Our value chain

Image: Shiploading, Weipa, Australia
Governments and communities want assurance we are sharing the value we create through taxes, employment, procurement opportunities and local investments. Also, responsible supply chain practices are critical to our licence to operate and our customers seek greater transparency about the minerals and metals we supply. They want to know that our materials have been produced in responsible ways.

This section outlines how we’re achieving a sustainable value chain – through supporting economic growth, working with our suppliers and customers and managing the impacts of our products across their life cycles.

Our commitment to sustainable development extends from the way we extract materials from the ground through to the way they are used by our customers. We seek to achieve high industry standards and expect this of our value chain partners too. We remain committed to delivering lasting benefits.
Natural resources are an important source of value for us and for the countries that have them. As a mining and metals company, accessing these resources brings responsibility and it’s important we share the benefits with our host communities in a fair and equitable manner.

Our economic contributions are part of the lasting benefit we make to the countries and communities where we work.

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

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

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

**2016 performance**

In 2016 the Group’s direct economic contribution was US$35.1 billion globally. This included:

- US$19.5 billion in value add made up of payments to employees (wages), payments to governments (taxes and royalties) and returns on capital investment (interest payments, shareholder dividends and retained earnings).
- US$15.6 billion of payments to suppliers.

During 2016 our capital investment was US$3.0 billion, attributed to growth projects in Australia and Mongolia.

**Direct economic contribution**

(US$ million)

35,152

**Distribution of economic contribution**

(percentage)

- Payments to suppliers: 44
- Reinvested: 22
- Payables to governments: 11
- Wages and employee benefits (excluding Payroll Tax): 13
- Dividends and finance items: 9
- Royalties: 1

Note: The sum of the categories may be different due to rounding.

Note: Value add can be thought of as the value that a company has added to its inputs through its processes of production. It can be thought of as the sum of payments to labour (wages), the State (taxes and royalties), and to capital (interest payments to debt providers, dividends to shareholders, and retained earnings).
Sharing the benefits of the world’s natural resources

Discretionary contributions

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct community programmes</td>
<td>US$46.9m</td>
</tr>
<tr>
<td>Benefit receiving trusts</td>
<td>US$104.9m</td>
</tr>
<tr>
<td>Management costs</td>
<td>US$14.5m</td>
</tr>
<tr>
<td>Total</td>
<td>US$166.3m</td>
</tr>
</tbody>
</table>

Direct contributions

<table>
<thead>
<tr>
<th>Level</th>
<th>Salaries</th>
<th>Payable to governments</th>
<th>Payments to suppliers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>US$3,075m</td>
<td>US$379m</td>
<td>US$4,527m</td>
<td>US$7,981m</td>
</tr>
<tr>
<td>Regional</td>
<td>US$375m</td>
<td>US$1,669m</td>
<td>US$2,622m</td>
<td>US$4,666m</td>
</tr>
<tr>
<td>National</td>
<td>US$1,100m</td>
<td>US$1,873m</td>
<td>US$5,261m</td>
<td>US$8,235m</td>
</tr>
<tr>
<td>International</td>
<td>US$115m</td>
<td>US$104m</td>
<td>US$3,226m</td>
<td>US$3,445m</td>
</tr>
</tbody>
</table>

Total

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>US$166.3m</td>
</tr>
</tbody>
</table>

Note: The sum of the categories may be different due to rounding.
The direct contributions breakdown is provided only for material balances including salaries and payable to governments which are included in the total value add number.
Promoting responsible practices from mine to market

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

One way to achieve this is by seeking suppliers whose values are consistent with ours. We clearly communicate our policies to our suppliers and conduct regular training with our internal teams. All procurement employees are required to complete human rights training.

In remote and less-developed parts of the world we share tools and knowledge with local suppliers to increase supply chain reliability and encourage good social and environmental practices. Our product stewardship strategy and programmes guide our approach to managing regulatory, life cycle and sustainability risks and opportunities in delivering our product to market. Our programmes address the regulatory requirements of both our host countries and end markets.

In 2016 the EU finalised new conflict minerals legislation which comes into effect in 2021. We have reviewed our operations in light of the legislation and consider that the changes won’t directly impact our business. Our human rights policy and The way we work help us prevent financing or supporting conflict either directly or through our supply chain.

