

# SUSTAINABILITY

# REPORT

# 2016



WE MINE FOR  
PROGRESS

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**Cover image:** Sypheng Kommaly working at the Sepon nursery for mine rehabilitation.

**Image:** Damien Kahambwe, Kinsevere Community Advisor, pictured with children from one of the local villages.



**At MMG we mine for progress.**

Our vision is to build the world's most respected diversified base metals company. A long-term outlook, our pride in mining, our commitment to international standards and our respect for people, land and culture underpin our success.

# ABOUT THIS REPORT

## REPORT BOUNDARY AND SCOPE

In this report 'MMG' refers to MMG Limited and its subsidiaries, unless described otherwise. MMG Limited is individually referred to as the 'Company'.

Our report covers the activities of MMG's Group office, headquartered in Melbourne, and all of MMG's mining and associated activities. Our Hong Kong office and the Avebury mine (Tasmania) are not included in this report due to immaterial impacts.

Data is reported for the period 1 January to 31 December 2016. We have included information relating to the previous reporting period where data is comparable and adds useful context to the discussion. Our people numbers are as at 31 December 2016.

All data is reported on a 100% equity basis.

Note: While this does not affect the report scope for 2016, in early 2017 MMG announced the sale of its Golden Grove mine in Western Australia and Century assets and infrastructure in north-west Queensland.

## REPORTING APPROACH

Our report is prepared in accordance with the Global Reporting Initiative's (GRI) 2013 Core Sustainability Reporting Guidelines (G4) and GRI's Mining and Metals Sector Disclosure Guidelines. It includes the G4 indicators selected for each of our material issues. The GRI Index can be found in the Appendix to the Sustainability Report at [www.mmg.com](http://www.mmg.com). Our water reporting is aligned with the Minerals Council of Australia's Water Accounting Framework.

Currency is reported in US dollars, unless stated otherwise.

This report is reviewed and approved by our Disclosure Committee.

## MATERIALITY ASSESSMENT PROCESS

We periodically conduct a GRI-aligned materiality assessment to ensure we report on the issues which matter most to our stakeholders.

We undertook a detailed review of our material issues in 2015. This involved a desktop review of public commentary on MMG over the previous 12 months, MMG Risk Registers, key industry association publications and interviews with both internal and external stakeholders. Issues were prioritised by importance from an internal and external perspective. An internal validation process then confirmed the top 12 issues.

There were no material changes to the structure of the business in 2016 that would warrant a detailed materiality review. However, an internal review conducted during 2016 resulted in minor changes being made to the scope and boundaries of the issues (refer to the list of material issues on page 3).

## EXTERNAL ASSURANCE

Deloitte has conducted independent limited assurance over elements of this report, guided by the International Council on Mining and Metals (ICMM) Assurance Procedure (refer to Assurance terms and statement on page 48). This included assurance of our alignment with the requirements of GRI G4 core level reporting.

The limited assurance focused on three of the 12 material sustainability issues identified through our materiality assessment process. The three issues selected through a random process were:

- > tailings and waste rock management;
- > strategy and growth; and
- > social and economic impacts of mine closure.

## OUR MATERIAL ISSUES GROUPED UNDER EACH OF OUR FOUR REPORTING THEMES

- The way we work
- We minimise our impact
- Who we are
- We mine for progress



### WE MINE FOR PROGRESS

<b>Social development and investment</b>	Working with communities, governments and other partners to measurably support development and economic livelihoods. Includes employing local people, local procurement and investing in regional infrastructure.	pages 28–35
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### WHO WE ARE

<b>Sovereign risk and government relationships</b>	Managing sovereign risk that impacts our business and maintaining positive government relationships in the context of significant change in the political environments for our operations.	page 10
<b>Strategy and growth</b>	Licence to grow through commissioning Las Bambas, consistent performance and a pipeline of exploration and acquisition opportunities, despite economic conditions. Alignment of approach to business vision.	page 8

### WE MINIMISE OUR IMPACT

<b>Land management and rehabilitation</b>	Managing land holdings effectively over the life of the operation, including their progressive rehabilitation and relinquishment, and provisioning for closure.	pages 41–44
<b>Social and economic impacts of mine closure</b>	Managing the impacts of mine closure on community employment and economic development. Exploring opportunities for economic transition and the ongoing use of mining related infrastructure.	pages 42–44
<b>Tailings and waste rock management</b>	Managing acid mine drainage and tailings infrastructure.	pages 39–41
<b>Water access and use</b>	Recognising that water is an asset with social, economic and environmental value. Managing water access, freshwater withdrawal, water inventory and discharge quality.	pages 36–37

### THE WAY WE WORK

<b>Community engagement</b>	Community engagement and participation in planning and decision-making across life-of-asset.	pages 17–18, 42–44
<b>Compliance and conformance</b>	Regulatory compliance and acting responsibly across our operations, in line with our values.	pages 16–17
<b>Corporate governance and business ethics</b>	Maintaining strong corporate governance and business ethics in the context of expanding operations in complex jurisdictions.	pages 15–16
<b>Human rights</b>	Managing the impacts of our operations on human rights. Includes coverage of security and artisanal mining.	pages 24, 26
<b>Safety and health</b>	Maintaining workforce safety and health.	pages 21–25

# CHIEF EXECUTIVE OFFICER'S MESSAGE

It is my pleasure to present this Sustainability Report, my first as the new CEO of MMG. First, I would like to acknowledge the great work of my predecessor, Andrew Michelmore. I look forward to building on his legacy in terms of operating and social performance, health, safety and environmental stewardship.

Our strategy has not changed. I have been with this organisation from the beginning and together with Andrew, the Board and Management, have set the strategy and the vision for MMG. Our objective is to be valued as one of the world's top mid-tier miners by 2020. With the support of our major shareholder, China Minmetals Corporation, we are well positioned to grow and continue to bridge between Eastern capital and Western assets.

At MMG, our commitment to safety is unwavering. It is our first value and is at the centre of everything we do – we believe that nothing is so important that it cannot be done safely. Despite this, we don't always get it right. During 2016 we had some great successes, but these must be measured against the backdrop of two tragic fatalities at our Las Bambas operation in Peru.

In July Felipe Leon Chavez, who was employed through one of our logistics contractors, died following a road incident in Peru's Cotabambas province. In December Henri Aldana Chanca, a contractor, was fatally injured by an uncontrolled release of water at our Las Bambas operation. My thoughts, and those of everyone at MMG, are with their families, friends and all those who knew them. Fatalities at work are unacceptable. These tragic events remind us that we must continue to hold safety above all other values and priorities.

To that end, during the year we saw strong reductions in our injury rates across the organisation. Our operations ended 2016 with a total recordable injury frequency (TRIF) of 1.90 for the full year which represents an average 9.6% year-on-year reduction in injury rates since the end of 2012.

Despite many years of engagement, our relationship with the communities along the transport corridor at Las Bambas has been challenging. In late 2016 the Government of Peru and local communities agreed on a framework for future dialogue and cooperation in the region. We remain committed to working together with government and communities to support dialogue and build long-term solutions for the region (refer to page 20).

We enjoyed some major successes during the year. We completed, commissioned and ramped up Las Bambas in Peru, one of the world's largest copper mines, in one of the least developed regions of Peru. Local communities have been benefiting from our presence already for many years. Infrastructure upgrades, employment and business development and extensive social development programs have delivered significant local benefits. In 2016 Las Bambas paid more than US\$34.3 million in first royalties from the operation to the Peruvian Government.

We also started construction of the Dugald River project which is expected to be a global top-10 zinc mine when in production. Construction remains on target with almost half of the project now complete. Production of first concentrate is expected in the first half of 2018.

In Laos we continued our commitment to the nutrition and health of women and children by extending our partnership with UNICEF, the Lao Government and



the Lao Women's Union. This commitment includes contributing an additional US\$1.39 million to the 1000 Day Project (refer to page 31).

I am proud to note that at our Kinsevere copper operation we championed a change in legislation which will allow our female employees to broaden their career horizons by working night shifts. This is a first for women in the Democratic Republic of the Congo (DRC) (refer to page 10).

During the year we continued active participation in public forums, national and commodity associations and cooperative sustainable development initiatives such as the International Council on Mining and Metals (ICMM), of which Andrew Michelmore is currently Chair. We are fully committed to upholding ICMM's principles and driving best practice standards.

I would like to thank our shareholders, communities, and our people for your ongoing support. We look forward to a safe and prosperous 2017 as we continue to mine for progress.

**Jerry Jiao**  
Chief Executive Officer

# YEAR IN REVIEW

## WE MINE FOR PROGRESS

	<b>Social development and investment</b>	We completed resettlement of the community of Nueva Fuerabamba at Las Bambas. In Lao PDR we committed another US\$1.39 million to a second phase of the 1000 Day Project, our partnership with the Lao Ministry of Health, UNICEF and the Lao Women's Union to address childhood malnutrition.	page 31
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## WHO WE ARE

	<b>Diversity and inclusion</b>	In the DRC, management at Kinsevere mine engaged with government and other stakeholders to change the law banning women from working at night.	page 10
	<b>Strategy and growth</b>	Our Las Bambas copper mine in Peru commenced commercial production. We confirmed financing and commenced construction of the Dugald River zinc project. We streamlined our portfolio of assets to position the Company for future growth.	page 8

## WE MINIMISE OUR IMPACT

	<b>Land management and rehabilitation</b>	At Las Bambas, genetic sequencing analysis confirmed the discovery of an undescribed species of lizard ( <i>Liolaemus</i> ) at the project area.	page 42
	<b>Social and economic impacts of mine closure</b>	We re-examined our approach to mine closure and future economic opportunities at Century mine in Queensland. The Sepon copper Mine Closure Plan was developed with stakeholder input and endorsed by the Lao Government.	pages 43, 44

## THE WAY WE WORK

	<b>Safety and health</b>	Tragically, two employees of our contractors were fatally injured at Las Bambas. Across the Company we improved our TRIF to 1.90 per million hours worked in 2016 which represents an average 9.6% year-on-year reduction since the end of 2012.	page 21
	<b>Community engagement</b>	At Las Bambas, we consistently engaged in dialogue with communities around the operation and along the transport corridor. The Government of Peru and local communities reached an agreement for a framework for future dialogue and cooperation in the region.	page 20
	<b>Compliance and conformance</b>	We replaced 11.5km of the tailings pipeline at Sepon to eliminate leaks to the environment.	page 16–17
	<b>Corporate governance and business ethics</b>	We refreshed and updated our Code of Conduct to improve governance and reflect the changes in our business since it was first published in 2012.	page 15
	<b>Human rights</b>	We improved our grievance reporting mechanism to ensure alignment with the United Nations (UN) Guiding Principles on Business and Human Rights.	page 19



# WHO WE ARE

Headquartered in Melbourne, Australia, MMG is a mid-tier, global producer of base metals including copper and zinc. MMG is listed on the Hong Kong Stock Exchange (HKEx:1208) and has a secondary listing on the Australian Securities Exchange (ASX:MMG).

At MMG we mine to build wealth through developing our people, investing in improving local capability and delivering value to our shareholders. Working in partnership with our major shareholder, China Minmetals Corporation (CMC), our objective is to become a top mid-tier miner by 2020 and the world's most respected diversified base metals company. MMG was founded in 2009 based on a model of international best practice and management supported by Chinese investment.

We operate and develop copper, zinc and other base metals projects across Australia, the Democratic Republic of the Congo, Lao PDR and Peru. We also have significant exploration projects and partnerships across Australia, Africa and the Americas.

## PERU



### 1 Las Bambas mine

#### Ownership

MMG	62.5%
Guoxin International Investment Co. Ltd	22.5%
CITIC Metal Co. Ltd	15.0%

#### Products Copper concentrate

 2016 workforce*	9,134
 Female employees**	8%



### DEMOCRATIC REPUBLIC OF THE CONGO (DRC)



2 Kinsevere mine

#### Ownership

MMG **100%**

Products Copper cathode

2016 workforce\* **2,431**

Female employees\*\* **10%**

#### CORPORATE

2016 workforce\* **660**

Female employees\*\* **38%**

### LAO PDR



3 Sepon mine

#### Ownership

MMG **90%**  
Lao Government **10%**

Products Copper cathode

2016 workforce\* **2,713**

Female employees\*\* **15%**

#### EXPLORATION†

2016 workforce\* **139**

Female employees\*\* **18%**

### AUSTRALIA



- 4 Golden Grove mine
- 5 Century mine
- 6 Dugald River project
- 7 Rosebery mine

#### Ownership

MMG **100%**

Products Copper, zinc and lead concentrates

2016 workforce\* **1,027**

Female employees\*\* **11%**

\* Workforce includes employees and contractors.  
 \*\* Percentage of Female employees has been calculated excluding contractors.  
 † Includes Izok Corridor workforce.  
 For further details on our people data by site, please refer to our Appendix on [www.mmg.com](http://www.mmg.com)

## OUR PEOPLE

We are committed to building a partnership with our people and ensuring we have the right people, in the right place, at the right time to deliver on MMG's strategy. We recruit diverse, talented people and encourage them to develop both professionally and personally.

In 2016 MMG employed 16,105 employees and contractors, a 5% increase on 2015.

The proportion of full-time employees decreased slightly from 39% in 2015 to 32% in 2016. This was the result of structural change within operations and the Exploration Group. During the year the contracted labour force increased by 19% due largely to Las Bambas coming into commercial production.

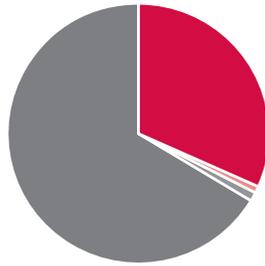
Our annualised turnover (voluntary and involuntary) increased from a combined 13% in 2015 to 24% in 2016. The main contributing factor was an almost two-fold increase in involuntary turnover as a result of company-initiated structural changes. Voluntary turnover rose slightly, driven predominately by an increase at Las Bambas.

## DIVERSITY AND INCLUSION

At MMG we believe that a diverse workforce enables us to deliver our business objectives. We strive for an inclusive, equitable and collaborative culture where our people are treated fairly. Valuing diversity helps increase our competitive advantage by attracting and retaining talent, driving high performance and sustainably delivering our business objectives.

