to safely decommission and remediate them, making the land available for beneficial reuse as quickly as possible. We also seek opportunities for socio-economic and environmental regeneration. Our reputation depends on our doing this responsibly and effectively.

We 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, such as:

- new industrial developments;
- residential housing;
- a sports stadium and training centre;
- a tourist museum and heritage trail;
- new landscapes that are farmed or returned to nature.

Examples of good closure planning and implementation, identified through our internal reviews, external research collaborations and networking, are shared throughout Rio Tinto to improve our overall performance. Through our partnership with the [Eden Project](#), we are promoting regeneration of old mine sites for the sustainable benefit of local communities and the natural environment. We also continue to participate in initiatives to enhance closure planning guidance for our industry through recognised bodies such as the [International Council on Mining and Metals](#) and the [Minerals Council of Australia](#).

## Results

Since the closure management plan review programme began in 2005 we have conducted 66 reviews. These ensure that our mine closure plans are current and aligned with stakeholders' expectations, and that adequate financial provisions for closure are made.

Seventy seven per cent of the Group's operations have closure management 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](#).

Close-down and restoration costs include the dismantling and demolition of infrastructure and the remediation of land disturbed during mining and other operations. Estimated costs are provided for over the life of each operation, based on the net present value of the close-down and restoration costs. These estimates are made assuming current legislation, standards, restoration techniques and commodity prices, which may impact on the economic life of an operation. The total provisions as at 31 December 2012 amounted to US\$8,890 million.



## Building on the assets of the natural environment

The site of the former aluminium smelter in Auzat in the French Pyrenees has been transformed into a professional sports complex suitable for altitude training. After much discussion with the municipality, the regulators and the local community, the existing sports facilities were moved to the old smelter site and improved to international standards, providing an ideal solution for the capped former landfill. This freed up land that can be developed into a hotel complex, should visitor numbers increase as anticipated.

When designing a project on an old industrial site, it is also important to recognise the significance of the former industry to the local community. Memories shared within the community can generate a sense of pride in the past. By weaving a historical trail through the village, Auzat celebrates the past while looking to a new future.

Auzat's physical transformation is paralleled by a similarly positive transformation in the local community. From a very hostile situation at the outset, the local population has not only come to terms with the closure of the aluminium smelter, but has fully embraced the new facilities. Building on the assets of the natural environment while celebrating the history of the past 100 years has proved a key factor in the project's success.

# Engagement

## Introduction

Engaging with communities and other stakeholders is core to our business success and part of our everyday approach, articulated in our global code of business conduct, [The way we work](#). We consider anyone who has an interest in our activities – whether an individual or a representative of a group or organisation – to be a stakeholder. This includes people who are affected by our decisions as well as people who influence our decisions. We identify our stakeholders, and understand their concerns and interests, by gathering and analysing information. This helps us engage with them and informs our decision-making as we address business risk – both threats and opportunities.

## Approach

We listen to, and work with, others to explore how, together, we might help solve some of the global challenges we face. These challenges may include biodiversity loss, climate change and its impact on water and energy, poverty and corruption.

Engagement activities may be local, national, regional or international. These activities are complementary and together form part of our response to addressing global business issues. We actively participate in all our relationships and focus on exploring innovative solutions to address issues of mutual interest and concern.

Strengthening our capability in stakeholder engagement is core to our future. The geographies and markets in which we conduct our business are becoming ever more complex. This makes it even more important for us to be credible and listen to our stakeholders' views.

The Stakeholder Engagement Academy is a central element of Rio Tinto's strategic global focus on stakeholder engagement. It provides learning and development for front-line project managers and stakeholder engagement professionals around the business.

Stakeholder engagement is not just a specialist's role. Enhancing our skills in stakeholder engagement is key to meeting the challenges we face in delivering growth and sustaining our licence to operate.

## Engaging with civil society

We pursue active dialogue with a broad range of civil society organisations. These include charities, non-government organisations, scientific and academic institutions, professional and business associations, think-tanks and advocacy groups. We engage on issues of common interest and concern, recognising the mutual benefits that can be achieved through cross-sector collaboration.

## Our approach

We engage with civil society stakeholders in a variety of ways, based on the level of business risk we face, the outcomes we would like to achieve and the willingness of organisations to engage.

We identify business risks – both threats and opportunities – in the annual planning process. These include the risk factors published in our [Annual report](#). Our external engagement activities are aligned to these risks, and integrated into relevant business strategies. This helps ensure that all engagement activities deliver mutual value. We value the outcomes that different types of engagement can deliver. Our activities include partnerships and sponsorships, memberships, advisory panels, working groups, workshops, communication and informal dialogue. These activities allow us to listen to and talk with various stakeholders. Philanthropy and donations form only a small part of our overall approach, as we prefer active participation. Examples of our engagement with civil society organisations can be found throughout our website.

## Engaging with communities

We set out to build enduring relationships with our neighbours to make sure we manage our operations consistent with community expectations. [Find out more.](#)

## Engaging with customers

We contribute to knowledge around sustainable products and markets. We add value for our customers and deliver outcomes for the responsible use of our products. Rio Tinto exclusively provided the

metal to produce the 4,700 gold, silver and bronze medals at the London 2012 Olympic and Paralympic Games. In supporting London 2012's commitment to deliver the most sustainable Games ever, our involvement aligned with our commitment to sustainable development.

## Our approach

We work closely with customers to understand the issues they face. We develop awareness about the source of our products and provide technical assistance to help our customers maximise the use of our products. We also promote the safe use and handling of our products.

Rio Tinto is a founding member of the [Responsible Jewellery Council](#) (RJC). Members commit to promoting responsible ethical, social and environmental practices, which respect human rights, throughout the diamond and gold jewellery supply chain. The RJC also seeks to maintain consumer confidence in diamond and gold jewellery products and the trust of all the industry's stakeholders.

In 2012, we became the first mining company to achieve RJC certification. This covers our diamond mines (Diavik in Canada, Argyle in Western Australia and Murowa in Zimbabwe), the Kennecott Utah Copper mine, which produces gold and silver used in the jewellery industry, and Northparkes copper-gold mine in Australia. Rio Tinto's RJC Member Certification resulted from a successful third-party audit which was then verified by the RJC. The majority of the metal for the London 2012 Games came from Kennecott. We are also a member of the Kimberley Process Certification Scheme, a joint government, industry and civil society initiative to stop trade in diamonds that fuel conflict.

## Engaging with employees

Recruiting, developing and retaining talented and motivated employees makes us more productive and enables us to deliver better business results. We are committed to developing effective working relationships with employees across the Group. Achieving a safe workplace – free of workplace injuries, incidents and illnesses – is of paramount importance. At Rio Tinto we believe a safe business is a profitable business.

## Our approach

We expect all our managers to be models of the highest standards of behaviour. We expect employees to treat each other and external contacts with dignity, fairness and respect. We guard against harassment in the workplace and we do not tolerate abuse or misuse of position or facilities for personal purposes. Our [Speak-OUT](#) programme provides employees with an independent and confidential means of reporting concerns and communicating ideas to senior managers.

We encourage collaboration within and across businesses, cultures and countries to deliver better, more consistent performance globally. For more information about our approach in the workplace, read our global code of business conduct, [The way we work](#).

We focus on creating a safe, healthy and environmentally responsible work environment and recognise this is critical to our success. We deploy a range of techniques, tools, and training and development courses designed to empower our employees to work safely. We use regular performance reviews, recognising our employees' potential. We provide education, training and coaching as appropriate, and offer professional development opportunities within the Group to develop employees' skills and competencies. [Find out more.](#)

## Engaging with governments

Rio Tinto operates in an increasingly competitive and complex world with a multitude of influences that can affect our ability and our broad licence to operate. Our aim is to represent our views to government and others on public policy, legislation and relevant issues and to understand their views and goals.

## Our approach

We undertake this work professionally and with integrity. We are committed to the utmost transparency, consistent with good governance and commercial confidentiality. We do not, directly or indirectly, participate in party politics, nor do we make payments to

## Engagement continued

political parties or individual politicians. Mining is a heavily regulated industry and we maintain a continuous dialogue with many governments and public authorities at national, provincial and municipal levels. We regularly speak out on matters that affect our business interests, as well as the interests of our shareholders, employees and others involved in our activities. We contribute to the development of sound legislation and regulation that is relevant and appropriate to our business interests by fostering public dialogue.

### Engaging with industry

We engage with industry and other business organisations as it gives us the opportunity to share experiences and knowledge, identify common issues and understand progress within the broader industry and corporate sector.