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

The focus on sustainable supply chains is an opportunity for us. Our aluminium business has one of the lowest carbon footprints in the industry, and we have also introduced RenewAl™, a low CO₂ aluminium brand. We continue to explore other opportunities.

2016 performance

We launched our new Supplier code of conduct, which outlines our human- and labour-rights, safety and environment expectations of suppliers, their subsidiaries and sub-contractors. The Code is available on our website and 32,000 copies were distributed to our current suppliers.

We launched our Know your supplier procedure which establishes our process to understand legal, ethical and reputational risks arising from use of a supplier.

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

We launched our Australian Diamonds™ programme in the US, China and India. Australian Diamonds™ is an independently audited chain of custody system developed with authorised diamond and jewellery manufacturers and retailers. The system provides consumers with the assurance that their Argyle diamonds are traceable, from the mine to the market.

During the year, we supported ICMM on a modified global corrosion test for solid bulk cargoes. Once finalised, the test will be included in the International Maritime Solid Bulk Cargoes Code. We are leading work on a new bauxite schedule for this code, which will ensure safe shipping of bauxite through application of appropriate test protocols for the likelihood of bauxite vessels capsizing due to liquefaction of the cargo.

The value chain of our products: from extraction through to their end-of-life

<table>
<thead>
<tr>
<th>Mining</th>
<th>Sourcing</th>
<th>Production</th>
<th>Distribution</th>
<th>End-of-life</th>
</tr>
</thead>
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<tr>
<td></td>
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Cross-functional practices
Many mining projects are rich in superlatives – and the Oyu Tolgoi copper-gold mine in Mongolia’s South Gobi desert is no exception. With a potential productive life of more than 75 years, Oyu Tolgoi was the country’s largest taxpayer in 2015. Between 2010 and 2016 it injected US$6.1 billion into the Mongolian economy through salaries, payments to Mongolian suppliers, taxes and other payments to the Government.

As with all operations on this scale, a crucial question is how will Oyu Tolgoi’s environmental, social and economic contributions remain positive over time. A unique and challenging location

Eighty kilometres north of the Mongolia-China border, Oyu Tolgoi is jointly owned by the Government of Mongolia (34 per cent) and Turquoise Hill Resources (66 per cent, of which Rio Tinto owns 51 per cent). Since 2010, Rio Tinto has also been the manager of the Oyu Tolgoi project.

Oyu Tolgoi’s open pit mine began producing copper in 2013. The underground mine, which began development in 2016, will allow access to 80 per cent of the expected value of the mine.

Located in an isolated and underdeveloped region, the question of sustainability both challenges and provides opportunities for Oyu Tolgoi. Its scale means it affects both settled and nomadic communities, many of whom have lived off the land for thousands of years. To contribute to both social and economic sustainability, the operation has to ensure benefits flow to the local economy and people and help build long-term prosperity. It is important its contribution to local communities is positive.

The South Gobi is also rich in biodiversity and home to a unique ecosystem that features rare plant species. The mine’s development must be sensitive to this fragile environment. And in a water-scarce area, the water-intensive mining process needs to operate without depleting this most precious of resources.

Development based on mutual agreement

The operation already makes a major direct contribution to the Mongolian economy and society. In addition to its contributions through taxation, the multi-billion dollar investment, which includes thousands of relatively well-paid employees and contractors, has a “multiplier effect”, stimulating the economy indirectly.

Armando Torres, managing director, Oyu Tolgoi, said partnerships were central to the way Rio Tinto shared the value created from the region’s highly valuable resources.

“To be successful, any project we develop has to deliver mutual benefit through genuine partnership,” Armando said.

“The ideal legacy for Oyu Tolgoi is that together with our employees and our partners in the government, our neighbouring communities and our suppliers, we deliver a sustainable, world-class Mongolian business that generates ongoing value for the country and showcases the capabilities and assets of Mongolia for generations to come.”

Partnerships require an understanding of social and environmental impacts in great detail, and in the context of a project that spans a long timeframe and many stakeholders. To date, partnership agreements have underpinned the value this operation has released for all involved.

Investment Agreement

Signed in 2009, the Investment Agreement covers tax rates and clarifies requirements and expectations around infrastructure, regional development, employment and local content. With a 30-year initial term and two 20-year extensions, this agreement matches the duration of the mining licence at Oyu Tolgoi. The Agreement, which took six years to negotiate, provides a stable and predictable legal structure for the business to invest the billions of dollars required to develop the mine and subsequent infrastructure.