Our Global MMG Diversity and Inclusion Council assists in shaping our organisational culture. It is supported by regional Diversity and Inclusion committees which deploy local and culturally relevant initiatives.

**FIGURE 1: TOTAL WORKFORCE COMPOSITION IN 2016 (IN FULL-TIME EQUIVALENTS)**



● Full-time employees	32%
● Part-time employees	<1%
● Casual	<1%
● Contractors	68%

## OUR CUSTOMERS

We sell our products to customers around the world. We sell copper cathode produced at Kinsevere and Sepon to major consumers in the Middle East and Asia. We export copper, zinc and lead concentrates produced at our Australian operations to customers in China, Japan, Korea and Europe. Zinc and lead concentrates are also sold to smelters in Australia.

## GROWTH STRATEGY

At MMG our objective is to be valued as one of the world's top mid-tier miners by 2020. To do this we need to continue to expand both our operations and our production.

Our growth strategy is to:

- > identify opportunities to maximise the potential of our existing assets through increasing efficiency and cost savings;
- > pursue organic growth opportunities through our project pipeline and exploration strategy; and
- > pursue external growth, including targeting quality value-adding acquisitions.

We have built a strong foundation for growth on a philosophy of simplicity and efficiency. Our Operating Model and Standards are two key enablers that help us achieve this.

The support of our major shareholder, CMC, is fundamental to our success. MMG and CMC are becoming increasingly important to each other and, together, we are increasingly

regarded as China's leading international resource group.

We remain committed to implementing industry-leading practices in corporate governance, safety, operational excellence and environmental management.

In 2016 we delivered on our growth mandate by successfully achieving commercial production at Las Bambas ahead of schedule, and by securing finance and commencing construction of our Dugald River zinc project in Queensland.

We also streamlined our asset portfolio. Although outside this reporting period, in early 2017 we completed the sale of the Golden Grove and Century mines. In 2016 we entered into a conditional sales agreement for the non-operating Avebury mine in Tasmania. These asset sales allow us to optimise our asset portfolio and focus resources on our core operating and growth assets. Proceeds from the sales will be used to pay down debt and reduce future financial liabilities.

We completed a US\$511 million equity-raising in late 2016, the proceeds of which have been and will be used to reduce corporate debt and partially fund the Dugald River growth project. The equity raising and asset sales have strengthened our balance sheet and further streamlined our portfolio to set a strong foundation for further organic or external growth opportunities.

Fundamental to our ongoing success is maintaining strong relationships with our local communities, regulators and host nations and ensuring that local economies and communities receive tangible benefits from our operations. These relationships are crucial for our ongoing development and success.

We remain confident that our key commodities of copper and zinc have an attractive long-term outlook. We believe that increasing supply-side constraints will intersect with ongoing demand. With the strategic insight and financial support of CMC, we are well placed to be positioned as a globally significant base metals producer.

## 2016 MMG PROGRESS AWARDS

We believe it's important to acknowledge the success of our people, show gratitude, foster a positive culture and drive continuous improvement.

The MMG Progress Awards are designed to thank individuals and teams and recognise exceptional performance in the three key areas which are critical to our success – safety performance, contributing to our strategic business goals and living our values every day.

In 2016, five winners were selected from over 70 very worthy nominations. All the winners demonstrated exceptional commitment and dedication.

Gustavo (Gus) Gomes (General Manager, Las Bambas) was also presented with the CEO's Award for going above and beyond to ensure the Las Bambas operation was delivered on time and on budget. Gus displayed exceptional leadership skills and worked extensively to understand and empower the diverse local cultures within the Las Bambas operation.

**Image:** Michel Santos and the Kinsevere Social Development team proudly display their MMG Progress Award.

### SAFETY FIRST

#### **Viboon Sithimolada, SHEC Manager, Vientiane**

Viboon successfully translated MMG's safety value into the local Lao cultural context. He was instrumental in creating the Mou-Teun-Mou (Friends Alert Friends) project which enabled the site to achieve significant improvement in safety performance.

#### **Phonesavanh Khamvongsa, Mining Manager, Sepon**

Since being promoted to Mining Manager, Phonesavanh has worked hard to improve safety performance. He has demonstrated visible safety leadership and spends a part of every working day coaching and supporting his team.

### VALUES ALWAYS

#### **Michel Santos and the Social Development team from Kinsevere**

Since the Kinsevere mine was established, Michel Santos and the Social Development team have worked tirelessly to help address food security issues and to provide training and support to local farmers through the Farmers Assistance Program. In their daily interactions with the local community Michel and his team live the MMG values.

### OUTSTANDING ACHIEVEMENT

#### **Juliano Villanueva, Concentrator Plant Manager at Las Bambas**

Juliano was instrumental in achieving the successful ramp-up of Las Bambas in record time. Juliano's leadership and experience were critical to the success of this project. He expertly steered his team to overcome challenges and to solve issues step by step in a disciplined and methodical process.

#### **Sam Rodda and the Dugald River Mining team**

Sam and the whole Dugald River team received the award for their development of an updated mine plan at Dugald River which resulted in stakeholder endorsement and secured financing for the project. They took on the challenge of optimising the mine development plan which will extract more value from this asset in years to come.



## CASE STUDY

## MMG'S APPROACH TO IMPROVING DIVERSITY – SHIFTING CULTURE TO INFLUENCE POSITIVE CHANGE

Our strategy is to improve inclusivity in our workforce in all the countries where we operate. At our Kinsevere operation in the DRC 10% of our employees are women.

Until recently labour legislation in the country prohibited women from working at night, limiting women's potential earnings and curtailing their career progression. As a result there were no women in supervisory positions.

The Kinsevere human resources and management teams sought to improve this situation. First they consulted with the female workforce to understand their concerns. They then engaged with the Minister for Labour, the Governor of Katanga, labour inspectors and trade unions to raise concerns with the legislation.

This proactive approach to addressing female participation for night shift led to a modification of the law in 2016, so that now our female employees can work night shift (Law 16/010 15 July 2016).

The women employed at Kinsevere can now apply for any role – including those in operations – and have a clear path to attain a role as a shift supervisor.

This landmark decision is an example of achieving progress in the communities in which we operate and demonstrates MMG's commitment to ensuring our already diverse workforce is inclusive. With every change there are challenges; ensuring the change is sustainable is the next step for the team at Kinsevere in 2017. This new way of working will require some adjustment on the part of our female staff and their families.

**Image (from left-right):** Schadrac Lobo, Mine Geologist and Ursule Ntumba, Drill and Blast Engineer. Ursule, a graduate from the University of Lubumbashi, is the first female mining engineer to be employed by Kinsevere.



## SOVEREIGN RISK AND GOVERNMENT RELATIONSHIPS

Effectively managing sovereign risk is increasingly important to the success of resource companies. Failure to identify and manage the risks and opportunities encountered in any operating jurisdiction can negatively impact social, operational and, financial performance and constrain future growth.

At MMG we use a 'country planning' approach to address these exposures. This raises the profile of country-specific issues within our broader risk management system, increases our awareness and understanding of social, economic, governance and non-technical risks and help us shape and monitor responses at both operating and corporate levels.

We prioritise actions and behaviours that are valued by the communities, regions and nations in which we operate. This allows us to deliver sustainable benefits, in accordance with our Code of Conduct and business-wide standards.

## SUPPLY CHAIN

MMG sources goods through a complex global supply chain to satisfy the requirements of our operating sites in Australia, Peru, Laos and the DRC. In 2016 we engaged with approximately 5,300 suppliers across the globe. Approximately 90% of these suppliers were located in Peru, Australia, Laos, South Africa, the DRC, Chile or Thailand. We predominantly purchase goods and services related to site and mining services, energy, logistics and activities associated with fixed plant and mobile assets.

We assess suppliers throughout the contract award process to ensure they are aligned with our Code of Conduct and other relevant policies and procedures.

### SUPPLY CHAIN MANAGEMENT

As part of our supplier engagement and contract award process, we undertake a comprehensive assessment across a range of criteria including commercial, social, quality and technical capabilities. When selecting suppliers we also assess a range of non-financial criteria including safety, environment, local community training and commitment to local employment.

In 2016 we entered into approximately 800 new supply contracts with a total annual value of US\$1.17 billion. This significant increase – up from 550 contracts at US\$561 million in 2015 – is due to the Las Bambas ramp-up to full commercial production in July 2016.

As part of our supplier engagement process we seek formal agreement from suppliers to comply with our Code of Conduct and Anti-Corruption Framework as well as other relevant MMG standards, policies and procedures, including those related to human rights. As a result of our contract management procedures, we had 42 managed suppliers regularly reporting on contract performance measures and working in partnership on improvement opportunities. We will extend the contract management processes further with our key Las Bambas suppliers in 2017.

### PRODUCT STEWARDSHIP

We supply products that consistently meet our customers' quality expectations and are safe for people and the environment. Our Product Stewardship Standard articulates minimum product characterisation requirements. This information is used to identify and manage significant risks to human health and the environment during transportation, storage, handling and processing of our products.

MMG is a member of the International Zinc Association and a regional member of the International Copper Association (ICA). Through these associations we contribute to the development of new applications for our products that are safe, efficient and beneficial to society.

## VALUE CHAIN

Our value chain extends from the initial work to identify prospective deposits through to managing the responsible closure of operations.



# THE WAY WE WORK

MMG's mission is 'We mine to create wealth for our people, host communities and shareholders'. Our commitment to sustainability is underpinned by our policies, governance structure, values, standards and our Operating Model.

## OUR COMMITMENT TO SUSTAINABLE DEVELOPMENT

MMG maintains policies to meet both Board and external obligations and expectations.

Our Sustainability Policy aligns with the International Council on Mining and Metals' 10 Sustainable Development Principles (refer to our Appendix on [www.mmg.com](http://www.mmg.com)). Our approach to sustainable development is also guided by our:

- > Corporate Governance Policy
- > People Policy
- > Shareholder Communication Policy
- > Safety, Health, Environment and Community (SHEC) Policy, and
- > Quality and Materials Stewardship Policy.

We are an active member of leading industry organisations including:

- > International Council on Mining and Metals (ICMM);
- > International Zinc Association (IZA);
- > Minerals Council of Australia (MCA);
- > Society of Mineral and Energy Producers of Peru; and
- > Chamber of Mines of the DRC.

We support the Extractive Industries Transparency Initiative (EITI). In all of the jurisdictions where we work, we engage as either a reporting entity or participate in advocacy and pilot programs to encourage governments to support and adopt the EITI.

Our 2015–18 Sustainability Commitments articulate how we embed the principles of sustainable development in our business. We measure our performance in these areas by monitoring progress against our 2015–18 targets and annual milestones (refer to our targets and milestones on pages 45-47).



## OUR 2015-18 SUSTAINABILITY COMMITMENTS



We will enhance, embed and leverage people systems to drive safe behaviours and production.



We will continually reduce the incidence of workplace injuries.



We will develop leaders who enrich our culture by demonstrating our values and Code of Conduct.



We will minimise the potential for our people to be exposed to materials or conditions which may harm their health.



We will not burden future generations with social or environmental legacies from our closed sites.



We will respect our host communities and will contribute to the sustainable advancement of their social and economic condition.



We will minimise our environmental footprint and our use of natural resources.



We will minimise the potential for events to materially impact our people, communities, the environment and our business.

## OUR STANDARDS

Our business-wide standards define MMG's minimum requirements in managing material risks, meeting legal requirements and external obligations, and creating and preserving competitive advantage and organisational effectiveness. Our standards are aligned with the ICMM's 10 principles of sustainable development and provide the basis for achieving and maintaining sustainable operations.

Our integrated internal audit program includes focus on conformance with our SHEC standards.

Our risk management process consists of steps that effectively identify and manage material risks and enable continuous improvement in both decision making and performance. We continue to progressively implement critical controls and verification actions for material risks across our business. Our risk management process is based on ISO 31000:2009, the international standard of risk management.

## CASE STUDY

## THANK YOU TO RETIRING CEO, ANDREW MICHELMORE

This Sustainability Report reports on MMG's activities during the tenure of CEO Andrew Michelmores who retired as CEO in February 2017.

Andrew spent eight years at the helm of MMG, appointed CEO and Executive Director of Minerals and Metals Group at its formation in June 2009, and Executive Director and CEO of MMG from December 2010. Andrew led MMG through the public listing as Minmetals Resources Limited, the rebranding as MMG and the major acquisitions of Kinsevere and Las Bambas. He has set the platform for the future growth and continued success of the Company and established a culture with safety at its core.

During his career, Andrew has been a leader in the mining industry, committed to improving safety, health and environmental outcomes as well as social contributions.

Andrew has been active in industry associations, serving as:

- › Chair of the International Zinc Association from October 2011 to December 2015
- › Chair of the Minerals Council of Australia from June 2013 to June 2016, and
- › Chair of the International Council on Mining and Metals since April 2016.

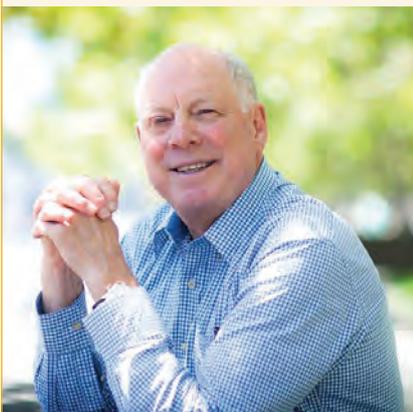
Andrew has been a strong proponent of the ICMM since its formation in 2001, serving first as a Council member then as Chair. The ICMM has been instrumental in improving the mining industry's sustainable development performance. As Chair, Andrew drove the development of ICMM's Frameworks on Water Stewardship (released in January 2017), and Tailings Dam Management (released in December 2016).

Andrew remains committed to embedding the ICMM's 10 sustainable development principles and eight position statements in the way we work at MMG. His extensive contribution and experience in the mining industry demonstrates our commitment to establishing MMG as an industry leader.