#### Our approach

Industry associations and forums for business and cross-sector collaboration provide common platforms for sharing challenges and responsibilities. They also offer opportunities to engage with others on issues of common concern at the international level. We actively participate in leadership organisations involved in mining, sustainable development, trade and commerce, and economic investment and development. We are members of international forums including the [International Council on Mining and Metals](#), the [World Economic Forum Mining & Metals Industry Partners](#), the [International Chamber of Commerce](#), the [International Business Leaders Forum](#), and the [World Business Council for Sustainable Development](#). We also participate in country and regionally focused forums.

### Engaging with international agencies, commitments and standards

We are a signatory to a host of international commitments and standards and we are committed to meeting our obligations. We speak out in support of issues of global importance such as the targets set out in the [Millennium Development Goals](#) and the Convention on Biological Diversity.

#### Our approach

As a global business, we promote transparency and good corporate governance throughout the world. We also engage with a wide range of external stakeholders to promote leading business practices. Our operating philosophy has a strong focus on corporate responsibility, which is clearly outlined in *The way we work*. This covers issues such as human rights, political involvement, transparency and zero tolerance of corruption.

We were a member of the steering committee which developed and which continues to help implement [Transparency International's](#) Business Principles for Countering Bribery. Through the [International Council for Mining and Metals](#), we are also an endorsing member company of the [Extractive Industries Transparency Initiative](#) (EITI). We promote EITI in the candidate countries where we operate. We also endorse the World Economic Forum's Partnering Against Corruption Initiative.

We support human rights, consistent with the Universal Declaration of Human Rights, and respect those rights in conducting the Group's operations throughout the world. We were involved from the inception of the Voluntary Principles on Security and Human Rights and have supported these principles since they were announced in 2000. We operate in a manner consistent with the United Nations Declaration on Rights of Indigenous Peoples (UNDRIP) and sovereign obligations. We engaged with the mandate of the UN Special Representative on Business and Human Rights, and base our approach on the human rights due diligence process outlined in the UN Guiding Principles on Business and Human Rights.

We were also a founding member of the [United Nations Global Compact](#) (UNGC), a voluntary initiative for businesses committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption. Access our [Communication on progress](#). We are also active members of the UK Network and the Communication on Progress Working Group, and the Global Compact's Human Rights Working

Group. Rio Tinto also supports the annual World Economic Forum Global Corporate Citizenship Statement.

### Engaging with investors

We actively engage with [investors](#) as part of our commitment to openness and good corporate governance.

### Engaging with media

We engage with the [media](#) on topics of public interest to communicate with interested stakeholders worldwide.

### Engaging with suppliers

We promote responsible and ethical [sourcing practices](#) from mine to retail.



### Community environmental monitoring at Eagle

In Michigan, US, where we are developing the Eagle nickel and copper mine, stakeholder engagement has led to our local community carrying out an independent environmental monitoring programme at the project.

Eagle, 42km north-west of Marquette in Michigan's Upper Peninsula, is scheduled to produce 300 million pounds of nickel, 250 million pounds of copper and small amounts of other metals over its seven to eight year productive life. We consulted extensively with the local community to understand their expectations and concerns around mine development. Many of these centred on the mine's impact on the environment and, in particular, water.

In response, we adopted a number of management approaches, one of which was an independent community environmental monitoring programme for the Eagle Mine, Humboldt Mill and associated transportation routes. Formal agreements were signed in September 2012 between Rio Tinto, the Superior Watershed Partnership and the Marquette County Community.

Monitoring will include, but not be limited to, air quality, groundwater, surface water, wildlife and plant life. In addition, the programme will include numerous opportunities for the public and communities to provide input and suggest additional monitoring needs. All monitoring data obtained from the programme will be reported on the [Superior Watershed Partnership website](#).

# Human rights

## Introduction

Rio Tinto has diverse operations across more than 40 countries with very different social, economic, political and cultural landscapes. The actions we take to respect, and to support, human rights help us build enduring and active relationships with local communities, employees and business partners. We believe that acting responsibly, including respecting human rights, facilitates business success in emerging and developed economies. The alternative poses very real risks, which could include operational delays, legal challenges, reputational harm, investor concern, community distrust and employee dissatisfaction.

## Approach

Rio Tinto supports and respects human rights, consistent with the [United Nations Universal Declaration of Human Rights](#). It is our aim to make sure we are not complicit in abuses.

[The way we work](#), our global code of business conduct, supported by our [human rights policy](#) and guidance note, provides the framework for our approach. In implementing our policies, we are subject to the local laws of the many countries in which we operate. We build on compliance with local laws and where our policy and procedures are more stringent, we operate to these standards.

We have made voluntary commitments to the [OECD Guidelines on Multinational Enterprises](#), and the [UN Global Compact](#), and participate in its Human Rights Working Group. We also participate in the [Voluntary Principles on Security and Human Rights](#) (VPSHR). We are committed to avoiding violations of fundamental human rights through our security arrangements and to taking steps to avoid complicity in such violations by private and public security personnel.

We also support the [Danish Institute for Human Rights](#) as it develops its Human Rights and Business Country Portal. This is a free website to help businesses assess human rights country contexts.

We are adapting our human rights approach to the due diligence process outlined in the [UN Guiding Principles on Business and Human Rights](#). We're building on our existing risk management processes, internal controls and other tools that address communities work; health, safety and environment approaches; procurement; security; and human resources, among others.

Our responsibility to respect human rights includes avoiding involvement in human rights-related abuses through our business relationships. The [Rio Tinto Procurement principles](#) set out the expectations we have of our suppliers, including that they should maintain policies that respect human rights, and have processes to ensure compliance. We make every effort to ensure that the standards of conduct in [The way we work](#), including those relating to human rights, are respected at all times when we work with joint venture partners and non-controlled companies.

We respect the land connection of Indigenous communities and seek specific, mutually-beneficial agreements with affected communities in the development and performance of 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 supporting guidance. We respect the law of the countries in which we operate, so hence we seek consent as defined in relevant jurisdictions and ensure agreement-making processes are consistent with such definitions.

## Results

In 2012, we revised our human rights policy to bring it in line with our voluntary commitments under the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights.

Our human rights approach is supported by an online human rights training programme, which was refreshed in 2012. We are introducing more tailored, practical training for high-risk sites and functions. This builds on training previously conducted with our partner, the Danish Institute for Human Rights. Working with them, we published [Why human rights matter](#), a guide for integrating human rights into Communities and Social performance work.

Everyone at general manager level or above must complete human rights training every two years. During 2011-2012, approximately 2,400 people completed this training. We also provide human rights training to security personnel and have conducted security and human rights assessments at all critical risk sites.

Rio Tinto has developed tools to help sites ensure that security personnel and providers have access to effective human rights training. We provide training to relevant public and private security forces when a gap is identified between their current training and the VPSHR, on which we base our security and human rights training. In 2012, we also launched a Security and Human Rights Toolkit to promote effective security and human rights risk assessment and compliance with the VPSHR.

Under our [Communities standard](#), all businesses must review human rights issues in their social risk analyses. In high-risk contexts they must undertake additional risk mitigations, such as commissioning specific human rights risk assessments.

Every year, all our businesses complete a comprehensive Internal Controls Questionnaire (ICQ) to demonstrate their compliance with internal controls, including those relating to human rights.

[Speak-OUT](#) is our confidential, free telephone line for our people to bring their concerns to senior management's attention, and may be used for human rights issues. Incidents relating to human rights can also be logged through our incident reporting system. Under our Communities standard, all businesses must have a community complaints, disputes and grievance procedure.



### Putting the Voluntary Principles into practice

The Voluntary Principles on Security and Human Rights (VPSHR) is a global set of principles for the oil, gas and mining industries. They provide guidance on how to operate within a framework that ensures respect for human rights and fundamental freedoms. We have made a voluntary commitment to implement the VPSHR, to ensure human rights are taken into account in our security arrangements wherever we operate.

In 2011 and 2012, our Global Security team visited all sites with "critical" and "high" security and human rights risk ratings, to strengthen our implementation of the VPSHR at the site level. As a result, we developed an approach to stakeholder engagement and proactive conflict prevention. One of the sites visited was the QIT Madagascar Minerals (QMM) mine in Fort-Dauphin, Madagascar.

In 2012, QMM partnered with the International Committee of the Red Cross and the United Nations High Commission for Refugees to present workshops on international humanitarian principles that apply to law enforcement. The training was the first of its kind in the region. A wide range of people took part, including police officers, members of the armed forces, and QMM private security guards.

QMM also signed a Memorandum of Understanding (MoU) with the Malagasy Ministry of Defence and Malagasy public forces. The MoU agreed that all subsequent actions should be in line with the VPSHR and internationally recognised humanitarian principles. The signing of the MoU created significant value for Rio Tinto and is fully aligned with our strategic objectives.