A subsequent shareholder agreement between Turquoise Hill, Rio Tinto and the Government of Mongolia regulates corporate governance on the project and funding arrangements between shareholders.
The importance of the process
The discussions and planning involved in forming partnerships are just as important as the agreement itself.

In establishing the Underground Development and Finance plan, the company worked with the project’s partners to overcome points of disagreement – constructively and respectfully. This included local tax law interpretations, and how aspects of the underground project would be approached – such as feasibility studies and funding structure.

The plan, which was signed in 2015 after two and a half years of negotiation, closed the chapter on Oyu Tolgoi’s initial development and made sure that issues relating to the underground project were clarified and agreed with the Government. This allowed Oyu Tolgoi to move forward on the project with a common understanding.

Delivering benefits for generations to come
This significant investment demonstrates the confidence of all the partners in both the Oyu Tolgoi mine and in Mongolia. It also demonstrates the attractiveness of Mongolia as a place to do business and invest, which will be a catalyst for further investments that will strengthen Mongolia’s economy.

The development of the underground will create further jobs, support Mongolian suppliers and unlock substantial value for all stakeholders, delivering benefits for all Mongolians for generations to come. This is a proud day for Mongolia and is a clear demonstration that the country is back to business.”

Chimediin Saikhanbileg
Prime Minister of Mongolia MP

Supporting local suppliers
623
Mongolian suppliers, comprising 62% of total procurement spend

89
suppliers from South Gobi province
Delivering benefits for generations to come

Sharing the benefits with local communities

Community partnerships have played an important role in ensuring the operation’s funds are directed to where they’re needed most.

In 2015, after four years of discussion and negotiation, Oyu Tolgoi established a Cooperation Agreement with its partner communities Umnugobi aimag (province) and Khanbogd soum (county) as well as Manlai, Bayan-Ovoo and Dalanzadgad soums.

The first of its kind in Mongolia, this Agreement commits Oyu Tolgoi and these communities to work together for mutual benefit, promoting socioeconomic development for current and future generations. It is an international-standard agreement, setting a new benchmark in Mongolia.

The cooperation agreement has seven thematic areas:

– Water management
– Environmental management
– Traditional animal husbandry and pasture management
– Natural history, culture and tourism
– Social services
– Local business development and procurement
– Infrastructure and capital projects

A key benefit of the agreement is the transparency with which community and regional development projects are funded. All key stakeholders, including local and provincial governments and community groups, discuss how funds are going to be used – whether it’s education, hospitals or infrastructure.

Specific interest groups within Oyu Tolgoi and partner communities work together on each area. For example, the operation’s procurement department engages with communities and local government to encourage business growth: this is an area where Oyu Tolgoi can make a large contribution to the wellbeing and wealth of partner communities.

Strengthening the social fabric

The Cooperation Agreement was closely followed in September 2015 by the launch of the “Gobi Oyu Development Support Fund” (DSF), which makes US$5 million available each year for sustainable development in the South Gobi.

In just over one year, the Gobi Oyu Development Support Fund has already initiated seven social infrastructure projects and 21 sustainable development programmes. These include:

– two kindergartens in Dalanzadgad, creating 67 jobs, with a school and kindergarten complex planned for Khanbogd soum in 2016-2018;
– an animal health care centre serving the Khanbogd, Manlai, Bayan-Ovoo and Tsotgtsetsei soums;
– a medical rehabilitation and therapy centre for disabled people;
– an urban culture training programme that reached 16,000 people;
– an animal disinfection programme covering 2.2 million head of livestock; and
– promoting local procurement – in 2016 Oyu Tolgoi spent US$69 million with 89 South Gobi suppliers.

In addition to the initiatives delivered by the Development Support Fund, Oyu Tolgoi has built new infrastructure such as roads, sporting and recreational facilities and a bulk water supply system – further improving living conditions for the local community.

Efficient use of scarce resources

The way Oyu Tolgoi manages water resources is of great importance to the local Khanbogd herders, whose livelihoods depend on it. It’s also a key theme covered by the Cooperation Agreement.

Water is precious in the arid South Gobi region, which receives on average 57mm of rainfall each year. Local herders rely on shallow sources of groundwater from springs and wells for their animals.