**Image (upper left):**  
Andrew presents at the Melbourne Mining Club Dinner in London in 2016.

**Image (lower left):**  
Andrew pictured at MMG's Group Office in Southbank, Melbourne.

**Image (right):**  
Andrew during a visit to Kinsevere mine in 2012.





## BUSINESS ETHICS

Our values and our Code of Conduct underpin our commitment to establishing and maintaining long-term, meaningful relationships with our stakeholders. We aim to act with integrity in all situations.

We recognise that some of the jurisdictions in which we work are rated poorly by the Transparency International Corruption Perceptions Index; because of this we seek to match good governance with a commitment to transparency initiatives such as the Extractive Industries Transparency Initiative (EITI).

The Code of Conduct set out the standards of behaviour expected from all MMG employees. We expect all our employees, contractors and suppliers to integrate these standards of behaviour into their working practices.

The Code of Conduct covers areas such as conflict of interest, fraud, anti-corruption and legal compliance. Matters relating to the Code are overseen by the Code of Conduct Committee. We also engage an independent confidential whistleblower service provider which is available to all employees globally in their local language.

In 2016 we updated the Code to reflect the changes in our business since it was first published in 2012, namely:

- › our updated core values: we think safety first, we respect each other, we work together, we do what we say and we want to be better;
- › the creation of the Online Benefits Register (OBR);
- › the updated Whistleblower Hotline; and
- › the updated Employee Assistance Program (EAP).

## OUR OPERATING MODEL

Our Operating Model defines how we effectively organise our operations and our shared service and support functions to do the work of the business.

The Operating Model specifies:

- › the work our operations need to do to achieve their safety, volume and cost targets, and
- › the work which can be consolidated and completed in regional 'hubs' or the corporate office.

Administrative tasks and functional support that does not need to be completed or based in our operations are delivered from service and support hubs. Functional expertise in business support areas such as finance deliver services to the operations and all hubs work to a common framework which creates greater efficiencies and strengthened governance and transparency.

A key requirement of our Operating Model is the implementation of common procedures and standard processes across operations to manage common material risks and

deliver and maintain competitive advantage. In this way our Operating Model enables our sites to focus on continuously improving our operational performance and our service and support hubs to focus on continuously improving that service and support to our sites.

Our Operating Model is evolving to support our organisational growth. In late 2016 we integrated the support functions provided to our sites in the Australia and South-East Asia (ASEA) region into a single regional team to manage and support our growth objectives in the region. We also established centralised regional support for Las Bambas now it has transformed from a project to an operation.

While the fundamental premises of the Operating Model are unchanged, we continuously look for opportunities to improve the work of our functions in serving our operations, and strive to maximise the significant value generated by our Operating Model.

## OUR VALUES



### We think safety first

We stop and think, then act to prevent injury



### We respect each other

We are honest, considerate and act with integrity



### We work together

We engage diverse views to achieve better outcomes



### We do what we say

We take responsibility and follow through on our commitments



### We want to be better

We always look for opportunities to improve

## CORPORATE GOVERNANCE

We are committed to maintaining a high standard of corporate governance practices by emphasising a quality Board, sound internal controls, and transparency and accountability to all shareholders. MMG has applied the principles of good corporate governance as set out in the Corporate Governance Code (CG Code) of the Hong Kong Listing Rules.

Our Board Audit, Remuneration, Governance and Nomination, and Risk Management committees operate under clear Terms of References. We also have a number of Executive management committees: SHEC, Disclosure, Investment Review, Mineral Resources and Ore Reserves, and Code of Conduct.

All transactions between MMG and CMC subsidiaries are conducted in compliance with the Hong Kong Listing Rules and Connected Transactions Rules.

More information on our Board and Executive level committees and our Corporate Governance Statement is available on our website [www.mmg.com](http://www.mmg.com).

## COMPLIANCE AND CONFORMANCE

At a minimum, we strive to meet the legal and regulatory obligations in all of our operating jurisdictions.

The Governance and Nomination Committee is responsible for developing and reviewing the Company's policies and practices on corporate governance, the Code of Conduct and monitoring the Company's compliance with the Listing Rules and other applicable laws.

In 2016 MMG was issued with three safety-related fines that related to incidents at Las Bambas that occurred prior to MMG taking ownership of the site. We are disputing all of these fines.

One fine was also incurred at Las Bambas, this related to failure to have an appropriate safety sign in place.

We received one prohibition notice which required us to cease cement-backfilling of stopes at our Rosebery operation for a month while we revised our safe operating procedures for this activity. This did not cause a material impact on our overall operations.

In 2016, MMG received no fines or penalties related to environmental management at its operations. During different inspections executed by the environmental regulator at Las Bambas, three main findings related to the tailings channel, reagent storage and contingency concentrate storage were identified. The environmental regulator notified Century of two non-compliances, one identified during a site inspection and one related to environmental reporting. Management at Las Bambas and Century are working to complete corrective actions for these findings and non-compliances to the satisfaction of the regulators. These findings and non-compliances have not had, and are not expected to have, a material impact on the environment nor operational activities.



Image: Environmental monitoring at Las Bambas.

In 2016, erosion of a sedimentation dam wall designed to collect rain and groundwater diverted from the Kinsevere mine caused the release of the water onto land within the mining lease. The regulator has been notified and preliminary rectification works have commenced. MMG will continue to update the regulator.

In 2015 we reported several leaks in the tailings transfer pipeline at Sepon mine and advised that repairs and improvements to containment were underway. By the end of January 2017, 10.7km of the 11.5km pipeline had been replaced. Replacement of the final 0.8km of pipeline located within the plant site was completed in April 2017. Sepon has engaged with local communities and government stakeholders throughout the staged replacement process.

## STAKEHOLDER ENGAGEMENT

MMG aspires to be valued as a trusted member of each of the communities that host our operations. Our ambition is to develop partnerships based on regular and open dialogue, transparency and mutual respect.

As an industry we work with our people, our communities and the countries in which we operate to ensure they share in the benefits of their resource development.

We work in complex jurisdictions and across numerous cultures and geographies, often in communities with either recent or prior negative experiences with resource development. Given the social, environmental and economic impacts of our operations, communities expect to participate in decision making and to share in the benefits of mining. We recognise that strong stakeholder engagement is required throughout the project life cycle from exploration to closure; this is critical in making business decisions responsive to the needs and expectations of our host communities and their governments.

We aim to partner with our communities and to build meaningful connections with our stakeholders early in the development process. We strive to maintain proactive and socially and culturally inclusive communication with stakeholders, and to engage them regarding future plans and performance. Our approach to stakeholder engagement is guided by our commitment to the ICMM Sustainable Development Principles, including the commitment to community dialogue and Free, Prior and Informed Consent regarding Indigenous people.

As a long-term partner in community social and economic development, we consider the need to communicate through all stages of project development and over the life of mine. We recognise that intergenerational engagement is critical to ensuring that our business responsibly manages the impacts and opportunities for both current and future generations. We also recognise the need to take account of gender-based differences in our engagement and community decision-making processes.

A matrix of our broad stakeholder groups, their areas of interest and our engagement process is available online in the Appendix on [www.mmgroup.com](http://www.mmgroup.com).

## CASE STUDY

## ENGAGING THE ROSEBERY COMMUNITY ON CONSTRUCTION OF A NEW TAILINGS STORAGE FACILITY

Our Rosebery zinc mine in Tasmania has operated continuously since 1936.

During annual Life-of-Asset planning it became clear that a new tailings storage facility (TSF) would be required to allow the mine to operate beyond 2017, when the existing tailings dam will reach capacity.

After community consultation, we decided to build the new TSF on the existing '2/5 Dam' facility, historically used for tailings disposal, which had been decommissioned in the 1980s. Using this site meant the mine's footprint was not increased and there was no need for new land disturbance. The new TSF was approved in February 2016 by the Tasmanian Environmental Protection Agency and the West Coast Council.

As the mine is in close proximity to the Rosebery township (population around 1,000), we needed to engage closely with the local community during both the project proposal and construction phases. It was important for the community to understand the project's purpose, likely impacts and the social and environmental

management strategies for its construction and operation.

We engaged in dialogue and multi-channel communications with residents to inform them about the project and its potential impacts – including noise, vibration and dust – and to understand their concerns. We held community meetings, which were attended by the TSF Project Manager and Operations Manager, sent out monthly letters to households, and placed articles in the community and school newsletters. We also used electronic community noticeboards and radio broadcasts to inform and engage the community as broadly as possible.

MMG has a Community Liaison Office in the Rosebery township. Staffed by MMG employees, it has been a hub for sharing information such as maps, 3-D diagrams and digital flyover animations of the project. MMG employees have also been available to answer questions.

During 2016 Rosebery received a small number of formal complaints regarding noise and vibration from construction activities. All of these complaints were resolved with the affected community member.

The Rosebery Community Consultation Committee has made field trips to the project site, giving members an opportunity to directly observe the construction process. Mine management also delivered presentations at local schools.

Construction activities at the TSF removed some public amenity, including access to walking tracks. To compensate for this we agreed to build a new walking track and upgrade the community sporting facilities, which are now in use.

Construction started in early March 2016 and was expected to take around 12 months. However, difficult weather conditions delayed the civil construction works which are now forecast to be complete by June 2017.

**Image:** The Rosebery Community Consultation Committee visit the construction of the tailings storage facility in August 2016.





Image: Community consultation in Laos.

**GRIEVANCE MANAGEMENT**

Each of our operations has a grievance management mechanism in place to facilitate the timely, culturally appropriate investigation and response to grievances raised by community members. This process is non-judicial, complements existing legislative remedies and reflects our commitment to the UN Guiding Principles on Business and Human Rights.

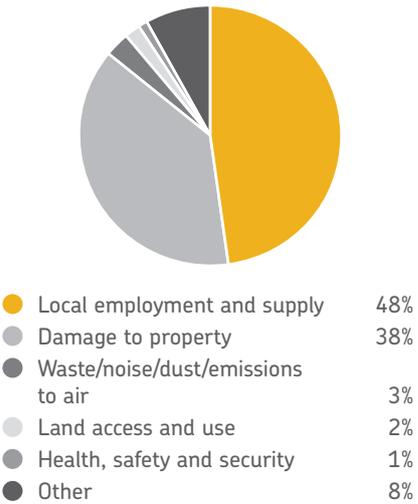
In 2016 we reviewed our approach to grievance management and established a common MMG Grievance Procedure. This Procedure outlines the processes for dealing with the following types of stakeholder grievances:

- > grievances related to MMG’s impact on stakeholders;
- > grievances related to the conduct of MMG personnel and / or contractors in the local communities; and
- > grievances related to allegations of human rights abuses.

In 2016 we received 407 complaints across MMG’s operations. Nearly half (46%) of these complaints were related to local procurement matters at Las Bambas.

We have resolved 302 (74%) of the complaints through our investigation and mediation processes. We continue to work with individuals involved in the outstanding complaints to resolve their concerns.

**FIGURE 2: COMPLAINTS RECEIVED IN 2016 – BY TOPIC**



**We aim to partner with our communities and to build meaningful connections with our stakeholders early in the development process.**

## TRANSPORTING LAS BAMBAS COPPER CONCENTRATE

Las Bambas has implemented an integrated logistics process to transport copper concentrate from our plant, in Cotabambas (Apuřímac), to the Port of Matarani, located in Islay district (Arequipa), where it is then shipped to its final destination.

Las Bambas uses a bimodal transport system: transporting the ore by container trucks 495km to the temporary train transfer station at km99 in Arequipa province, and then another 238km by rail to the Port of Matarani. This port also receives production from other copper companies operating in southern Peru.

Las Bambas is implementing several measures to promote safety and mitigate social and environmental impacts of the transport of our ore. Trucks with airtight containers are used to prevent any release of concentrate residues during transport and handling. Approximately 250 trucks run on this road daily. To ensure safe speeds for trucks and communities alike, our control centre remotely monitors the trucks' established traffic schedules with geo-referenced roadmaps and other measures that set maximum speeds and safe operating procedures for operators.

We train our contractors' drivers to strictly apply the safety measures necessary to minimise road traffic risks. Las Bambas has implemented joint initiatives with those transport companies to keep drivers healthy and well rested, to protect their safety and that of third parties on the road.

In line with our commitment to communities sharing in the economic benefits of mining, we have hired 62 of these trucks from community businesses located along the Las Bambas–Espinar road.

Continuous air quality monitoring activities are conducted at stations located in eight areas along the road. Over 50 water tankers conduct dust suppression activities daily focusing on areas close to communities. Forty of these vehicles are owned by entrepreneurs from neighbouring communities.

### INVESTMENT IN ROAD DEVELOPMENT

In the first phase, from 2011 to 2014, Las Bambas invested US\$200 million to improve this road and open new stretches. This action required reaching agreements with 33 communities and more than 800 landholders.

In the second phase, which started in 2016, Las Bambas invested another US\$30 million to implement 'micropaving' in roads close to residents and communities along 83km of the road. This work is expected to be completed at the end of first quarter 2017.

In phase three, the Peruvian Government is investigating the technical feasibility of paving the entire Las Bambas–Espinar road (280km). MMG has committed an additional US\$4 million to prepare the corresponding technical specifications.

Importantly, this road is, and will remain, a public road. It serves numerous users and is infrastructure that contributes to the economic development of this area in southern Peru.

### SOCIAL ACTIVISM

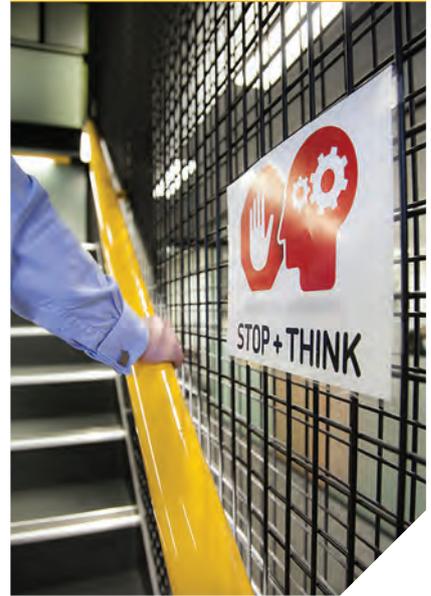
In spite of efforts made to mitigate the impacts of concentrate transport and Las Bambas' willingness to dialogue, on 8 October 2016, residents of four communities from Cotabambas excavated trenches to block a stretch of the public road used by the concentrate haulage trucks.