## Integrity and compliance

Conducting business with integrity is fundamental to Rio Tinto. [The way we work](#), our global code of business conduct, sets out our commitment to integrity and compliance. Our Integrity and Compliance programme helps to give effect to this commitment. In addition, Speak-OUT, our whistle-blowing programme, is actively promoted across the Group and provides employees with an avenue for reporting concerns anonymously, subject to local law.

### Approach

Rio Tinto's Integrity and Compliance standards include the [Antitrust standard](#), the [Anti-corruption standard](#), the Fraud standard, the [Conflicts of interest standard](#) and the [Data privacy standard](#). The Rio Tinto Compliance team provides training on these standards. It also implements a communications strategy to raise awareness of our values, principles and internal controls.

We provide our businesses with information, tools and technologies – including templates, registers and guidance documents – to help them meet their programme requirements.

Each Group business has an audit forum that monitors and oversees the implementation of the Integrity and Compliance programme. All businesses provide an annual report on the programme, and the global head of Compliance reports on implementation throughout the Group to the board Audit Committee.

### Anti-corruption

Bribery and corruption in all forms are prohibited at Rio Tinto. This is clearly stated in [The way we work](#) and in our Business integrity (anti-corruption) standard which commenced on 1 January 2012. The standard assists our businesses and employees in countering bribery and corruption, whether direct or indirect, and whether to or from a public official, a political candidate, a party or party official, or a private sector employee. Payments must only be made for legitimate business purposes and at a rate reflecting market value. They must be recorded correctly and transparently in our books. Facilitation payments are prohibited.

Rio Tinto businesses must consider and address bribery and corruption risks as part of their ongoing risk management exercises. This includes performing appropriate and proportionate due diligence when engaging third party companies, entering into partnerships or acquiring companies. All high level risks must be brought to the attention of senior management.

In 2012, Rio Tinto was recognised in a report by [Transparency International](#), which analysed the transparency of corporate reporting on a range of anti-corruption measures. In support of International Anti-corruption Day on 9 December 2012, the chief executive and all Group executives endorsed their personal commitment to integrity in a message to all employees, reaffirming a pledge to zero tolerance of bribery and corruption.

### Conflicts of interest

The way we work and the Business integrity (conflicts of interest) standard which commenced on 1 September 2012 make it clear that we must avoid conflicts between our personal interests and work responsibilities. Even the appearance of a conflict of interest should be avoided. The standard requires all employees to disclose any material transaction or relationship that might give rise to such a conflict. It assists in implementing a process for the disclosure and management of conflicts across the Group.

### Training

During the year we launched new and [improved compliance training](#) modules covering [The way we work](#) and Integrity and compliance.

## Transparency

Rio Tinto is committed, in principle and practice, to maximum transparency consistent with good governance and commercial confidentiality. We issue information in a timely way on the Group's operational, financial and sustainable development performance through a number of channels including our [Annual report](#). We seek and welcome constructive criticism.

We work with external organisations in furthering our commitment to transparency. Since its launch in 2002, we have supported the [Extractive Industries Transparency Initiative](#) (EITI), the aim of which is to strengthen governance by improving transparency and accountability in the extractive sector. Find out more about [taxes and royalties](#) we paid.

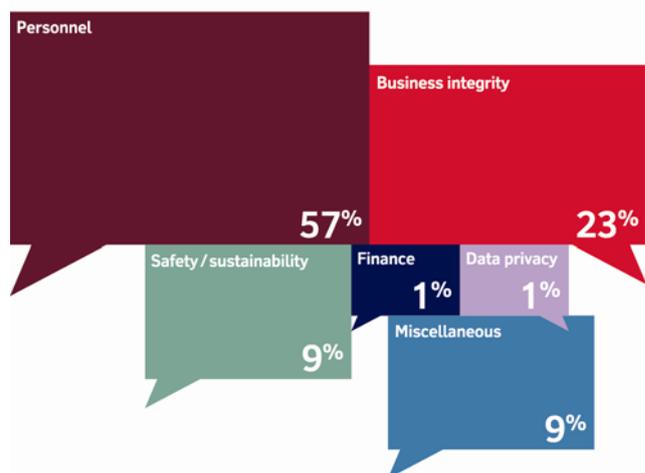
We continue to participate with [Transparency International](#), a global civil society organisation, in the fight against bribery and corruption. We were one of the original corporate members of the steering committee which drafted the [Business Principles for Countering Bribery](#) and continue to participate in the revision of those principles. Rio Tinto remains a strong supporter of the World Economic Forum's Partnering against Corruption Initiative.

We communicate views to governments and others on matters affecting our business interests. By furthering public dialogue, we contribute to the development of sound legislation and regulation that is relevant and appropriate to our business interests.

### Results

We continue to improve our Integrity and Compliance programme to ensure that we keep our overall programme relevant in light of changes in the external environment.

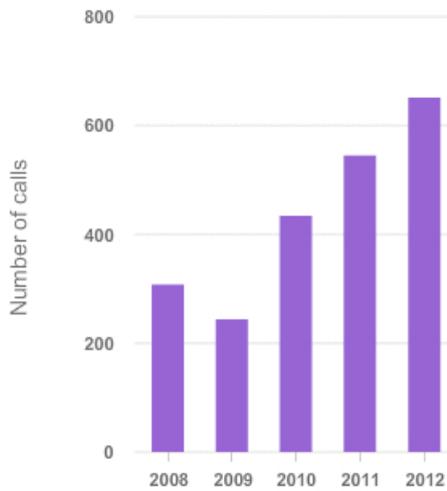
#### Speak-OUT cases breakdown by subject area



Total cases in 2012: 651

Rio Tinto encourages employees to raise any concerns directly with management but, if they are uncomfortable in doing so, they can use [Speak-OUT](#), the Group's confidential and independently operated whistle-blowing programme. This offers an avenue where concerns can be reported anonymously if they so choose, subject to local law. This can include any significant concerns about the business, or behaviour of individuals, including suspicion of violations of financial reporting, safety or environmental procedures or business integrity issues generally. During 2012, we introduced enhanced features of the programme, including improved web submission, a new case management tool to better manage cases, and a reporting tool to allow for improved analysis of case statistics and reporting. We look at ways to increase the positive awareness of [Speak-OUT](#) among our employees.

### Integrity and Compliance - Speak-OUT case activity

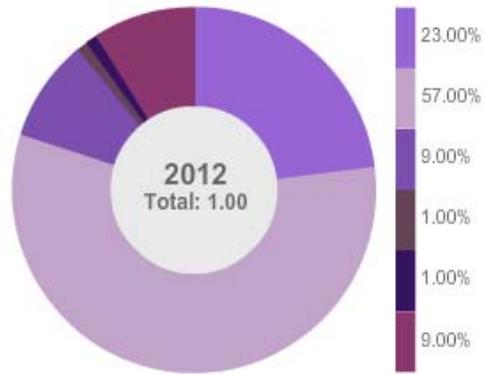


**KEY**

Number of calls

- Integrity and Compliance - Speak-OUT case activity

### Integrity and Compliance - Speak-OUT by case class 2012



**Key**

Number/Per cent of cases reported

- Integrity and Compliance - Speak-OUT by case class 2012 - Business Integrity
- Integrity and Compliance - Speak-OUT by case class 2012 - Data Privacy
- Integrity and Compliance - Speak-OUT by case class 2012 - Personnel
- Integrity and Compliance - Speak-OUT by case class 2012 - Finance
- Integrity and Compliance - Speak-OUT by case class 2012 - Safety / Sustainability
- Integrity and Compliance - Speak-OUT by case class 2012 - Other

Approximately 61 per cent of contacts elected to remain anonymous. Fifty three per cent of matters raised and closed through *Speak-OUT* during 2012 resulted in action (including clarifications).

Whenever we have a new business joining the Group, we roll out our *Speak-OUT* programme as soon as possible. We work with our local management to ensure that the programme delivers the most appropriate set-up for the local employees, including its availability in relevant languages.



### An engaging learning experience

During 2012, we revised our compliance training for all employees. This is now largely included in two online modules covering *The way we work* and Integrity and compliance, and is available in 18 languages. The new training is largely scenario-based and provides practical advice on our principles and policies to help us achieve the high standards we set for ourselves. Employees are required to do the two modules annually. The topics are also updated annually to keep the training fresh. Employees undertake additional training on key controls and requirements that relate to their specific roles.

The revised modules have been made more engaging, to make the content easier to learn. Feedback has been positive with employees appreciating the new style and content. Training statistics are monitored across the Group on a regular basis.