Producing copper concentrate from ore is, however, water-intensive. So to find a sustainable solution that doesn’t conflict with the population, Oyu Tolgoi surveyed the area seeking a suitable underground water supply. The work uncovered the Gunii Hooloi aquifer, a 150-metre deep resource holding 6.8 billion cubic metres of non-drinkable saline water. Oyu Tolgoi is allowed to use 20 per cent of this, sufficient for 40 years.

The operation also goes to great lengths to use its allocated water efficiently. More than 80 per cent of the water used in production is recycled. Recycling and conservation practices mean that on average Oyu Tolgoi uses 520 litres of water to process a tonne of ore, around one half the industry average (more than 1,000 litres for each tonne of ore processed). The mine also works with herders, local people and the government to protect the water in boreholes, existing wells and other community water supplies.

Working to protect cultural heritage

The South Gobi has a rich cultural heritage that includes “tangible” heritage, such as archaeological and paleontological sites, and “intangible” heritage and social practices that include rituals, folklore, music, material crafts, traditional knowledge, places of cultural or sacred interest, and protected landscapes. Oyu Tolgoi has been proactively implementing cultural heritage protection and preservation programmes within South Gobi and its partner communities. These include:

– Undertaking joint cultural heritage site monitoring with the Khanbogd soum government and local herders.
– Hosting Gobi cultural awareness training conducted by Khanbogd elders for 599 visitors at Oyu Tolgoi’s culture ger.
– Supporting the Shar Tsav and Hurdet cave cultural heritage protection and tourism programme in Manlai soum.
– Contributing to the Manlai soum museum renovation.
– Working with the Khanbogd Elders’ Association to pass down traditional culture and knowledge to the younger generation.
– Supporting the Naadam Festival, Camel Festivals and Mountain Worshipping ceremonies in partner communities.
– Providing cultural heritage induction for Oyu Tolgoi employees and contractors.

2016 Sustainable development report
riotinto.com/sd2016

Our value chain: 67
Delivering benefits for generations to come

Fifteen years of milestones

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>First major discoveries made</td>
</tr>
<tr>
<td>2009</td>
<td>Rio Tinto appointed manager of Oyu Tolgoi</td>
</tr>
<tr>
<td>2010</td>
<td>Investment Agreement signed</td>
</tr>
<tr>
<td>2012</td>
<td>Concentrator plant commissioned</td>
</tr>
<tr>
<td>2013</td>
<td>First batch of copper concentrate produced</td>
</tr>
<tr>
<td>2014</td>
<td>Oyu Tolgoi Umnugovi Cooperation Agreement signed</td>
</tr>
<tr>
<td>2015</td>
<td>Plan for underground development agreed</td>
</tr>
<tr>
<td>2016</td>
<td>US$4.4 billion project finance agreement signed</td>
</tr>
</tbody>
</table>

Oyu Tolgoi at a glance

- **499 mt**: Probable ore reserves
- **3,000**: Workforce
- **175,000-275,000** tonnes of copper per year, projected to rise to more than 500,000 tonnes per year when the underground mine finally reaches its full design output in 2027. The mine also benefits from significant gold by-products, with an average gold grade of 0.35 grams per tonne

Promoting local employment

- **93.5%**: Mongolian workforce
- **22%**: hired from South Gobi province
- **100%**: Mongolian frontline leaders

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(1) Oyu Tolgoi resources and reserves are taken from Rio Tinto’s 2015 Annual Report dated 2 March 2016 and released to the market on 3 March 2016. Oyu Tolgoi underground reserves include Hugo Dummett North and Hugo Dummett North Extension. The Competent Persons responsible for that previous reporting were J Dudley (AusIMM Reserves), R Singh (AusIMM Reserves) and O Togtokhbayar (AusIMM Resources). Rio Tinto is not aware of any new information or data that materially affects these resource estimates, and confirms that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The form and context in which the Competent Persons’ findings are presented have not been materially modified.

(2) This production target (stated as payable metal) for the Oyu Tolgoi underground and open pit is underpinned three per cent by proven ore reserves and 97 per cent by probable ore reserves for the years 2025-2030, which have been scheduled from current mine designs by Competent Persons in accordance with the requirements of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves, 2012 Edition.