After holding dialogue with the communities in an attempt to restore public order, on 14 October, the Peruvian National Police (PNP) attempted to repair these roads to allow community and haul truck access. While conducting these works, members of the police clashed with protestors.

Unfortunately, as a result of this clash, a community resident died from a gunshot wound and 20 PNP agents were wounded. Consequently, the local authorities announced an indefinite strike in Cotabambas province.

On 21 October, the Peruvian Minister of Transport and Communications, Martín Vizcarra, travelled to Cotabambas with a high-level commission, seeking a 45-day truce to prepare a proposal for development of the province.

The subsequent events gave rise to the Cotabambas Development Plan, consisting of 400 projects, 190 of which will be prioritised for implementation in the short term. The budget for the rest of the initiatives, that will be carried out in the medium and long term, amounts to more than US\$600 million.



## SAFETY

### SAFETY PERFORMANCE

Safety is our first value and we continually strive to eliminate incidents and injuries at our workplaces. Tragically, two employees of our contractors died in separate incidents at Las Bambas in 2016.

- › Mr Felipe Leon Chavez, an employee of one of our Las Bambas logistics contractors, died on 21 July following a road accident.
- › Mr Henri Aldana Chanca, a contractor, died on 6 December at our Las Bambas operation after being injured by an uncontrolled release of water.

During 2016, 77 people across MMG's operations experienced injuries which required medical treatment, time away from work, or resulted in them being unable to perform their normal duties (refer to the Table 1 note on page 22). At the end of 2016 our TRIF was 1.90 per million hours worked. This is an improvement on the TRIF of 2.12 reported for 2015 and represents an average 9.6% year-on-year reduction since the end of 2012. Our lost time injury frequency (LTIF) was 0.52 for 2016.

**Image (above left):** Employees at Las Bambas mine.

**Image (above right):** Safety communications at Group Office, Melbourne.

### SAFETY PROGRAMS

Our objective is to have an injury-free workplace. We are working hard to encourage a committed safety mindset in all of our employees and contractors, and to ensure supporting behaviours, cultures and processes are in place across every area of our operations. We recognise that managing safety requires a focus on both eliminating the hazards which can cause injuries and on managing critical controls to prevent events that can cause fatalities. We consider these to be separate yet complementary processes.

#### Creating Safe Work

Our Creating Safe Work training program aims to build the knowledge, skills and capabilities our workers need to effectively comply with the requirements of our Safe Task Management Standard. The three training modules cover Safety Mindsets, Safety Leadership and Safety Practices. In 2016 we produced a series of animated videos to support this training and made them available in each of our local languages: English, French, Lao and Spanish.

Our Australian Operations have fully implemented the Safety Practices and Safety Leadership training modules. Sepon and Las Bambas commenced the implementation of the Safety Practices module in 2016 that focuses on:

- › the role of the Supervisor to plan work, assign tasks and hold people to account;
- › the role of the worker to accept tasks, create and maintain a safe work environment and work to plan;
- › our Safe Work methods, which include Task Hazard Analysis, Complex Job Control Planning, and Stop and Think; and
- › the role of leadership when conducting Field Task Observations.

Kinsevere will begin implementing Creating Safe Work in 2017.

This initiative will result in all our workers and supervisors being aligned in their understanding of their respective roles in undertaking work safely.

**TABLE 1: SAFETY STATISTICS BY SITE IN 2016 AND TREND FROM 2015**

LOCATION	TRIF		LTIF	
	2016	TREND	2016	TREND
Century	0	▼	0	▼
Dugald River	6.44	▲	0	–
Golden Grove	9.60	▼	0	▼
Kinsevere	0.49	▼	0	▼
Las Bambas Operations*	1.94	▲	0.95	▲
Rosebery	11.0	▼	1.83	▲
Sepon	0.56	▼	0	▼
Exploration	0	▼	0	▼
Group Office	0	▼	0	–
<b>MMG</b>	1.90	▼	0.52	▲

TRIF = total recordable injury frequency per million hours worked (fatalities, lost-time injuries, restricted work injuries and medical treatment injuries), LTIF = lost time injury frequency per million hours worked. ▲ depicts an increase relative to 2015, ▼ represents a decrease and – indicates no change relative to 2015.

\*This figure excludes Las Bambas Construction Project for the first half of 2016, prior to Las Bambas commencing commercial production on 1 July. The Las Bambas Construction Project recorded a TRIF of 7.59 (12 total recordable injuries) in the first half of 2016.

### Fatal risk management

During the year we continued to simplify business-wide procedures for managing fatal risks, including work at height, lightning, isolation management, clearance to work, working on live equipment, guarding and hazardous materials management. The purpose of common procedures is to ensure consistent application of our critical controls and to facilitate efficient deployment of continuous improvement opportunities, with a 'ripple effect' across the business. We also reviewed our approach to fitness for work, particularly fatigue management (refer to the case study on page 23).

### Learning from events

We believe it is possible to achieve a workplace of zero injuries. We are seeking to create a learning organisation that openly reports significant safety events, undertakes high quality analysis of these events and implements sustainable corrective actions to prevent recurrence. We need to excel at these activities if we are to continuously improve and eliminate workplace injuries.

Our standards and procedures collectively define the way work should be planned, assigned and executed. We believe that incidents and injuries should not occur if all the requirements of our standards and procedures are applied all of the time. By exploring the gaps between the 'work as done' and the 'work as intended', we seek to understand the causes of significant incidents. We

critically evaluate the organisational and work method factors that may have contributed to the incident and identify appropriate improvements in design and implementation. In 2016 we began to allocate functional and site 'risk owners' and 'control owners' to ensure the right experience and expertise is brought to bear on the investigation process. We seek to continuously improve our safety leadership, behaviours, culture and the effectiveness of our critical controls by sharing event investigation learnings with work teams across our business, and strengthening role accountabilities for closing identified gaps.

We will continue to embed this improved approach of integrating learnings from events into our operations in 2017.

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**We seek to continuously improve our safety leadership, behaviours, culture and the effectiveness of our critical controls.**

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## REFINING OUR APPROACH TO FATIGUE MANAGEMENT

Fatigue management is a major issue at all mining operations. At Las Bambas, our largest operation, a large number of people operate mobile equipment as part of their work. These include drivers of the trucks which transport our concentrate to a rail transfer station and to the Port of Matarani, haul truck drivers who move ore from the mine to the primary crusher, and bus drivers who transport workers to and from site. Drivers need to be both mentally and physically fit to carry out these duties.

Fatigue is a particular risk at Las Bambas where high altitude makes it difficult to obtain good quality, uninterrupted sleep.

At MMG we manage fatigue through site-specific Fatigue Management Plans that include controls for fatigue detection and prevention. These plans are risk based.

Fatigue detection is more important than fatigue prevention. Previously we had no standardised, company-endorsed fatigue detection technology in place. Sites were able to decide which roles involved 'high fatigue risk' and which – if any – fatigue detection technology was deployed.

A review of fatigue detection options helped confirm the critical factors in fatigue detection that are relevant to our business:

- > to predict the potential for a driver to experience a micro-sleep (rather than to detect an actual micro-sleep);
- > to immediately notify the driver and supervisor of each driver's elevated fatigue risk, and
- > to record and store continuous data on how alert an individual was across each shift, to allow the driver and their supervisor to better plan and manage their activities.

We evaluated a range of fatigue detection technologies against these criteria and selected one to be the Company-wide standard. All sites must now use this technology whenever a driving role is assessed to be 'high fatigue risk'. We are also working towards getting a clearer, agreed definition for a 'high fatigue risk' driving role incorporated into our Fatal Risk Standard.

In parallel, we reviewed our approach to fatigue prevention. 'High fatigue risk' drivers at Las Bambas are now assigned accommodation that maximises

the potential for comfortable, uninterrupted sleep. A program to evaluate personal devices that monitor the length and quality of sleep was also initiated. We expect this to be completed in early 2017. This may lead to a Company-endorsed technology being used across all sites.

One of the most important aspects of fatigue management is taking a collaborative approach. Fatigue risk reduction is most effective when workers and the company work together. Workers need to understand the risks associated with fatigue and understand their role in managing it. This includes workers feeling comfortable to report when they feel they may be suffering the effects of fatigue.

Our improved critical control design for fatigue management is being progressively implemented for 'high fatigue risk' roles across our business. This work will continue in 2017.

**Image:** Employee participating in the "Raise your hand" safety campaign at Las Bambas.





Image: A medical assessment at the Antawasi health facility, Las Bambas.

## HEALTH

Protecting and promoting the health of our people is as vital as protecting their safety. We aim to minimise occupational health exposures and to support the physical and mental wellbeing of our people.

### OCCUPATIONAL EXPOSURES

The health risks at our workplaces include occupational exposure to altitude, noise, lead and vibration; and carcinogenic substances such as respirable crystalline silica, diesel particulate matter (DPM) and sulphuric acid mist. We operate in countries where the prevalence of HIV/AIDS, tuberculosis, malaria, typhoid, dengue fever and other tropical diseases is high. All of our workplaces are required to maintain and implement risk-based Exposure Management Plans.

Our medical surveillance programs help us identify health impacts at an early stage and provide information on the implementation and effectiveness of our exposure controls. In 2016 we standardised our approach to conducting and managing audiometric testing for personnel exposed to noise. Group Information Technology also endorsed a common software package which identifies hearing loss before it becomes profound or reportable as an occupational illness. Rosebery implemented these improvements in 2016 and our other sites will

progressively commence implementation.

In 2016 the rate of new cases of work-related occupational illnesses at our operations was 2.99 per 1,000,000 hours worked, compared with 2.24 in 2015. Occupational illnesses recorded in 2016 were predominantly low-severity cases of malaria at Kinsevere (40 cases) and altitude sickness at Las Bambas (75 cases). Cases of malaria contracted by local employees who live in areas where malaria is endemic are not reported in Company statistics.

All Las Bambas workers and visitors undergo a medical evaluation to determine their fitness to travel to altitude. As the risk of altitude sickness is not always medically indicated, this process can only be partially successful in identifying those at risk. Visitors are monitored on their arrival in Cusco (3,350 metres above sea level) and once they arrive at Las Bambas (over 4,000 metres). This ensures that symptoms and signs of altitude sickness are promptly identified and treated (refer to the Staying safe at altitude case study on page 25).

### WELLBEING

During 2016 we continued to implement the MMG Mental Health Framework in our Australian businesses. Golden Grove completed participation in the Working Well:

Mental Health and Mining research project funded by the Minerals Council of Australia, and Dugald River became a fully accredited Mates in Construction site. In both these locations our people are now better informed about suicide and mental health, and empowered to act to support their colleagues' mental wellbeing. Pilot Mental Health Awareness training was conducted in our Melbourne office. We continue to offer an Employee Assistance Program to support employees and their families globally.

## HUMAN RIGHTS

We are aware that our activities, and those of our service providers, have the potential to impact human rights. We operate in a manner consistent with the UN Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, and the UN Global Compact principles.

We recognise that the concept of human rights covers a broad range of interrelated issues, requiring an integrated approach across numerous business functions. At MMG our Human Resources, Supply, Community Relations, Stakeholder Relations, Security, Exploration and Project Development functions have specific responsibilities for upholding our commitment to human rights.

## STAYING SAFE AT ALTITUDE

Altitude sickness ranges from a mild headache and weariness to a life-threatening build-up of fluid in the lungs or brain. Preventing the fatal consequences of altitude sickness requires a partnership between individual workers and the Company. Most fatalities from altitude sickness are due to a slow response to ongoing symptoms of oxygen-deficiency and a belief that 'I'll be ok'. Our altitude management plan and training reinforce the importance of individuals:

- > fully disclosing their medical history in the pre-travel screening process;
- > knowing the early symptoms and being willing to acknowledge when they are present; and
- > never ascending to sleep at high altitude when experiencing symptoms.

Five of our Melbourne-based employees shared their experiences with travel to altitude.

"You need to have the right attitude if you are going to work at altitude. Altitude awareness training offered before you travel can be easily forgotten, especially if

**"As I have to travel regularly for work, my family and I are reassured that the Company takes our health and wellbeing seriously. I feel confident to play my part in ensuring that each trip I take is a safe one."**

*Jill Watson*

you think it doesn't apply to you. But regardless of your own physical condition it does! It is hard to predict how your body will react to altitude and a simple cold becomes not so simple above 4,000 metres!" *Rex Berthelsen and Amy Lamb*

"In the first few days at Las Bambas it's all about slow and steady. There are 84 steps from the office to the food hall, so I had to take four or five rests on my way up each time! Using the oxygen bottles in my room helped me sleep, kept me alert during the day and kept dizziness and headaches to a minimum." *Andre Badenhorst*

"Having a travel buddy with you, particularly on your first trip, is important as early intervention is central to the successful treatment of altitude sickness. My buddy demonstrated shortness of breath and lethargy, which became more pronounced over the two-week period we spent at site. Having completed altitude awareness training, I was able to recognise the signs of mild altitude sickness and I encouraged him to seek advice from the Las Bambas medical centre." *Daniel Majman*

The key elements of our altitude management plan are:



Train people to understand altitude sickness, its symptoms and potential consequences prior to going to site.



Undertake medical screening and only approve people to travel and work if the risk is acceptable.



Assess response to elevated altitude.



People to advise their supervisor or onsite 'buddy' if they suffer any altitude sickness symptoms.



Provide medical assistance and potential evacuation to people suffering altitude sickness symptoms.



Image: Las Bambas mine, Peru.

We integrate human rights considerations into our Code of Conduct, employment processes, risk-analysis activities and formal grievance processes. We want our people to feel confident to report instances of unacceptable conduct in the workplace without fear of intimidation or reprisal. They can raise concerns internally or through our independent, confidential whistleblower hotline service.

As part of our supplier engagement process we require suppliers to formally agree to comply with our Code of Conduct and Anti-Corruption Framework as well as other relevant MMG standards, policies and procedures, including those related to human rights.

We have embedded the principles of human rights in our policies and standards to establish a workplace which respects diversity, where equitable treatment is expected, and where our people are free from discrimination and harassment in any form.