## Internal controls



### Introduction

*The way we work*, our global code of business conduct, applies to everything we do, wherever we are in the world. It outlines the Group's core values:

- Accountability – taking ownership of our actions;
- Teamwork – trusting others and working collaboratively;
- Integrity – being transparent and honest; and
- Respect – caring for each other's wellbeing and recognising the contribution of others.

These values, including our commitment to integrity and compliance, provide the basis for our Group internal controls and assurance over the reliability of our reporting. Our board has overall accountability for the Group's system of internal controls and for reviewing its effectiveness. This includes financial, operational and compliance controls and risk management procedures. A robust system of internal controls allows us to meet the increasing number of challenges posed by the external environment in which we operate.

### Approach

Our reports, financial statements and non-financial records are prepared with an approach to give a true and fair view of our affairs. We use appropriate accounting and reporting practices, which are applied and supported by reasonable and prudent judgments.

Our Compliance standard sets out a process by which each Group business must:

- establish an audit forum;
- monitor compliance with internal and external material obligations;
- maintain relevant records; and
- provide annual compliance reports.

Each year, the leaders of Group businesses confirm (or explain) that our internal controls are operating effectively throughout Rio Tinto and that our businesses are compliant with our financial and non-financial policies, standards and mandated practices.

At the corporate level, Rio Tinto's global head of Compliance provides periodic reports to the board on the effectiveness of the Group's Integrity and Compliance programme. These reports include consolidated information obtained from the monitoring activities undertaken by the Group businesses. The global head of Compliance also considers any progress that may be required to reinforce the programme further.

All our control processes are subject to internal and external audits. The role of our Group Audit & Assurance function is to provide confidence to our directors that the systems for risk management, internal control and governance are adequate and effective. The Group Audit & Assurance function operates independently of management under a mandate approved by the board Audit Committee and the board Sustainability Committee.

### Results

To ensure that our systems remain in line with leading practice and to meet our integrity and compliance commitment, we continue to improve the Rio Tinto Integrity and Compliance programme. In 2012, we introduced two new standards: the [Business integrity \(anti-corruption\) standard](#) which commenced on 1 January 2012; and the [Business integrity \(conflicts of interest\) standard](#) which commenced on 1 September 2012. Our programme reflects the size and geographical spread of the Group as well as the diverse activities of our businesses.

# Product stewardship

## Introduction

Our products help make modern life work. Few people can spend a day without using a metal or mineral in one of their numerous downstream applications. Our operations help meet the world's present and future resource needs – from energy to light our streets, to the steel of skyscrapers and also the medals for the London 2012 Olympic and Paralympic Games.

We are concerned with the stewardship of our products across their lifecycles. Drivers for product stewardship include:

- systematic compliance with emerging product regulations;
- anticipating and responding to increased consumer desire for responsible use of products throughout their whole lifecycle;
- reputation building from having product brands recognised for consistently being derived from responsible production processes and supply routes; and
- associated cost savings.

## Approach

At Rio Tinto, product stewardship is about understanding the health, environmental, and social impacts of our metals and minerals across their lifecycles. This includes both during mining and processing, when we are directly involved, and also includes knowing about the impact of metals and minerals after they have left our mine gates. It covers transportation to our customers, manufacturing into end products, use, disposal and recycling. We seek to obtain a preferred supplier status from our customers, and recognition for our commitment to the safe, ethical and environmentally responsible production and use of our products. This is a source of competitive advantage that creates value for our shareholders.

Product stewardship requires understanding the properties of our products, and how this leads to opportunities or threats in the marketplace. It's about predicting how the regulatory environment that affects the use of metals and minerals is changing, and staying ahead of the game so we're prepared.

We therefore see product stewardship as a programme focusing on maintaining and growing our access to markets. Our programme builds upon the principles and standards outlined in [The way we work](#), [Rio Tinto Procurement Principles](#) and our [Product stewardship strategy](#). Our programme supports Rio Tinto businesses in:

### • Ensuring compliance

Product characterisation, labelling and information supply requirements are all subject to increasing regulation and standardisation. We must comply in order to maintain access to our markets. We pursue a systematic approach to identify and contribute to the development of emerging regulation, and to ensure compliance with regulation.

### • Meeting the expectations of the marketplace

Customers and consumers are increasingly demanding to know the sustainable development credentials of products across their full lifecycle. Our procurement and operating practices, and those of our customers and the product end users, all contribute. To meet the expectations of the marketplace, we must understand the lifecycle, participate to increase the traceability and lifecycle performance of our products, and act where we can to continuously improve performance. By doing this we contribute to our "licence to operate" and help maintain society's acceptance of our products.

### • Positively differentiating our products in the market

We look to leverage our leading health, safety, environment and community performance to differentiate our products in the market. We also seek opportunities to produce products which more effectively meet the needs of our customers and end consumers.

Our product stewardship programme is based on a structured approach to managing product opportunities and threats. The basis of our programme is a risk assessment and the internal integration of product management requirements into our Health, Safety, Environment and Quality management standard.

Our programme focuses on market support and market access.

## Market support

Good relationships with customers and consumers are vital to ongoing access to markets. We base our relationships on transparency, trust and the exchange of quality information.

Our product stewardship programme gives us the tools to identify and meet the environmental, safety and health needs of the market. It gives us insight into the use of our products, and helps strengthen our relationships with customers.

Our customers are increasingly requesting Rio Tinto-specific lifecycle information. Such information describes the environmental impacts and risks associated with our products. By providing this information, we can encourage our customers to conduct similar activities.

We are developing lifecycle assessments for our key products that are aligned with international standards. These assessments reflect the material flows, operating conditions and downstream impacts of our operations. In addition, we also participate in industry-level lifecycle inventories and support the development of downstream customer lifecycle assessments. Our assessments are updated when major process or operational changes occur.

Our approach to product stewardship also applies to our suppliers. Along with other corporate programmes, it gives us confidence that our suppliers are addressing health, safety or environmental requirements for the goods, equipment and services they supply. Our [Procurement principles](#) outline the way we want to operate in partnership with our customers and suppliers.

## Market access

Product-related regulation is increasing in complexity and spreading globally. We work closely with many stakeholders (including governments, associations, customers and non-government organisations) to be constructively involved in regulatory developments and compliant with emerging and existing regulation. Over the past few years, we have applied a concerted effort to ensure compliance with [Registration, Evaluation, Authorisation and Restriction of Chemical Substances](#) (REACH) in Europe and [the Globally Harmonised System of Classification and Labelling of Chemicals](#) (GHS).

We participate in various scientific, regulatory and policy arenas around the world. Because of our support for sound science and best practice, we are asked for input into the development of environmental and health regulations that relate to metals and minerals.

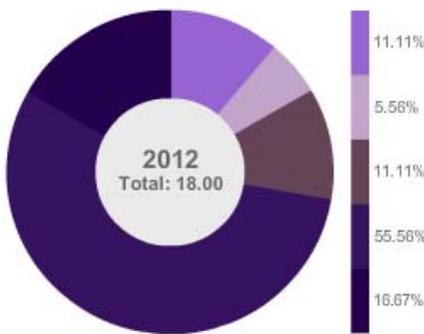
A fundamental principle of product stewardship is that all members of the value chain accept appropriate responsibility for the production, use and disposal of a product. The extent of that responsibility is product-specific, requires engagement and collaboration with customers, regulators and stakeholders, and considers societal values. Society's expectations with respect to product stewardship are increasing and this is translating into increased compliance requirements. Ongoing engagement on product-related issues is vital to retain and continue to grow our access to markets.

## Results

Product stewardship programme implementation

We encourage our businesses to implement formal product stewardship programmes in alignment with their response to our Health, Safety, Environment and Quality management system (HSEQ MS). In 2012, 89 per cent of businesses had a formal product stewardship programme or had started the process.

## Implementation of product stewardship programmes



### Key

#### Number of reporting businesses

- Implementation of product stewardship programmes - Non-existent
- Implementation of product stewardship programmes - Formal
- Implementation of product stewardship programmes - Conceptual
- Implementation of product stewardship programmes - Aligned
- Implementation of product stewardship programmes - Beginning
- Implementation of product stewardship programmes - Formal and risk based
- Implementation of product stewardship programmes -In use

## Market support

Below are some examples of product stewardship market support initiatives undertaken in 2012:

- We exclusively provided the metal to produce the 4,700 gold, silver and bronze medals at the London 2012 Olympic and Paralympic Games. This was a great opportunity to tell our story to a global audience: to share more about what we do and the sustainable way we do it.
- We are a founding member of the [Responsible Jewellery Council \(RJC\)](#), and in 2012 became the first mining company to receive the RJC certification. RJC members are committed to "promoting responsible ethical, human rights, social and environmental practices in a transparent and accountable manner throughout the industry from mine to retail". The RJC has developed a Standard Code of Practices and provides the most comprehensive certification system in the world, covering the entire chain of production across the jewellery industry. Rio Tinto's Member Certification resulted from a successful third-party audit, verified by the RJC. It covers Rio Tinto's diamond mines – Diavik in Canada, Argyle in Western Australia and Murowa in Zimbabwe, the Kennecott Utah Copper mine, which produces gold and silver used in the jewellery industry, and Northparkes copper/gold mine in Australia. Rio Tinto plans to seek certification to the Oyu Tolgoi copper/gold mine in Mongolia after the start of commercial production.
- In 2012, our businesses reported lifecycle assessments for 73 per cent of key products across the Group.