MMG respects the right to freedom of association of all employees and approximately 15% of our workforce participates in collective bargaining agreements.

#### **ALIGNING SECURITY MANAGEMENT WITH HUMAN RIGHTS PRINCIPLES**

We identify material, credible security threats to worker safety and the seizure of assets by accessing local knowledge. Critical controls in our threat-based site

Security Management Plans aim to provide physical security and deter unauthorised access, as well as to provide appropriate intervention if unauthorised access is detected.

We are committed to managing security and third-party interactions in a manner which respects human rights. Our material security-related, human rights risks include those related to engaging private security contractors and using public security forces at Sepon, Kinsevere and Las Bambas.

In 2016 we standardised security management plans across these three operations. These plans reference the Voluntary Principles on Security and Human Rights (VPSHR) in relation to the deployment and conduct of public and private security (including rules of engagement and use of force). We are working towards becoming a participant of the VPSHR Initiative by the end of 2018.

We did not record any incidents of private security providers contracted to the Company causing injury to a third party in 2016. However, despite our ongoing efforts to prevent and detect unauthorised access, we are saddened to report that a member of the community died while trespassing at our Sepon site. Site personnel discovered that he had broken into a seepage pit to illegally access MMG plant and equipment and died of asphyxiation.

A policeman at Kinsevere was reported missing from his post on 14 September 2016. His body was

subsequently found on site. There was no evidence linking his death to MMG's operations. His death was investigated by the local authorities.

#### **MANAGING ARTISANAL AND SMALL-SCALE MINING RISKS**

Artisanal and small-scale mining (ASM) is widespread in the DRC, Laos and Peru, and occurs on tenements where MMG holds exploration and mining rights. It is a difficult and complex issue to manage and in many instances is either illegal or unregulated. Positive impacts from ASM may include poverty alleviation, increased community capital, decreased rural-urban migration and diversified local economies. However these are often offset by poor environmental practices, low levels of health and safety, the spread of disease, child and forced labour, inequitable distribution of community benefits, illegal trade and heightened security risks. Many of the negative attributes of ASM have human rights implications.

We develop and adopt appropriate strategies to mitigate risk associated with each ASM activity we encounter. In some circumstances it may not be possible for our activities and ASM to co-exist. Communication and collaboration with all stakeholders (including the miners, government, local authorities, community organisations and governing authorities) are our first steps towards developing mutually acceptable outcomes.

## MANAGING SOCIAL ISSUES AT LAS BAMBAS THROUGH DIALOGUE

At MMG we know that much of our business success depends on developing and maintaining strong relationships with the communities where we operate. We are committed to ongoing and constructive dialogue.

At Las Bambas we are working with a number of diverse communities in the Andes with little development opportunity and whose native language is Quechua, a spoken language.

Our approach at Las Bambas is to take a direct and proactive approach to stakeholder engagement. We have employees who are Quechua-speakers living in the communities whose job is to build relationships between Las Bambas and the local people based on trust and respect.

We work at three levels of dialogue:

1. We work directly with families and communities.
2. We enter into dialogue with community leaders, mayors and political leaders.
3. We participate in Dialogue Round Tables which bring together community members, government, industry and other political interests.

We know there will be times when we will disagree with the local communities over some matters and we need a robust grievance mechanism to deal with these situations. In 2016 Las Bambas began implementing the new MMG standard procedure for managing stakeholder grievances, taking into account the need to respect human rights. The grievance mechanisms help to identify impacts, address them at an early stage and provide remedies where applicable. They are also a means of identifying negative impacts and using the learning to avoid and mitigate future similar impacts. This serves to manage social risk and to build more durable and sustainable relationships with stakeholders.

Identifying the area of responsibility for the grievance and the approach of management is key to our common approach. Not all grievances may be caused by MMG but the Company may have a role in assisting with access to remedy or behaviour change.

### DIALOGUE TABLES

Las Bambas participates in a number of Dialogue (or Work) Tables in the region. The purpose of the Dialogue Tables is to work towards agreements on development commitments and activities that will benefit the local communities. Members are usually representatives from regional and local government, local associations and a range of interest groups such as Farmers groups. Each Work Table has a number of Working Groups that focus on specific issues.

Las Bambas participates in the:

1. Work Table for the Development of Challhuahuacho
2. Work Table for the Development of Cotabambas Province
3. Dialogue Table for the Development of Grau Province.

More information on the Work Tables and their activities can be found in the 2016 Las Bambas Sustainability Report.

**Image:** A community meeting in the District of Mara, Peru.



# WE MINE FOR PROGRESS

At MMG we mine for progress. For us, this means contributing to progress in human development, which is best achieved through investment in community capacity to engage in economic opportunities.

These opportunities arise both directly through our operations and supply chains, and indirectly through our role as an economic catalyst in partnership with communities, regions and nations.

## SOCIAL DEVELOPMENT AND INVESTMENT

We are working to define how our social development activities contribute to achieving global goals on important issues such as poverty alleviation, food security, health, education, clean water and sanitation,

and the wellbeing of women and girls. We do this in a manner consistent with the UN global development agenda, as stated in the UN Sustainable Development Goals.

In 2016 we invested US\$32.2 million in social development programs, an 18% reduction on our comparable 2015 expenditure. This reduction reflected the end of a number of programs across our sites, particularly the conclusion of activities associated with the physical resettlement of the community of Nueva Fuerabamba at Las Bambas (refer to Table 2).

**TABLE 2: INVESTMENT IN SOCIAL DEVELOPMENT PROGRAMS IN 2015 AND 2016 BY SITE (US\$'000)**

	2015	2016	
Las Bambas Operations**	28,762	<b>25,345</b>	(79%)*
Century	3,829	<b>2,199</b>	(7%)*
Sepon	2,313	<b>2,031</b>	(6%)*
Kinsevere	2,648	<b>1,097</b>	(3%)*
Group Office	614	<b>613</b>	
Rosebery	546	<b>588</b>	
Golden Grove	335	<b>297</b>	
Dugald River	30	<b>26</b>	
Izok Corridor	10	<b>4</b>	
Exploration	20	<b>0</b>	
<b>MMG</b>	<b>39,108</b>	<b>32,199</b>	

\* Percentage of MMG total investment in 2016.

\*\* The 2015 spend for Las Bambas has been restated to exclude operational and infrastructure costs, in line with the approach taken in 2016. Some non-material changes have also been made to 2015 social investment expenditure at other sites.

Our objective is to deliver maximum value to shareholders, host communities, regions and nations through increasing local employment and supply, partnering with others and strategic investment by our sites. We recognise that the success factors for social investment lie in deep and established engagement with stakeholders and clear business priorities for social development programs linked to managing operational risk.

In 2016 we continued to revise our Community Investment Plans to further align them with each operation's Life-of-Asset Plan.

We categorise our community investment into four pillars:

1. education,
2. essentials for life,
3. health and wellbeing, and
4. securing incomes.

As a number of our operations mature, we are transitioning from helping provide essentials for life such as food, water and sanitation, to focusing on long-term economic development which does not rely solely on MMG or mining.

We recognise our role in stimulating economic growth and as a partner for development. We believe engaging with government as the key driver of

socio-economic development is a core part of our role. As an example, at our Las Bambas operation our contribution to development is aligned with the development agenda of the Peruvian national government, the priorities of the Apurimac Region and the needs of the local communities as identified by social baseline assessments. We also continue to support ongoing dialogue with civil society, and national, regional and local authorities to ensure we can continue to mine for progress.

Growth in the agricultural sector is up to 11 times more effective in ending poverty than growth in any other sector.<sup>1</sup> With more money, farmers are likely to diversify and grow higher-value crops, benefiting not only themselves and their families but also the economy as a whole.

At our Kinsevere operation the central objectives of our social investment are supporting poverty alleviation and food security. Supporting economic development and 'essential for life' projects comprised 65% of Kinsevere's total development contribution in 2016 (refer to Table 3 on page 30). These projects include a Farmers Assistance Program to support increased maize production, vegetable growing and marketing programs, community fish farms and the large-scale Ubuntu Farm (refer to the Promoting sustainable agriculture case study on page 33).

At Las Bambas, the highest area of community investment (63%) in 2016 related to securing incomes. This was part of the ongoing work with resettled communities at Nueva Fuerabamba to support their social and economic livelihoods. Social investment activities at Las Bambas were largely determined by neighbouring communities and government; these are articulated in a set of agreements Las Bambas is implementing. Work is underway to assess the full range of discrete commitments and build these into sustainable social development programs linked to regional development priorities.

In the Vilabouly District, where our Sepon mine is located, the major development need was improving the education system. In 2016 we invested 51% more in education than in 2015. This increased expenditure funded the construction of a primary school and meeting hall for Boungkham School. The Village Development Fund also supported the construction of schools in Meuanglouang, Nathenhia, Nonesomphou and education facilities for Huaysaun and Nakasin villages. The Village Development Fund is fully funded by Lane Xang Minerals Limited (LXML) and projects are selected by village committees. Communities provide counterpart contributions such as labour and materials.

1. Food and Agriculture Organization of the United Nations 2015, *The State of Food Insecurity in the World: Meeting the 2015 international hunger targets: taking stock of uneven progress*, page 28, <http://www.fao.org/3/a-i4646e/index.html>



**Image:** Students at one of the six local schools built with the support of the Kinsevere mine.

**TABLE 3: SPEND BY SOCIAL INVESTMENT PILLAR – 2016**

	Education		Essentials for life		Health and wellbeing		Securing incomes	
	2015	2016	2015	2016	2015	2016	2015	2016
Las Bambas	*	15%	*	11%	*	11%	*	63%
Century**	<1%	-	-	-	22%	44%	77%	56%
Sepon	5%	8%	55%	53%	17%	19%	24%	20%
Kinsevere**	14%	29%	12%	44%	7%	6%	67%	21%
Group Office	-	-	-	-	93%	100%	7%	-
Rosebery	9%	9%	-	-	49%	49%	42%	43%
Golden Grove	10%	10%	-	<1%	28%	24%	62%	65%
Dugald River	-	20%	-	-	100%	80%	-	-
Izok Corridor	-	-	-	-	100%	100%	-	-
<b>MMG</b>	*	14%	*	13%	*	16%	*	57%

\* Note: 2016 Las Bambas data is not comparable to data reported in the 2015 MMG Sustainability Report. In 2016, operational and infrastructure costs were excluded.

\*\* Note: There are some non-material restatements of 2015 values for Kinsevere and Century to facilitate year-on-year comparison.

We paid US\$18.7 million in compensation for land access in 2016, with 85% of this associated with resettlement agreements and land access to secure the freshwater pipeline and powerline corridors at Las Bambas (refer to Table 4).

**TABLE 4: COMPENSATION PAID (US\$'000) FOR LAND ACCESS IN 2015 AND 2016**

	2015	2016
Las Bambas Operations*	25,348	15,871
Century	1,689	1,962
Sepon	788	788
Golden Grove	28	28
Exploration	250	43
<b>MMG</b>	28,104	18,692

\* The 2015 compensation figure for Las Bambas has been restated; it was previously reported as US\$22.3 million. Some non-material changes have also been made to 2015 compensation spend at other sites.

## SUPPORTING HEALTHY MOTHERS AND CHILDREN IN LAOS

In 2016 MMG committed a further US\$1.39 million to extend our 1000 Day Project supporting maternal and child health in Laos. This brings MMG's investment to approximately US\$3 million since 2012 in a unique partnership with UNICEF, the Lao Ministry of Health, and the Lao Women's Union.

The 1000 Day Project recognises that the first 1000 days of life – from pregnancy until two years of age – is absolutely critical for intellectual and physical development. The project is reducing stunting and iron-deficiency anemia in children under two through community outreach, education, and provision of micronutrient supplements. Stunting and anemia are major health problems affecting around 40 per cent of children in Laos, and more than 165 million children worldwide. The impact of malnutrition is irreversible and results in impaired cognitive ability as well as reduced school and work performance.

MMG is supporting health outreach programs that provide health care services for ethnic minority communities in rural Laos. In addition, health care workers and community volunteers are

being trained for long term sustainable impact. Phase 2 of the project will distribute micronutrients in health outreach services to nearly 270,000 children across 22 districts in four rural provinces in Laos. In Phase 1, MMG provided over 120,000 children with health and nutrition services, including 94,560 children with 2.5 million sachets of 'Superkid' micronutrient supplements.

This partnership provides Laos with a firm foundation to meet its community health and development objectives in line with United Nations Sustainable Development Goals 2 (nutrition) and 3 (good health). The project model has been extended in Laos with support from the Australian Government and European Union.

Selecting appropriate partners is crucial to the success of social development programs. The Lao Women's Union is both a key stakeholder and a development partner for MMG. It has more than a million members devoted to improving the status of women and children in society.

As well as delivering initiatives like the 1000 Day Project, the Lao Women's Union is an important local partner in building relationships between local communities and the Sepon mine.

This is another example of how MMG mines for progress by working with experienced development partners, governments, and local communities to share the economic benefits of mining.

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**This brings MMG's investment to approximately US\$3 million since 2012 in a unique partnership with UNICEF, the Lao Ministry of Health, and the Lao Women's Union.**

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**Image:** A doctor screens a baby for malnutrition as part of the UNICEF and MMG 1000 Day Project.





**Image:** Local people from the Province of Cotabambas attend training to become mining equipment operators at Las Bambas.

## COMMITMENT TO LOCAL EMPLOYMENT

We are committed to the regions where we operate. We aim to share our success with our communities by offering them local employment opportunities and investing in training and education to help local residents transition to careers in mining or related fields.

We recognise that local employee development programs are a life-of-asset commitment, particularly in host communities where education and training opportunities are limited. Local employment is a major contributor to socio-economic improvements and is the foundation of positive engagement with local communities. Over time these programs will establish and develop capability within the local workforce, reduce dependency on non-local employees and build broader community socio-economic resilience.

Due to a number of organisational changes at our operational sites in 2016, we reported a significant increase in the percentage of Indigenous employees at our Century mine from 31% to 63%. The number of non-Indigenous employees decreased as a result of the changes, while the number of Indigenous employees remained the same.