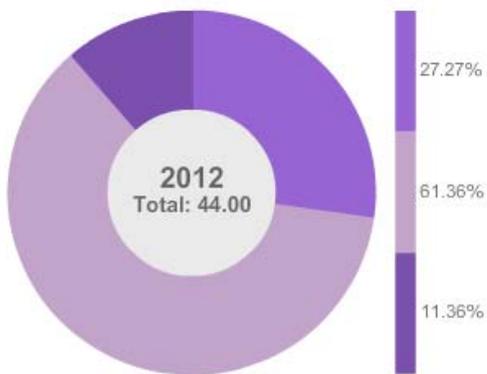
### Rio Tinto lifecycle assessments <sup>(a)</sup>

Product group	Cradle-to-customer gate	Cradle-to-gate	Partial
Aluminium		Aluminium <i>Bauxite, alumina</i>	
Copper		<i>Copper</i> cathode, silver, gold, sulphuric acid, molybdenum oxide, <i>Copper</i>	Vermiculite
Diamonds & Minerals		Diamonds, zirsill, ilmenite, RTCS (Rio Tinto Chloride Slag), steel powder, iron powder, Sorelflux, Sorelmetal, Sorelsteel, Sorelslag, UGS, borates, salt, rutile, titania slag, zircon product	
Energy	Uranium oxide <i>coking coal, thermal coal</i>		
Iron Ore	Retread tyres, iron ore fines, iron ore lump		Iron ore pellet – acid Iron ore pellet – flux

(a) Products in italics refer to industry-level lifecycle inventories. All other products have had product-specific lifecycle assessments conducted.

## Product stewardship continued

### Lifecycle assessments for key products



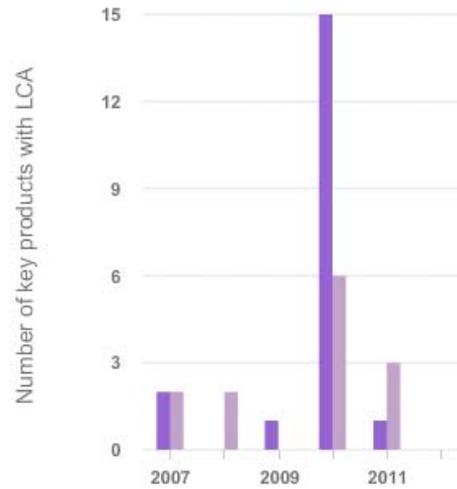
#### Key

##### Number of key products

- Life Cycle Assessment for key products - Non-existent
- Life Cycle Assessment for key products - Company specific
- Life Cycle Assessment for key products - Commodity based

Of those lifecycle assessments, 78 per cent have been either internally or externally reviewed since 2010.

### Key product life cycle assessment year of last review



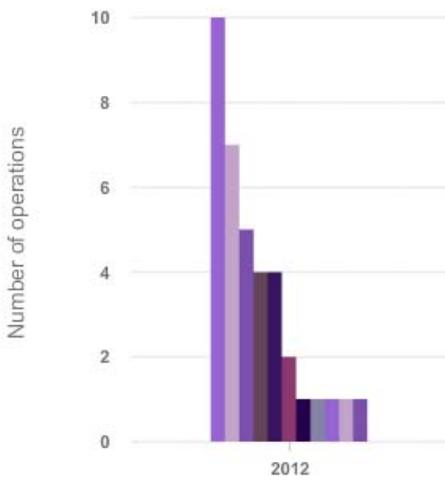
#### KEY

##### Number of key products with LCA

- Key product life cycle assessment year of last review - Internal review
- Key product life cycle assessment year of last review - External review

- Material reuse and recycling: the off-site reuse options reported by operations in 2012 for mineral waste materials and non-mineral bulk processing waste materials were diverse. They ranged from the use of mineral materials in civil works operations, through to non-mineral bulk processing materials being used in the agricultural and fertiliser industry. In all situations, the use of these materials is diverting them from being disposed, and results in a reduced need for new materials.

### Off-site reuse/recycle of mineral materials

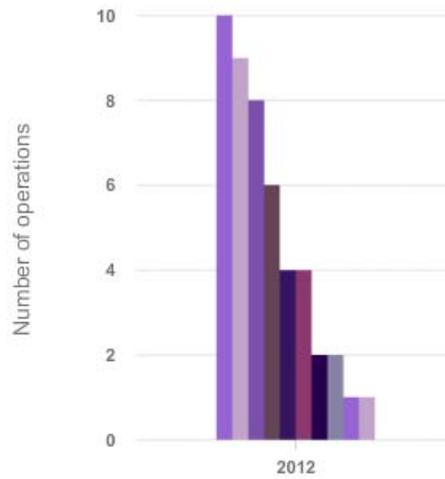


**KEY**

**Number of operations**

- Off-site reuse/recycle of mineral materials - Cement manufacture
- Off-site reuse/recycle of mineral materials - Smelting & refining
- Off-site reuse/recycle of mineral materials - Civil works
- Off-site reuse/recycle of mineral materials - Foundry
- Off-site reuse/recycle of mineral materials - Refractory material manufacture
- Off-site reuse/recycle of mineral materials - Agriculture & fertiliser industry
- Off-site reuse/recycle of mineral materials - Building materials manufacture
- Off-site reuse/recycle of mineral materials - Dust suppressant
- Off-site reuse/recycle of mineral materials - Rehabilitation / landscaping
- Off-site reuse/recycle of mineral materials - Sand blasting
- Off-site reuse/recycle of mineral materials - Steam & electricity generation

### Off-site reuse/recycle of non mineral bulk processing materials



**KEY**

**Number of operations**

- Off-site reuse/recycle of non mineral bulk processing materials - Smelting & refining
- Off-site reuse/recycle of non mineral bulk processing materials - Cement manufacture
- Off-site reuse/recycle of non mineral bulk processing materials - Foundry
- Off-site reuse/recycle of non mineral bulk processing materials - Building materials manufacture
- Off-site reuse/recycle of non mineral bulk processing materials - Civil works
- Off-site reuse/recycle of non mineral bulk processing materials - Manufacturing / chemical industry
- Off-site reuse/recycle of non mineral bulk processing materials - Refractory material manufacture
- Off-site reuse/recycle of non mineral bulk processing materials - Rehabilitation / landscaping
- Off-site reuse/recycle of non mineral bulk processing materials - Agriculture & fertiliser industry
- Off-site reuse/recycle of non mineral bulk processing materials - Steam & electricity generation

## Product stewardship continued

### Market access

Some examples of where we actively participated in scientific, regulatory and political arenas worldwide include:

- Changes in maritime transport regulations: the IMSBC (International Maritime Solid Bulk Cargoes Code 2009) became mandatory for IMO (International Maritime Organization) signatories under the SOLAS (Safety of Life at Sea 1980) Convention on 1 January 2011, replacing the BC Code 2004 (Safe Practice for Solid Bulk Cargoes). In 2012, Rio Tinto actively worked with regulators and industry associations to promote technically sound regulation development aimed at ensuring products are shipped in a safe and environmentally friendly manner.
- United Nations Environment Programme (UNEP) Globally Binding Convention on Mercury: via internal risk assessments, we are further developing our understanding of mercury for our business. This aids our ability to participate meaningfully in mercury policy discussions at the international level through industry organisations such as the International Council on Mining and Metals (ICMM), the North American Metals Council, the National Mining Association and the Minerals Council of Australia.



### Delivering a responsible future at Rio Tinto Alcan

Aluminium is part of the solution for a sustainable future. It's a strong, durable, flexible, impermeable, lightweight and infinitely recyclable metal.

As a leader in the aluminium industry, Rio Tinto Alcan continues to take a proactive role in fostering responsible resource management of aluminium through the entire value chain, through collaborative initiatives with the industry's stakeholders. Rio Tinto Alcan is also committed to reducing the environmental impacts of its activities, while contributing to social wellbeing and economic prosperity.

Rio Tinto Alcan's product strategy focuses on two major pillars:

1. **Collaborative initiatives with stakeholders to accelerate improvements in the sustainability performance of the aluminium supply-chain.**  
In 2012, along with the International Union for Conservation of Nature and several other founding members, Rio Tinto Alcan played a lead role as a co-founder of the [Aluminium Stewardship Initiative \(ASI\)](#) – a unique aluminium value chain initiative that will define and deliver the first Responsible Aluminium Standard.
2. **Leveraging Rio Tinto Alcan's sustainability performance to become the preferred supplier of the industry.**  
Rio Tinto Alcan communicates to customers in a responsible way about our practices in business ethics, and in the environmental and social areas. For instance, we promote our 96 per cent carbon free energy power supply for primary metal production worldwide.

## Performance overview



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 on these web pages.

We also report under other voluntary commitments, including:

- [Global Reporting Initiative](#)
- [International Council on Mining and Metals \(ICMM\) Sustainable Development Framework](#)
- [Millennium Development Goals](#)
- [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 maximum transparency consistent with good governance and commercial confidentiality. It also outlines our approach to [internal controls](#) and Group records management to ensure the sustainable development section of our [Annual report](#) gives 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 \(GRI\) G3](#) 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 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 Standardisation 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 is 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.

We used the independent professional services firm PricewaterhouseCoopers to provide the board of directors of Rio Tinto plc and Rio Tinto Limited assurance on selected sustainable development subject matter. A statement from PricewaterhouseCoopers is available on the [Assurance](#) page.

Each of our business units is required to produce their own [local sustainable development reports](#).

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## Assurance

Our Group Audit & Assurance function has accountability and responsibility for providing assurance to the board that:

Rio Tinto's policies, standards and controls are adequately designed and effective for their intended purpose; and that

these policies, standards and controls are consistently implemented by all Rio Tinto sites on a timely basis and as designed.

In addition, we engaged an independent external assurance organisation, PricewaterhouseCoopers (PwC), to provide the board of directors of Rio Tinto plc and Rio Tinto Limited assurance on selected sustainable development subject matter, as explained in the [Independent assurance report](#).

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

PwC's assurance statement satisfies the requirements of subject matters one to four of the ICMM assurance procedure; we have satisfied subject matter five of the ICMM assurance procedure through the Global Reporting Initiative's check of our [GRI report](#).

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

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## Ethical indexes & awards

Investors are increasingly considering the environmental, social and ethical impacts of their investments. As a result, there is now greater emphasis on companies providing more information on their non-financial performance.

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. The DJSI Europe and the DJSI Asia Pacific Indexes track performance of the best 20 per cent of the largest 600 companies in the European or Asia Pacific markets as listed on the Dow Jones Global Total Stock Market Index. Rio Tinto has been included in the DJSI series since 2002 and is included in the 2012 DJSI World, DJSI European and DJSI Asia Pacific indexes.



- 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.



- Rio Tinto won the Water Stewardship Award at the 2011 [Global Water Awards](#), part of the Global Water Summit in Berlin. This award is presented to the commercial or industrial organisation that has made the greatest contribution to the sustainable management of its water cycle.

## Goals and targets

We believe it is important to set targets across a range of key sustainable development metrics so that we can continually drive performance improvement 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, 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 and receives regular updates on our progress and the key issues affecting performance.

Targets	Progress to date
Our goal is zero harm, including, above all, the elimination of workplace fatalities. Progress is measured through our all injury frequency rate (AIFR) per 200,000 hours worked.	We maintained our all injury frequency rate of 0.67.
30 per cent reduction in the rate of new cases of occupational illness per 10,000 employees between 2008 and 2013.	76 per cent reduction in the rate of new cases of occupational illness compared with 2008.
Ten per cent reduction in the rate of employees per 10,000 employees exposed to an eight hour noise dose of more than 85 decibels between 2008 and 2013(a) .	3.2 per cent decrease in the rate of employees potentially exposed to an average eight hour noise dose of more than 85 decibels compared with 2008.
Six per cent reduction in total greenhouse gas emissions intensity between 2008 and 2013. We are also targeting a further four per cent reduction by 2015, to deliver an overall ten per cent reduction.	5.1 per cent reduction in our total greenhouse gas emissions intensity compared with 2008.
Six per cent reduction in our freshwater use per tonne of product between 2008 and 2013.	3.6 per cent decrease in our freshwater use per tonne of product compared with 2008.
Our diversity goal is to employ people based on job requirements that represent the diversity of our surrounding communities. We are targeting: <ul style="list-style-type: none"> <li>• Women to represent 20 per cent of our senior management by 2015.</li> <li>• Women to represent 40 per cent of our 2015 graduate intake.</li> <li>• 15 per cent of our 2015 graduate intake to be nationals from regions where we are developing new businesses.</li> </ul>	<ul style="list-style-type: none"> <li>• Women represented 15 per cent of our senior management in 2012.</li> <li>• Women represented 30 per cent of our 2012 graduate intake.</li> <li>• 24 per cent of our 2012 graduate intake were nationals from regions where we are developing new businesses.</li> </ul>
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, by 2013.	70 per cent of our operations have locally appropriate publicly reported social performance indicators in place.

(a) The noise target measures the reduction in hazardous noise levels (>85 decibels averaged over eight hours) within the workplace. Where noise levels remain above the target level, hearing protection is mandatory.

A number of targets run until 2013. As part of our commitment to continuous improvement and transparent reporting, we look at each new target cycle as an opportunity to incorporate insights from the current target period. As we develop our post-2013 targets, we will incorporate these insights to define targets that are aligned with local imperatives, and are representative of the Group's diversity and geographic reach.

We intend to finalise Group targets in 2013, and will report on them in the Sustainable development section of the 2013 Annual report.

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## GRI checklist

We report our sustainable development performance in line with the [Global Reporting Initiative](#) (GRI) G3 guidelines and the GRI Mining & Metals sector supplement at Application level A+. Accordingly, we use a [materiality](#) assessment to select what information should be included in our reports.

This checklist includes responses to all GRI G3 strategy and profile disclosures, our disclosure on our management approach, and responses to the core G3 and Mining & Metals sector supplement performance indicators.

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

Rio Tinto's 2012 Annual report is currently undergoing a GRI check.

### Strategy and profile

- Strategy and analysis
- Profile
- Parameters
- Governance, commitments and engagement

### Disclosure on management approach

- Management approach

### Performance indicators

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

Download our [GRI checklist](#) (PDF)

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## ICMM framework

As a founding member of the [International Council on Mining and Metals](#) (ICMM), Rio Tinto has committed to implementing the [ICMM Sustainable Development Framework](#).

There are three elements to this 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 line with the Global Reporting Initiative (GRI) G3 framework.
3. Assurance – provide independent assurance that the ICMM commitments are met.

The framework emerged out of the [Mining, Minerals, and Sustainable Development project](#) – a two-year consultation process with stakeholders to identify key issues relating to mining and sustainable development – and has been developed continuously since.

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.

The ICMM was established in 2001 to improve sustainable development performance in the mining and metals industry. Today, it brings together 22 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.

[Find out more](#) about how these requirements are embedded in our business.

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

## Materiality assessment

Materiality assessments are used to help us focus our sustainable development reports on those issues that are most important to our external and internal stakeholders.

Our process was developed in line with the [Global Reporting Initiative \(GRI\)](#) guidance on materiality and completeness. It involves identifying issues affecting our business and its stakeholders over the next three years, and prioritising them considering internal and external perspectives.

We gather information and opinion from a wide range of external stakeholders, including NGOs, suppliers, customers, partners and the media. From this, we assess the impact that sustainable development issues have externally, in terms of society and the environment, and our compliance with policies and commitments. We also consider how important the issue is for our stakeholders when they're making judgments about our sustainable development performance.