**TABLE 5: INDIGENOUS AUSTRALIAN EMPLOYMENT IN 2015 AND 2016 (%)**

	2015	2016
Century	31	<b>63</b>
Golden Grove	4	<b>3</b>
Rosebery	2	<b>2</b>
Dugald River	3	<b>2</b>
Corporate	1	<b>1</b>
Exploration	0	<b>0</b>

Note: Indigenous percentage is based on self-classification of workers as Aboriginal. Reported as a percentage of employees at each site.

**TABLE 6: EMPLOYMENT OF NATIONALS AT OUR NON-AUSTRALIAN SITES IN 2015 AND 2016 (%)**

	2015	2016
Kinsevere	94	<b>95</b>
Las Bambas Operations	98	<b>99.7</b>
Sepon	95	<b>94</b>
Exploration	78	<b>74</b>

Note: Data on the percentage of nationals is not available for our non-Australian offices. Reported as a percentage of employees at each site.

## PROMOTING SUSTAINABLE AGRICULTURE

The vast majority of the world's extreme poor share a common profession – farming. Of the approximately 1.2 billion people living on less than \$1.25 per day, 75 percent of them work in agriculture on small holdings of land.

There are strong, direct relationships between agricultural productivity, hunger, poverty and sustainability. Increased agricultural productivity enables farmers to grow more food, which translates into both better diets and the opportunity for higher farm incomes.

In line with our commitment to 'Mine for Progress', MMG's social development approach includes a clear focus on agricultural programs. These programs recognise that mining can stimulate local economic growth, however development opportunities need to be sustainable beyond the life of mine.

Food and feed crop demand is expected to double in the next 50 years as the global population approaches nine billion, with the increase primarily in developing countries. Accordingly, MMG's social development program seeks to build sustainable community-run farming management systems and

the extension of agricultural practice.

Our approach is aligned to key elements of the United Nations Sustainable Development Goals, a global 15-year agenda for development, and the related commitments of national and provincial governments.

Specifically, our agricultural programs seek to deliver against the following Sustainable Development Goals:

- › Goal 1: End poverty in all its forms, everywhere.
- › Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

We have implemented a number of agricultural projects near our operations.

- › We purchased the 1,700-hectare Ubuntu Farm near Kinsevere, DRC, in December 2015. Ubuntu is working closely with the University of Lubumbashi to develop high-yield maize with improved nutritional value and is developing into a centre of agricultural excellence. Ubuntu's social objectives are to upskill

domestic agricultural capacity, offer non-mining employment opportunities to local people and to act as a secondary economic hub. We have also established a Farmers Assistance Program and a Farmers Market Gardens Program.

- › Yavi Yavi is a farm owned by the community of Nueva Fuerabamba near Las Bambas in Peru, administered by Las Bambas. The farm was established as part of the economic livelihood restoration program Las Bambas committed to as part of the resettlement program. Yavi Yavi produces cattle, llamas, potatoes, sheep, trout, and cuy (a small guinea pig) and has an onsite dairy which produces fresh cheese and milk.
- › In Laos we are helping local subsistence farmers transition to commercial agriculture so they can increase their incomes. The Mandarin Project is a partnership between MMG LXML Sepon and Ironbark Citrus of Australia. Ironbark is developing management structures that will provide training, tools, seeds and distribution channels for local citrus farmers.



**Image:** Kandela Inansala, from Kalilanda village, is a farmer participating in the Kinsevere Farmers Assistance Program.



Image: A local community business in the Vilabouly District produces uniforms for Sepon's employees and contractors.

## LOCAL SUPPLY

At MMG we are committed to supporting local suppliers to develop sustainable businesses to supply our operations, as well as other customers locally and globally.

Where possible, we aim to source products and services from local suppliers who are able to meet our key selection criteria in safety, environment, quality, technical, social responsibility and commercial viability. Where gaps are identified we assist local suppliers to meet our standards and support them in building their capability. This process enables them to take up future opportunities to

grow their businesses and expand their offering to customers beyond MMG.

In 2016 we spent US\$2.23 billion on goods and services excluding taxes and royalties (refer to Table 7). Our sites spent US\$1.90 billion with suppliers in-country. Of this, US\$376 million was spent with suppliers in the same province or state of our operations and US\$50 million with suppliers in the immediate near-mine area.

The US\$1.90 billion in-country spend represents 86% of the total 2016

spend, compared to 73% in 2015. This increase in local procurement is significant as during the year the overall spend reduced at all sites except Las Bambas. Las Bambas significantly increased its total spend from 2015 to 2016, due to a full year of data available for 2016, in addition to the ramp up to commercial production mid-year.

In 2016 all sites increased their percentage of Zone 1 near-mine spend. The project at Dugald River is currently in construction, and has approximately 36% of spend in-state and 95% in-country.

**TABLE 7: 2016 LOCAL PROCUREMENT SPEND IN HOST COUNTRIES (US\$M)**

	Near-mine/district level		Provincial/state level		National		Total spend
	(Zone 1)		(Zone 2)		(Zone 3)		
Century	4.8	(10%)	25.5	(55%)	43.1	(92%)	<b>46.7</b>
Golden Grove	21.1	(20%)	67.6	(63%)	104.8	(97%)	<b>107.8</b>
Kinsevere	0	(0%)	77.4	(39%)	108.6	(54%)	<b>200.3</b>
Rosebery	3.6	(3%)	49.7	(41%)	120.4	(99.7%)	<b>120.7</b>
Sepon	4.4	(1.7%)	55.1	(21%)	144.8	(56%)	<b>257.5</b>
Las Bambas	13.3	(1.2%)	14.4	(1.3%)	1061.8	(93%)	<b>1136.2</b>
Dugald River	2.4	(1%)	86.6	(36%)	227.0	(95%)	<b>237.8</b>
Non-operational sites*	0	(0%)	0	(0%)	95.8	(79%)	<b>121.2</b>
<b>MMG</b>	<b>49.7</b>	<b>(2.2%)</b>	<b>376.4</b>	<b>(17%)</b>	<b>1,906.5</b>	<b>(86%)</b>	<b>2,228.3</b>

Note: Excludes taxes and royalties payments.

\* Non-operational sites include Group Office, Hong Kong and Exploration.

## LAS BAMBAS LOCAL ENTREPRENEUR DEVELOPMENT PROGRAM

At Las Bambas we are continuing to build on our successful Local Entrepreneur Development Program (LEDP) which has been in place for three years. The program matches business opportunities at Las Bambas to local companies with the potential to grow commercially.

Las Bambas has requirements for a wide range of goods and services – including specialised welding, transport for personnel, signage and fresh produce.

The goal of the LEDP is to develop local companies' business management, productivity and profitability to a stage where they can competitively supply Las Bambas with goods and services – and eventually other customers in Peru and internationally. The long-term aim is for participants to become financially viable without relying on Las Bambas for business. Pleasingly, some companies are already supplying other customers.

There are four categories of enterprise in the program: maintenance, logistics and transport, complementary services and rural enterprises.

The 47 companies in the LEDP provide a range of goods and services to Las Bambas. Cumulative purchases by Las Bambas from LEDP participants reached US\$30.6 million in December 2016.

The program involves the supply chain, social development and community relations teams working together. The first step is to identify internal demand for goods and/or services at Las Bambas, then find local companies who can potentially service that need. Before being accepted into the program, applicants are evaluated on their entrepreneurship and growth potential via questionnaire and Las Bambas undertakes due diligence.

To be successful in the LEDP requires a great deal of time and effort. The selected participants are required to sign a contract acknowledging their commitment to the program. Before starting in the LEDP they are given access to skills enhancement training to ensure everyone enters at the same level.

The LEDP is a three-year staged program with each stage lasting a year.

- › In the first year participants define their business model and improve their business management skills.
- › In the second year the focus is on implementing the frameworks and processes that will prequalify them as eligible to tender for contracts. All suppliers to Las Bambas have to meet MMG's strict Standards for safety, health, environment, community and business conduct. After meeting the requirements of this stage of the LEDP, participants can enter the mainstream tender process.
- › The third stage involves the businesses working towards certification for ISO standards (Environmental Management Series and Safety Series) so they can compete nationally and internationally.

The LEDP was developed by Las Bambas and is delivered by consultants with expertise in training and adult learning.

The program has attracted external sources of funding. The first stage is funded via an agreement with the Canadian government, while the second and third phases are currently part-funded by the Peruvian Ministry of Production.

Outside the LEDP, Las Bambas also helps participants connect with potential customers and provides mentoring so they can respond to external tenders.

The companies in the program contribute to local sustainable development in an area which was reliant on subsistence agriculture only five years ago. As local businesses grow, they employ more local people and can pay better salaries, which means their employees can afford better housing, education and healthcare.

A company in the LEDP can typically begin to operate and supply Las Bambas within six months. The advantages to Las Bambas of using local companies include hiring local labour and reduced logistics costs.

### INES' SUCCESS STORY



**Ines Martines Chauca is the Manager of General Contractors Varmar Sac, a personnel transport company with seven employees. Ines started working with the LEDP in 2015: "My experience in the program was very rewarding as it helped me improve my management skills and I have learnt to see new business opportunities. My greatest achievements have been increased profits, purchasing new vehicles and increasing the business's capital which will allow me to offer new and better services. I now have the confidence to take on new challenges and offer more specialised services. My family has a better quality of life and I can provide my children with a better education. One of my goals is to support my younger brothers so they can succeed as I have."**



**Image:** Caleb Loji, Environmental Officer at Kinsevere, monitors water quality of the Kifumanshi River.

# WE MINIMISE OUR IMPACT

We are committed to minimising our environmental footprint. We maintain a focus on managing our social impacts and align our social development activities with our Life-of-Asset Plans.

## WATER ACCESS AND USE

As mining and minerals extraction are water-intensive processes, the efficient performance of our operations relies on our ability to source water of appropriate quality and quantity. We recognise the importance of our role as responsible stewards of the water we share with local communities and the environment, and we look for opportunities to reduce our impacts on water resources from our sourcing and discharge activities.

Where possible, we seek to improve the efficiency of our water use and maximise water recycling. This reduces the need to source additional water from local catchments and forms an important part of our strategy for managing onsite water inventories.

## WATER BALANCE FOR 2016

We report our water inputs, outputs and diversions in line with the MCA Water Accounting Framework. In 2016 our operations managed a total of 85.5 gigalitres (GL) of water. A third (33%) of the total water managed is used for processing and related activities (28.4GL). The remainder is diverted around the operating areas and, where required, treated prior to release (refer to Table 8). The quantity of water managed as diversions often puts strain on our water management infrastructure. We strive to optimise our infrastructure to handle our peak discharge loads.



View more online at:  
[mmg.com/sustainability](http://mmg.com/sustainability)

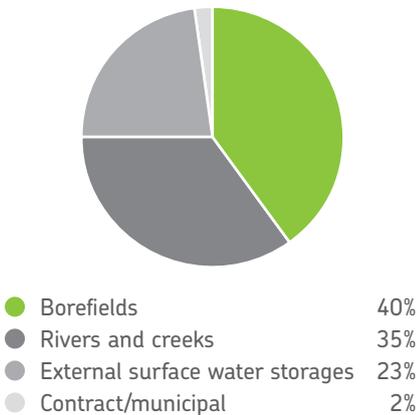
**TABLE 8: WATER BALANCE FOR 2016**

	ML			ML	
<b>DIVERTED WATER</b>	<b>57,132</b>		<b>DIVERTED WATER</b>	<b>57,569</b>	
<b>WATER INPUTS</b>	<b>28,391</b>		<b>WATER OUTPUTS</b>	<b>30,795</b>	
Precipitation and run-off	9,982	(35%)	Entrainment	17,779	(58%)
Rivers and creeks	6,715	(24%)	Evaporation	6,627	(22%)
Borefields	5,994	(21%)	Discharge to surface water	4,874	(16%)
External surface water storages	3,359	(12%)	Seepage	566	(1.8%)
Aquifer interception	1,172	(4.1%)	Discharge to estuary	88	(0.3%)
Contract/municipal	346	(1.2%)	Supply to third party	197	(0.6%)
Entrained in ore that is processed	825	(2.9%)	Other	663	(2.2%)
Third-party wastewater	-	(0%)			
<b>WATER CONSUMPTION*</b>	<b>22,003</b>				

Note: The MMG water balance excludes water used along the Las Bambas concentrate logistics route for dust suppression. This water is extracted under permit from surface water sources. The total volume of water managed (85.5GL) was similar to that in 2015 (84.2GL; previously reported as 82.8GL but restated to include external surface water storage inputs at Kinsevere). However less was used for processing and related activities (33%, compared with 49% in 2015), due to cessation of processing at our Century operation.

\* Water consumption describes the amount of water that was unavailable in/removed from our local catchments due to our operating activities – due to evaporation, water held in our tailings and the change in onsite water storage. Water consumption was estimated for the first time in 2016.

**FIGURE 3A: FRESHWATER (CATEGORY 1) INPUTS BY SOURCE – 2016\***



In 2016 approximately 35% (10.0GL) of water inputs were supplied by capturing rainwater and run-off. The bulk (14.6GL, 79%) of the remaining water used in our operations was of high quality, either meeting or close to meeting the drinking water standard (category 1). The water is sourced predominantly from borefields, rivers and creeks (refer to Figures 3a and 3b).

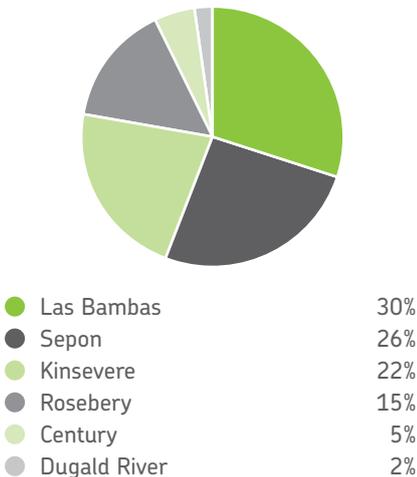
We had no community complaints or grievances in 2016 related to competing water use.

**WATER SECURITY**

Our water balance models predict water inputs, use and outputs to inform our management of water-related risks. We are increasingly integrating our water balance models and our Life-of-Asset Plans to make structured investment decisions regarding infrastructure, and to align water supply with processing demands.