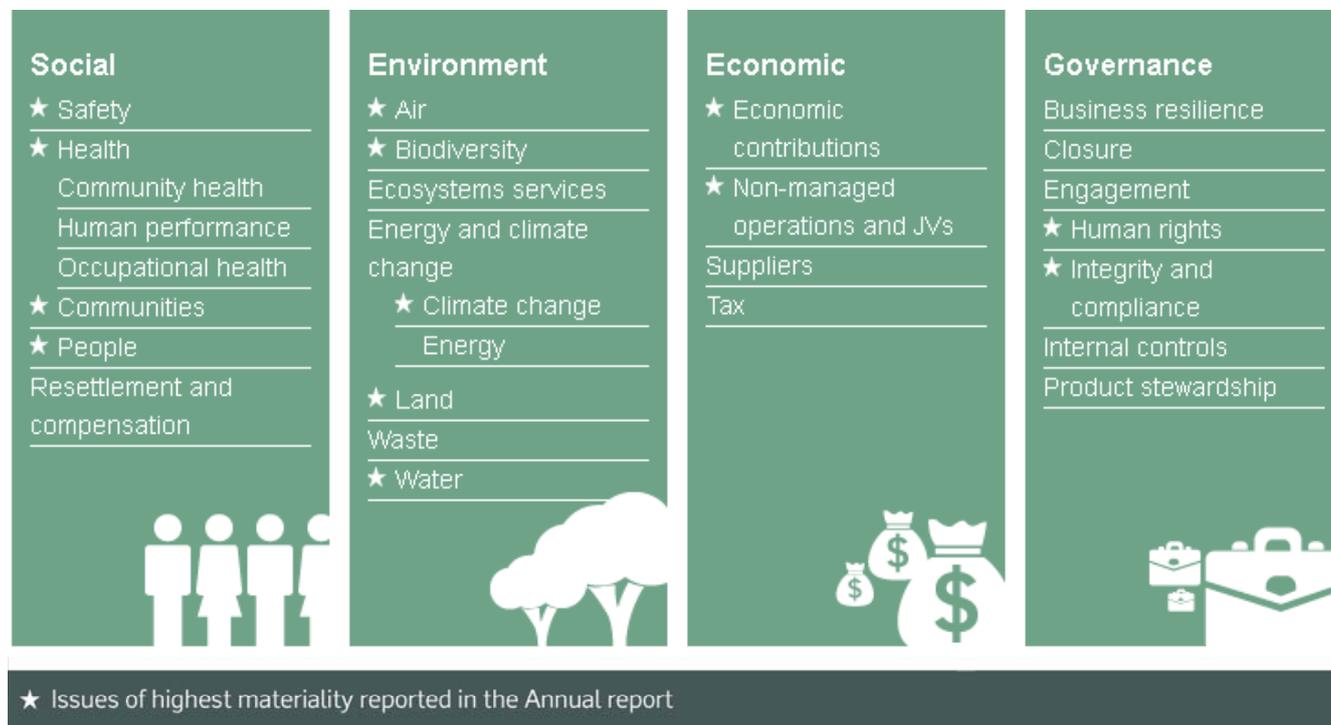
Next we evaluate how important an issue is internally to our business. We look at its potential impact on our financial performance, our brand and reputation, our stakeholder relationships, our production and ability to meet our customers' needs, and the possible ramifications from non-compliance.

This process dictates how the issues are covered in our reports.

- Those issues that are highly important to both internal and external stakeholders are included in Rio Tinto's [Annual report](#) (See diagram below)
- Those issues with a medium or high importance to internal or external stakeholders are included on this website

We do not publicly report against all topics, but omission from our report does not mean that an issue is not managed by the company.

Future materiality assessments will be used to evaluate if an issue that is currently omitted has become sufficiently important to report on it again. This approach will streamline our report, enhance its readability and improve transparency.



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## MDGs

Rio Tinto is committed to playing our part in the achievement of the [Millennium Development Goals](#) (MDGs). Since 2009 our communities global target has been pegged explicitly off the MDGs. The target states: all operations to have 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, by 2013. In 2012, 70 per cent of our operations have locally appropriate publicly reported social performance indicators in place.

This target is specifically aimed at economic development and increasing people's access to livelihoods, supply chains and economic resiliency. Rio Tinto businesses supported just under 2,800 socio-economic programmes covering a wide range of activities such as health, education, business development, housing, environmental protection and agricultural development during 2012. We spent an estimated US\$292 million on community assistance programmes and payments into trusts set up in directly negotiated community impact benefit agreements, but it is the direct and multiplier economic effects that demonstrate our real contribution and commitment to meeting the MDGs.

The resource sector can provide a strong base for the economic growth of a local area, a region, or a nation. Rio Tinto focuses on the ways in which it can bring sustainable socio-economic benefits to the areas in which it operates. The US\$173 million increase in spending compared to 2009 reflects a rebounding of Group activity and the establishment of new community agreements which involve direct payments to community controlled regional development trusts.

Here we use case studies, stories and examples set within the MDG framework to communicate our approach to sustainable development and to explain our community target-setting in line with the MDGs. 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". As with the MDGs, sustainable development cannot be achieved by one organisation, government or community on its own. We believe that our business can make an important contribution to the ongoing, global transition to sustainable development and to that end meaningfully contribute to the MDGs.

Read more about our contribution to meeting the [Millennium Development Goals](#) (PDF)

## Performance data

Rio Tinto's 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. You can also see detailed performance data of selected parameters broken down by product and location. Please see the [glossary](#) for further information on the terms used.

### Environment

	2012	2011	2010	2009	2008
Significant environmental incidents	7	11	18	12	17
Fines and prosecutions – environment (US\$ '000)	47.1	236.4	540.3	80.1	15.5
Energy use (Petajoules)	502	516	513	496	556
Greenhouse gas emissions – Scope 1 (million tonnes CO <sub>2</sub> equivalent)	26.9*	27.3*	27.2*	26.0*	30.1*
Greenhouse gas emissions – Scope 2 (million tonnes CO <sub>2</sub> equivalent)	16.4	17.1*	17.0	16.3	20.6*
Greenhouse gas emissions – total (million tonnes CO <sub>2</sub> equivalent)	41.0	43.2*	43.0*	40.9*	49.4*
Freshwater withdrawal (billion litres)	536	545*	530*	500*	538*
Freshwater use (billion litres)	447	465*	457	433*	468*
Land footprint – disturbed (square kilometres)	3,533	3,485	3,453	3,410**	1,373
Land footprint – rehabilitated (square kilometres)	446	422	420	402	471
Mineral waste disposed or stored (million tonnes)***	1,878	1,535	1,483	1,373	1,930
Non mineral waste disposed or stored (million tonnes)***	1.04	0.58	0.37	0.31	0.30
SO <sub>x</sub> emissions (thousand tonnes)	153	184*	193	205	201
NO <sub>x</sub> emissions (thousand tonnes)	72	72	69	65	83
Total fluoride emissions (thousand tonnes)	3.28	4.03	3.98	4.38	4.48
Particulate (PM <sub>10</sub> ) emissions (thousand tonnes)	133	109*	110	111	–

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

\*\* The land disturbed for Rio Tinto Alcan's hydroelectric dams was reported for the first time in 2009

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

– Indicates the parameter is not applicable or data is not available

### Social

	2012	2011	2010	2009	2008
Employees (average)	71,000	68,000	77,000	102,000	106,000
Fatalities at managed operations	3***	6**	3	4	18
All injury frequency rate (AIFR) (per 200,000 hours worked)	0.67	0.67	0.69	0.81	0.94*
Lost time injury frequency rate (LTIFR) (per 200,000 hours worked)	0.37	0.37	0.38*	0.42*	0.49*
Fines and prosecutions – safety (US\$ '000)	536.1	18.3*	92.3*	190.6	207.4
New cases of occupational illness (per 10,000 employees)	13	12*	20*	39*	48*
Employees potentially exposed to an average eight hour noise dose of more than 85db(A) (per 10,000 employees)	3,410	3,602*	3,605*	3,626*	3,582*
Fines and prosecutions – health (US\$ '000)	23.2	0.0	0.46	0.0	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. Includes one fatality at Zululand Anthracite Colliery (identified for divestment)

\*\*\* Two fatalities due to safety incidents and one fatality due to an occupational illness

– Indicates the parameter is not applicable or data is not available

### Economic

	2012	2011	2010	2009	2008
Gross sales revenue (US\$ million)	55,597	65,298*	59,008*	42,734	58,065
Operating cash flows (US\$ million)^	16,450	27,388	23,530	13,834	20,668
Underlying earnings (US\$ million)	9,303	15,549	13,987	6,298	10,303
Underlying earnings per share (US cents)	503.1	808.5	713.3	357.1	656.21
Underlying earnings before interest, taxes, depreciation & amortisation (US\$ million)	19,125	28,521	25,978	14,312	23,317
Profit for the year (US\$ million)	(3,004)	6,765	15,098	5,335	4,609
Net debt (US\$ million)	(19,261)	8,451	4,071	18,861	38,672
Capital expenditure (US\$ million)	17,418	12,298	4,553	5,356	8,488
Community contributions (US\$ million)	292	294	166	119	140
Wages and salaries paid (US\$ million)	8,215	6,789	6,951	6,696	7,009
Payments to governments (US\$ million)	11,575	12,587**	9,014**	4,380	5,759
Payments to suppliers (US\$ million)	30,271	28,444	27,486	23,481	29,653
Total value added (US\$ million)	26,195	38,193	33,812	21,363	28,412

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

\*\* 2011 and 2010 payments to governments have been restated to exclude refunds of sales taxes/excise duties/fuel taxes

– Indicates the parameter is not applicable or data is not available

^ Data includes dividends from jointly controlled entities and associates

### Governance

No current data on the site.