One of the challenges at Las Bambas in 2016 was matching the timeline for the construction of the water supply line with our production schedule which saw us producing concentrate ahead of expectation.

**FIGURE 3B: FRESHWATER (CATEGORY 1) INPUTS BY SITE – 2016\***



**WATER DISCHARGE**

Our water balance models and management plans aim to minimise the need to treat and discharge water. We do this by diverting excess water around our operational areas and reusing process water where possible. However some of our operations are located in environments where rainfall far exceeds evaporation and our processing areas capture more rainfall than we need for our processing requirements. At these sites water treatment and discharge processes are necessary (refer to the Continuously improving the management of Sepon’s Western Tailings Storage Facility case study on page 38).

We released 5.0GL treated process water to the environment via licensed discharge points in 2016; 98% of this was category 2 water<sup>2</sup> released to surface water environments at Rosebery and Sepon.

2. Category 2 water is defined by the MCA Water Accounting Framework guidelines as “suitable for some purposes. Treatment will be required to remove total dissolved solids and/or to adjust other parameters to be safe for human consumption and more sensitive agricultural and recreational purposes.”

\* Excludes captured rainfall/run-off.

## CONTINUOUSLY IMPROVING THE MANAGEMENT OF SEPON'S WESTERN TAILINGS STORAGE FACILITY

The Sepon mine is located in an area that has much higher rainfall than evaporation, resulting in water accumulating on the site's Western Tailings Storage Facility (WTSF). Water levels on the WTSF, however, must be controlled within strict design limits to optimise the consolidation of tailings and minimise the risk of structural instability.

Water captured on the WTSF is either returned to the process for reuse or treated in a 'polishing plant', using lime dosing to remove metals and sulfate. Treated water is then discharged to the environment at our licensed discharge point.

Over the last three years, Sepon has made incremental improvements to water use and treatment in order to reduce the water levels in the WTSF to within an ideal operating range and ensure that water quality criteria for the discharge can be reliably met (refer to our 2013 and 2014 Sustainability Reports).

In 2016, Sepon invested over US\$1 million in a fully automated lime dosing system for the polishing plant. The new system improves lime dissolution, enhancing pH control and the efficient removal of contaminants, as well as reducing build-up of scale, which can cause blockages and increase maintenance downtime. Installation of a dust collecting system at the lime delivery station has also created a much safer work environment and reduced air pollution.

The consistent feed flow and contaminant removal means a greater volume of water can be treated, which is good news for the WTSF water level. After the dosing system was implemented, the flow rates of water treated at the polishing plant were increased by 50%. Our challenge is to sustain this improved performance.

### Investment in automated lime dosing at the Sepon polishing plant has improved water management at the Western Tailings Storage Facility.

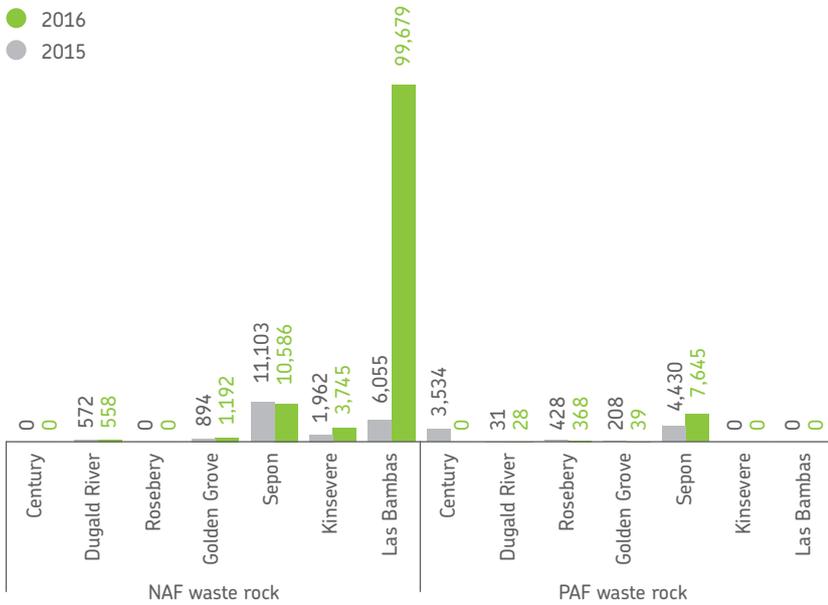
**Image:** Sepon's upgraded polishing plant has improved water management at Sepon mine, and has created a safer work environment.



## TAILINGS AND WASTE ROCK MANAGEMENT

Our mining and processing activities generate mineral waste. In 2016, we generated 123.8 million tonnes of waste rock, and 52.8 million tonnes of tailings were placed in tailings storage facilities across our operations (refer to Figures 4a and 4b).

**FIGURE 4a: WASTE ROCK GENERATED IN 2015 AND 2016 ('000 TONNES)**

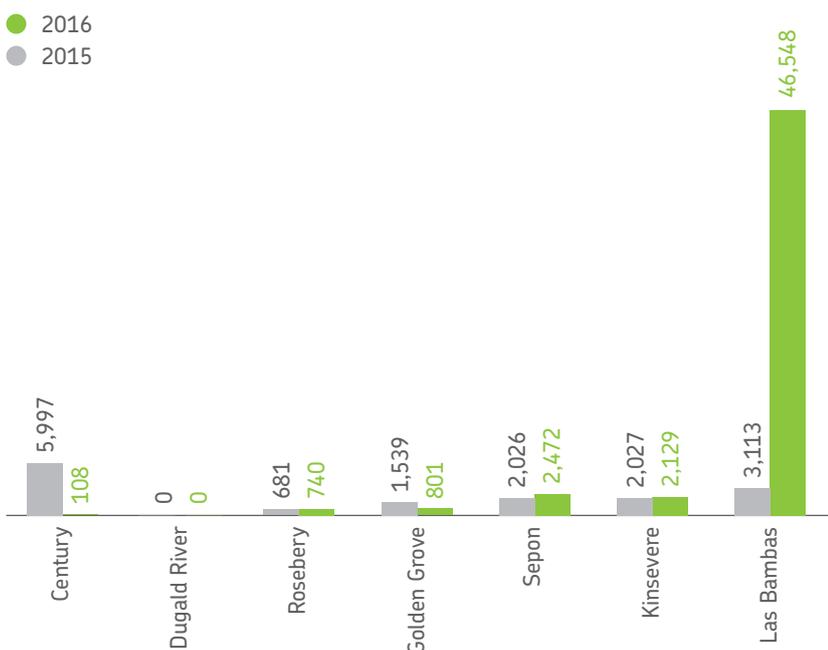


NAF = Non-acid forming waste rock

PAF = Potentially acid forming or unsegregated waste rock.

Note: Las Bambas commenced commercial production in mid-2016. Hence the amount of NAF waste rock generated in 2016 is much larger than in 2015. 30% of the 99.7 million tonnes of NAF waste rock generated at Las Bambas in 2016 was used for tailings storage facility construction. More ore was processed at Sepon to offset lower grades, hence PAF mineral waste generation increased in 2016, compared to 2015.

**FIGURE 4b: TAILINGS GENERATED IN 2015 AND 2016 ('000 TONNES)**



Note: Las Bambas commenced commercial production in mid-2016, hence the amount of tailings generated in 2016 is much larger than in 2015.

Some of this mineral waste is chemically reactive, with the potential to form acid and metalliferous drainage (AMD). If not identified early and managed effectively, it can also negatively impact water quality and the success of land rehabilitation. In implementing our Mineral Waste Management Plans we focus on characterising mineral waste and managing its storage to limit environmental impact and minimise operating and closure costs.

### WASTE ROCK STOCKPILES AND DUMPS

We manage waste rock by:

- > using it as underground mine backfill or in tailings storage facility construction (if it meets design requirements),
- > stockpiling it where there is potential to extract metal value in the future, and/or
- > placing it in surface waste rock dump landforms.

We aim to minimise the amount of waste rock in surface landforms at closure. While some operations will be required to design closure strategies to manage historical legacies associated with waste rock placement, recent waste rock dumps at Rosebery and Las Bambas have been designed for closure from the outset (refer to the Rosebery waste rock dump case study on page 40).

### TAILINGS STORAGE

Our critical controls for managing the risk of tailings dam failure focus on the design, construction and ongoing management of operating and non-operating tailings storage dams, and are in line with the Australian National Committee on Large Dams (ANCOLD) guidelines. We monitor the implementation of these controls to provide management with assurance that the right actions are occurring over time. While we have made ongoing improvements in this area over a number of years, the failure of the Bento Rodrigues dam in Brazil in November 2015 reinvigorated our efforts to confirm that we have the most effective control and governance strategy in place to prevent a tailings dam failure.

## CONSTRUCTING A WASTE ROCK DUMP AT ROSEBERY TO PREVENT ACID AND METALLIFEROUS DRAINAGE

Operations like Rosebery have sulfidic rocks that have the potential to generate acid and metalliferous drainage (AMD) when these rocks are exposed to air. In 2014 Rosebery started planning for a new above-ground waste rock dump (dump) to support ongoing mining activities, due to a lack of sufficient storage space underground. The selected location for the dump was a previously disturbed mine area, which meant the operational footprint was not increased.

At the Rosebery 3-Level Waste Rock Dump, a basal layer of limestone is applied to retard air entry and passively add alkalinity. Waste rock is then placed in thin lifts with optimal moisture and compaction. Compacted limestone layers are applied above each waste rock layer at a thickness calculated to ensure any drainage is of neutral pH. Surface drainage is directed to the Rosebery site water management infrastructure.

This novel dump design offers Rosebery the most effective strategy for above-ground operational management and closure of waste rock storage areas. The base-up construction method and thin-layer configuration enhances compaction and avoids producing preferential pathways for air and water, thus lowering AMD generation compared with conventional end-dumping methods.

In early 2015, Rosebery constructed two full-scale trial pads to determine optimum waste rock and limestone layer thickness and compaction methodologies. Rosebery routinely monitors oxygen penetration, as well as leachate and surface water quality, to support ongoing refinement of dump construction specifications and to confirm that the design aims are being met.

In the second half of 2015, the base area of the dump was prepared (backfilling of voids) and the initial layer of limestone was installed. In early 2016 we started routinely depositing waste at the dump. Monitoring devices are progressively being installed as the layers are built up.

Independent audits have been undertaken at intervals to review the construction activities and monitor the results from both the trial pads and the dump. Early performance data is very promising and supports the conclusion that an effective management strategy is in place to reduce the risk of AMD generation from the dump. Further improvement is expected over time as new compacted waste rock layers are added. As longer-term monitoring data becomes available, there is potential to further optimise the dump construction specifications and/or lower construction costs.

**Image:** Waste rock dump trial pad at Rosebery mine.



Since December 2015 we have been contributing to the ICMM’s global review of tailings storage facility (TSF) standards and governance, critical control strategies, and emergency preparedness approaches. In late 2016 we reviewed our governance structure for tailings dam risk management. This process was used to confirm that functional and site-level ‘risk owners’ have the level of seniority, objectivity and technical expertise appropriate for the risk rating of the TSF facilities that they oversee. We plan to build on the effective use of an external Dam Review Committee at Las Bambas by adopting a similar approach for each of the other regions in which we operate.

### LAND MANAGEMENT AND REHABILITATION

Successful land management and site rehabilitation are important priorities throughout the mining life cycle, from exploration through to site relinquishment. Public health and safety, post-closure environmental impacts and adverse socio-economic impacts are concerns which need to be addressed collaboratively with our stakeholders through the closure planning and execution process. At MMG the closure planning process starts during mine development and is integrated into Life-of-Asset management.

Our operations implement Land, Biodiversity and Cultural Heritage Management Plans to lessen the impact associated with the land disturbances necessary for exploration and mining activities. In managing land disturbance we balance other social and ecological needs and seek to preserve biodiversity, ecosystem and cultural heritage values (refer to the Discovery of a new lizard species case study on page 42).

Our operations undertake relatively minor progressive annual rehabilitation since disturbed areas are largely limited to operational areas which are in use, or will be used in the future. We do not set annual rehabilitation targets but we do build allowances into our closure plans and budgets where there are

opportunities to rehabilitate areas that are no longer required for operational purposes.

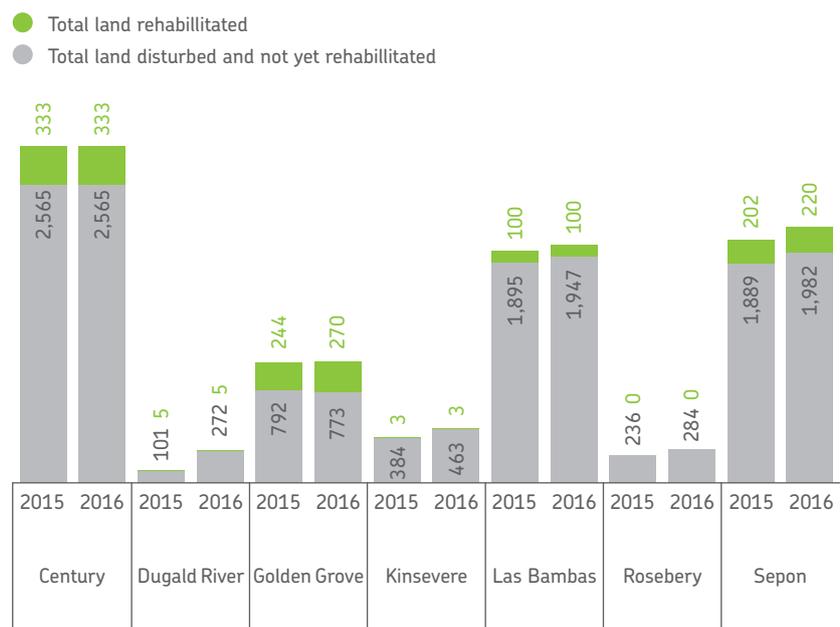
Our operations seek to minimise their impact on the environment and the community from open areas of disturbed land by implementing their management plans. This includes managing drainage and erosion and controlling dust, and may include temporary revegetation.