## Detailed performance data

### 2012 Greenhouse gas emissions by product group (million tonnes of CO<sub>2</sub> equivalent)

Product group	Scope 1 greenhouse gas emissions	Total greenhouse gas emissions
Aluminium*	8.2	8.3
Copper	1.6	2.8
Diamonds & Minerals	2.8	5.1
Energy	3.6	4.3
Iron Ore	3.9	3.8
Other**	6.8	16.6
<b>Rio Tinto total</b>	<b>26.9</b>	<b>41.0</b>

\*Aluminium includes Rio Tinto Alcan

\*\* Other includes Exploration, Technology & Innovation, Pacific Aluminium, Other Aluminium identified for divestment (Sebree and Lynemouth aluminium operations, three specialty alumina plants and the Gardanne refinery), Corporate offices, etc.

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

### 2012 Greenhouse gas emissions by location (million tonnes of CO<sub>2</sub> equivalent)

Location	Scope 1 greenhouse gas emissions	Total greenhouse gas emissions
Australia	11.4	19.9
Canada	6.9	6.9
France	0.9	1.4
South Africa	1.0	4.0
United Kingdom	2.1	0.5
United States	2.0	5.7
Other: Rest of Africa	1.0	1.1
Other: Rest of Europe	0.5	0.5
Other: Asia, New Zealand, Central America, South America	1.0	1.1
<b>Rio Tinto total</b>	<b>26.9</b>	<b>41.0</b>

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

### 2012 Water withdrawal by product group (billion litres)

Product group	Marine	Surface water	Groundwater	Municipal water	Total
Aluminium*	16	29	32	25	103
Copper	0	16	36	7.7	60
Diamonds & Minerals	5.3	92	17	4.9	119
Energy	0	26	5.2	7.8	39
Iron Ore	72	169	129	5.5	375
Other**	78	3.9	8.9	1.1	92
<b>Rio Tinto total</b>	<b>171</b>	<b>337</b>	<b>227</b>	<b>52</b>	<b>788</b>

\*Aluminium includes Rio Tinto Alcan

\*\* Other includes Exploration, Technology & Innovation, Pacific Aluminium, Other Aluminium identified for divestment (Sebree and Lynemouth aluminium operations, three specialty alumina plants and the Gardanne refinery), Corporate offices, etc.

Note: Values greater than ten billion litres are nearest billion

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

### 2012 Water withdrawal by location (billion litres)

Location	Marine	Surface water	Groundwater	Municipal water	Total
Australia	166	35	147	27	374
Canada	0.7	256	18	12	287
France	0	3.4	7.3	0.5	11
South Africa	0	16	4.6	7.1	28
United Kingdom	5.0	0.4	0	0.3	5.7
United States	0	15	31	2.1	48
Other: Rest of Africa	0	12	6.1	3.5	22
Other: Rest of Europe	0	0	11	0.2	11
Other: Asia, New Zealand, Central America, South America	0	0.2	2.3	0	2.5
<b>Rio Tinto total</b>	<b>171</b>	<b>337</b>	<b>227</b>	<b>52</b>	<b>778</b>

Note: Values greater than ten billion litres are nearest billion

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

## Detailed performance data continued

### 2012 Workforce by product group

Product group	Employees
Aluminium*	16,000
Copper	12,000
Diamonds & Minerals	9,000
Energy	6,000
Iron Ore	14,000
Other**	14,000
<b>Rio Tinto total</b>	<b>71,000</b>

\*Aluminium includes Rio Tinto Alcan

\*\* Other includes Exploration, Technology & Innovation, Pacific Aluminium, Other Aluminium identified for divestment (Sebree and Lynemouth aluminium operations, three specialty alumina plants and the Gardanne refinery), Corporate offices, etc.

### 2012 Workforce by location

Product group	Employees
Australasia	29,000
North America	19,000
Europe	9,000
Africa	9,000
Other	5,000
<b>Rio Tinto total</b>	<b>71,000</b>

The [UN Global Compact](#) (UNGC) is an accord between the United Nations and business for co-operation and promotion in upholding a set of core values in the areas of human rights, labour standards, environmental practice and anti-corruption. These values are reflected in [ten principles](#).

### Rio Tinto and the UN Global Compact

Rio Tinto is a founding member of the Global Compact, having become a signatory in 2000. More than ten years on we remain committed to the ten principles of the Global Compact, which are reflected in our policies, standards and guidance.

We submit our Communication on Progress (COP) annually to report our implementation of the ten principles. These cover four key areas: human rights, labour standards, environment and anti-corruption. The COP contains a statement of support from our chairman, a description of practical actions on each principle and outcomes achieved. We report our COP at the [GC Advanced level](#) and make it widely available to stakeholders.

Rio Tinto participates actively in the UNGC UK Local Network and is involved in the Network's Advisory Groups.

We regularly participate in Global Compact working groups and events such as the Human Rights Working Group, the Local Network meetings and expert group activities.

Download our [2011 Communication on Progress](#) (PDF)

## Glossary

### General

Term	Definition
GRI	The Global reporting initiative (GRI) provides 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 application level A+	GRI reports intended to qualify for application level A+ must contain the following: <ul style="list-style-type: none"> <li>• All GRI G3 profile disclosures</li> <li>• Management approach disclosures for each indicator category:</li> <li>• Respond to each core G3 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> <li>• External assurance on the report</li> </ul> For a report to be recognised as GRI based, self declaration of a level is required.
HSEQ management system	The Rio Tinto Health, Safety, Environment and Quality management system supports standardisation of corporate and business HSEQ 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.</p> <p>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></p> <p>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><small>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.undocuments.net/wced-ocf.htm">http://www.undocuments.net/wced-ocf.htm</a></small></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 (LCA)	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	A 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

## Glossary continued

	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	Large, low cost 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 hydro power. 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 10,000GJ. 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 15,000GJ. The total of these incidental sources must be less than two per cent of the facility's inventory and less than 60,000GJ</li> </ul>
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 use efficiency	<p>The amount of freshwater used per tonne of product.</p> <p>Rio Tinto's freshwater use efficiency target is evaluated as the per cent difference between freshwater use efficiency in the target year and the equivalent freshwater use efficiency in the baseline year. We use 2008 as the baseline year for our target.</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.</p>
Freshwater withdrawn	<p>Freshwater withdrawn includes:</p> <ul style="list-style-type: none"> <li>• Imported surface water (including 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>

## Glossary continued

	<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>
Freshwater withdrawn and used	<p>Freshwater withdrawn and used includes:</p> <ul style="list-style-type: none"> <li>• Imported surface water (including 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.</p> <p>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>
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, slurring, washing ore, dust suppression, wastewater / sewerage treatment, power generation, bathhouse, camp, canteen, offices, irrigating rehabilitated land and wash down.
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.</p> <p>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</p>

## Glossary continued

	(on-site emissions).
Scope 2 greenhouse gas emissions	Scope 2 emissions are greenhouse gas emissions from the imports of electricity, heat or steam from third parties (indirect emissions).
Scope 3 greenhouse gas emissions	Scope 3 emissions are other indirect greenhouse gas emissions.
Stationary sources	Emission release points that do not move, such as power stations, smelters, refineries and concentrators. Compare with "mobile sources".
Total greenhouse gas emissions	Scope 1 emissions + Scope 2 emissions emissions associated with electricity and steam exported to others net carbon credits voluntarily purchased from, or sold to, recognised sources.
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.</p> <p>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.</p> <p>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>

## 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>• 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> <li>• Rate of employee exposure to noise = number of employees exposed to more than 85dB(A) noise 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 rate of employee exposure to noise) are evaluated using employee data only. Whilst diagnosed occupational illnesses are recorded for contractors, this data is not included in the evaluation of performance against our health targets. Developing operations that were not part of the target baseline and operations acquired during the target period are excluded when assessing performance against these targets. Divested or 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	The total number of hours worked by employees and contractors at a facility where one or more

## Glossary continued

	<p>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	<p>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.</p>
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	<p>An injury or occupational illness that results in one or more days/shifts away from work, excluding the day of the incident.</p>
Lost time injury or occupational illness	<p>The sum of fatal, lost day and restricted work day injuries or illnesses.</p>
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)</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</li> <li>• 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> </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	<p>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.</p>
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 one time 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</p>

## Glossary continued

	potential risks and to take appropriate precautions. The duration of occupational exposure is limited to the duration of the working day or duty shift per 24 hours and the duration of the working lifetime.
Occupational exposure limit (OEL)	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.
Occupational illness	<p>An illness or disease is distinct from an injury. One event cannot be both. An occupational 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 is only 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 amputations of limbs above tip of toes/fingers); 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>
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.