We start planning physical closure (landform management) well in advance. During the early stages we invest in gathering information on which to base environmentally sound, cost-effective decisions. Our closure planning process involves identifying options and undertaking studies to thoroughly understand the implications of the various options. This documented understanding can then be used for financial provisioning and, when appropriate, to engage and agree with stakeholders on the best management approach to achieve desired future land uses and closure criteria.

We integrate closure considerations into landform placement and design decisions early, to minimise future revisions to create final landforms suitable for closure. We have applied this philosophy to waste rock dump design and placement at Las Bambas and Rosebery (refer to the Rosebery waste rock dump case study on page 40) and for expansion pre-feasibility studies at Kinsevere.

All of our operations have closure plans, which vary in maturity depending on the stage of mine life. The plans are tailored for each stage of the mining life cycle, and direct resources to those operations closest to the end of production. Costs and schedules for closure execution are integrated with Life-of-Asset Plans. For information on our financial provisions for closure, please refer to MMG’s 2016 Annual Report.

**FIGURE 5: CUMULATIVE LAND DISTURBANCE AND REHABILITATION AT OUR OPERATIONS (KM<sup>2</sup>)**



Note: The cumulative disturbance area for Las Bambas (2015) has been revised based on survey information and therefore differs from that presented in our 2015 Sustainability Report. 2015 data has also been restated for Sepon and Rosebery.

**TABLE 9: LAND STATISTICS FOR MMG**

<b>Area of land managed at end of 2016</b>	<b>23,017</b>	<b>km<sup>2</sup></b>	<b>(97% held for exploration)</b>
<b>Area of land managed by our operating sites and advanced projects at end of 2016</b>	<b>646.9</b>	<b>km<sup>2</sup></b>	
<b>Area disturbed and not yet rehabilitated at end of 2015 (opening balance)</b>	<b>78.6</b>	<b>km<sup>2</sup></b>	
New disturbance in 2016	4.66	km <sup>2</sup>	(77% for construction of the tailings storage facility at Dugald River and to extend mining activities at Sepon and Kinsevere)
Disturbed areas rehabilitated in 2016	0.47	km <sup>2</sup>	(55% associated with the rehabilitation of Gossan Hill waste rock dump at Golden Grove and 45% at Sepon)
Rehabilitated areas redisturbed in 2016	0.037	km <sup>2</sup>	
<b>Area disturbed and not yet rehabilitated at end of 2016 (closing balance)</b>	<b>82.9</b>	<b>km<sup>2</sup></b>	

Note: Data reported in this table includes a cumulative disturbance area for Las Bambas based on survey data; in 2015 only an estimate was available. Hence the disturbance area reported as the opening balance (78.6km<sup>2</sup>) is less than the closing balance reported in the 2015 Sustainability Report.

## CASE STUDY

### DISCOVERY OF A NEW SPECIES OF LIZARD AT LAS BAMBAS

Las Bambas is located in a mountainous Andean region that is home to plant, bird, mammal and amphibious species that are endemic to the area and/or protected by national legislation and international conventions.

Baseline studies conducted in the Las Bambas project area as part of the Environmental Impact Assessment in 2011 identified the presence of a lizard species of the genus *Liolaemus*. However subsequent biodiversity monitoring highlighted that the characteristics of this lizard species were not entirely consistent with the various species of *Liolaemus* documented in scientific literature.

Las Bambas engaged an expert team of biologists to undertake further studies to characterise the

lizard. This work investigated the genetic relatedness between lizards collected from the *Liolaemus* population in the Las Bambas project area and surrounds, and lizards of the same gender and genus collected from other areas in southern Peru. The results of genetic sequencing analysis support the conclusion that the Las Bambas population represents an undescribed species of *Liolaemus*.

A relocation protocol has been developed and Las Bambas is currently working on securing the best location for a successful relocation of the lizard population. Relocation is a challenging activity but essential to give this unique amphibian every opportunity to continue to thrive in the area.

### MANAGING THE SOCIAL AND ECONOMIC IMPACTS OF MINE CLOSURE

We aim to manage the impacts of mine closure on employees, host communities and economic development through our workforce transition strategies and the social development programs we implement during operations. By aligning our social development programs with our Life-of-Asset Plans, we are focusing on longer-term economic development which is not reliant on mining and can be sustained post-closure (refer to the Social development and investment section on pages 28-31).

Image: *Liolaemus* sp. gr. *montanus* 1 found in the Las Bambas project area.



## A NEW LIFE FOR CENTURY

The standard model of the mining life cycle is discover – develop – operate – close – rehabilitate. Like many other mining companies our focus has been on returning a site to its pre-mining state, with the bulk of the infrastructure demolished and removed and the site fully rehabilitated. This is followed by ongoing site management and monitoring until final sign-off and relinquishment, when the government or the new land users take ownership and responsibility.

At MMG we have reconsidered this standard approach and realise that while the mineral resource is finite, the economic life of the assets associated with the mine need not be.

Mining ceased at the Century mine in north-west Queensland in August 2015 and the site was placed on care and maintenance in 2016.

During its operating life the Century mine and the associated Karumba Port facility made a significant positive impact on the economy and development of the communities of the Lower Gulf of Carpentaria. Century was a major driver of development; it provided employment for over 1,000 people from the remote Gulf communities and training and opportunities to

local businesses. It also contributed to improved infrastructure and services in the region through rates and royalties.

The Century mine and associated Karumba port facility contributed over A\$247 million to Queensland through taxes, royalties and rates between 2009 when MMG assumed ownership and the end of its operating life in 2015.

Furthermore, the mine generated millions of dollars in wages and local procurement and provided significant voluntary community investment on an annual basis.

It also made significant contributions to the local Indigenous communities via compensation arrangements and through the establishment of Indigenous enterprise under the terms of the Gulf Communities Agreement.

Over the 16 years of the mine's operation, more than a billion dollars was invested in infrastructure at Century and Karumba – including mill and mining-related infrastructure, port facilities at Karumba, a CASA-approved airfield, a borefield, 220kV powerline, 6MW diesel-fired power station and a slurry pipeline.

Given the lack of economic opportunities in the Lower Gulf we considered it was critical for us to look at how we could transition these opportunities into ongoing economic activity. During 2016 we continued to assess the future of Century. We realised we had an opportunity to generate ongoing benefits based on the significant infrastructure and access to a trained and skilled workforce, supported by our desire to ensure the region and state continued to benefit from the project.

On 28 February 2017, MMG entered into a sale agreement with a subsidiary of Century Bull Pty Ltd, under which Century Bull will reprocess zinc tailings and remediate the site. This means site remediation will be undertaken by a dedicated rehabilitation business with the intention of achieving an economic return, generating renewed employment, training and business opportunities for Century and the surrounding communities of the Lower Gulf. Century Bull aims to extract value from the existing mine waste and make use of the high-quality infrastructure.

**Image:** The Century processing plant, during the mine's operation.





# 2015–18 OBJECTIVES AND TARGETS

OBJECTIVES	2015–18 TARGETS
<b>1</b> Deliver a low-cost, high-performing organisation, with a culture characterised by our values.	MMG values reflected in our People and Culture Survey results.  MMG Operating Model embedded at all sites and offices.  Human Resources information systems embedded across all operations.
<b>2</b> Our people understand and demonstrate our Success Through Every Person (STEP) program and apply the key principles and learnings in all business interactions.	100% of those in leadership roles have been given access to MMG leadership development training programs within three months of joining MMG.
<b>3</b> All our people (including contractors) are competent and motivated to work safely and are supported by visible leadership and effective systems and processes.	A year-on-year reduction in annual TRIF across MMG and at each site.
<b>4</b> Exposure Management Plans are based on a comprehensive understanding of exposure potential and a practical application of the hierarchy of controls, which keep exposures within acceptable limits.	Baseline exposure monitoring programs completed at all sites.  Exposure Management Plans implemented at all sites.  A year-on-year reduction in occupational exposure profile at all sites relative to a 2015 baseline.
<b>5</b> Closure planning is inclusive, knowledge-based and meets stakeholder expectations.	Closure Plans have stakeholder-agreed closure criteria in place at all operations within five years of closure.
<b>6</b> Interactions respect our host communities and their values, beliefs, culture and heritage.  Open, transparent, community-supported grievance mechanisms close-out disputes to the satisfaction of all parties.  Community investments provide sustainable advancement to the social and economic development of our host communities.	Be an accepted participant in the Voluntary Principles on Security and Human Rights (VPSHR) Initiative.  Resolution of all complaints/grievances according to site procedures.  Community Investment Plans target community stakeholder agreed Quality of Life indicators at all sites.
<b>7</b> Mineral Waste Management Plans are based on a comprehensive knowledge of the geochemical characteristics of waste and construction materials.  Water Management Plans are catchment based.	Mineral Waste and Water Management Plans implemented at all sites.
<b>8</b> Critical controls for material operational risk events are identified, implemented and verified.	Critical control verification reporting to management in place for all material risks, at all sites.

# 2016 AND 2017 MILESTONES

We set annual milestones to keep us on track to meet our 2015–18 targets. Our performance against our 2016 milestones is detailed below and should be read in conjunction with the objectives and targets on page 45. The numbers 1–8 below cross-reference the objectives.

2016 MILESTONES	PROGRESS	2017 MILESTONES
<p><b>1 Executive Committee endorsement of local versus global talent strategy.</b></p> <p>Talent identified in all Level 3 and Level 4 employees through formal assessment.</p>	<p>● We have adopted a local recruitment approach for positions up to and including Superintendent. Roles above this level are sourced globally (preferably internally) if in-country options are limited.</p> <p>All Level 4 managers participated in a Leadership Assessment Program.</p>	<p>Leadership Acquisition Team equipped for next acquisition.</p>
<p><b>Operating Model implemented at Kinsevere.</b></p>	<p>● Aligned the Kinsevere organisational structure to the MMG Operating Model to improve the efficiency and effectiveness of the way in which work is delivered, and to reflect our commitment to localisation.</p>	<p>Ongoing capability planning and development interventions for our local talent to realise the full value of the Operating Model.</p>
<p><b>Implementation of SAP Human Resources systems at Las Bambas; including training to upskill personnel who are part of the Las Bambas Process Support Network.</b></p>	<p>● SAP system fully implemented. Process Support Network in place. HR Business Partners trained and assessed as competent. Individual training needs identified.</p> <p>Two of four Shared Business Services (SBS) People Services personnel assessed and rated as competent.</p>	<p>Deliver on individual training plans and complete another round of assessments on HR Business Partners and SBS People Services team members.</p>
<p><b>2 Deployment of training sessions in support of our Creating Safe Work program.</b></p>	<p>● Commenced delivery of the Creating Safe Work program across operating sites.</p>	<p>Embed Creating Safe Work training program into our Operating Accountabilities Program for Supervisors and Superintendents.</p> <p>Delivery plans endorsed by site GM and Group Safety, Security, Health and Environment (SSHE).</p> <p>'Creating Safe Work' programs reviewed and delivered by Training/SSHE teams.</p>
<p><b>3 Company-wide TRIF result of 1.9 or less.</b></p>	<p>● Company-wide TRIF for calendar year 2016 was 1.90.</p>	<p>A Company-wide TRIF of 1.71 or less.</p>
<p><b>4 Baseline exposure monitoring completed at Las Bambas.</b></p> <p>Development and full implementation of Exposure Management Plans for sulphuric acid mist, diesel particulate matter, lead and noise, where there are health threats at site.</p>	<p>● Completed.</p> <p>● Progressed – critical controls have been identified and control plans are being developed.</p>	<p>Target met – no further milestones required.</p> <p>At least two health and hygiene Management Assurance Reviews conducted at all sites by the designated 'risk owner', with improvement actions completed to schedule.</p>

2016 MILESTONES	PROGRESS	2017 MILESTONES
<b>5 Consultation on closure criteria conducted with key stakeholders at all operations that are within five years of closure.</b>	<ul style="list-style-type: none"> <li>● Sepon – closure objectives and preliminary completion criteria developed in consultation with stakeholders. Included in the 2016 Sepon Mine Closure Plan review which was approved by the regulator in 2016.</li> <li>● Century – indicative closure criteria developed in consultation with stakeholders. Submitted in the Plan of Operations and accepted by the regulator in November 2016.</li> </ul>	Consultation on closure criteria conducted with key stakeholders at all operations within five years of closure.
<b>6 Finalise Security Management Plan for Las Bambas.</b>	<ul style="list-style-type: none"> <li>● Progressed – the plan is in the final stages of review and approval.</li> </ul>	Progress made in meeting the requirements of VPSHR Initiative participation.
<b>Independent assessments undertaken at Las Bambas, Kinsevere and Sepon to confirm effectiveness of their Security Management Plans and alignment with VPSHR.</b>	<ul style="list-style-type: none"> <li>● Completed.</li> </ul>	
<b>100% resolution of all complaints/grievances in accordance with site procedures.</b>	<ul style="list-style-type: none"> <li>● 302 (74%) of grievances received in 2016 have been resolved. We continue to work with individuals involved in the outstanding complaints to resolve their concerns.</li> </ul>	Site grievance procedures are supported by community and aligned with the remedy provisions of the UN Guiding Principles on Business and Human Rights.
<b>Quality-of-life indicators verified with site communities and other stakeholders.</b>	<ul style="list-style-type: none"> <li>● Progressed – following stakeholder feedback we decided to align with UN Sustainable Development Goals indicators.</li> </ul>	Social development programs deliver outcomes in line with UN Sustainable Development Goals 1–6.
<b>7 Deployment of site Management Assurance Reviews for mineral waste and water as per approved plan.</b>	<ul style="list-style-type: none"> <li>● Completed – Management Assurance Review process was trialled for mineral waste and water at Kinsevere, Las Bambas, Sepon and Rosebery.</li> </ul>	At least two mineral waste and two water Management Assurance Reviews conducted at all sites by the designated ‘risk owner’, with improvement actions completed to schedule.
<b>8 Critical control management plans implemented for solvent extraction plant fires and failure of tailings storage facilities at relevant operations.</b>	<ul style="list-style-type: none"> <li>● Progressed.</li> </ul>	Reports are available to site management on the effectiveness of critical control management for material SSHE risks at operations.

**KEY:** ● Milestone met or substantially met ● Progressed ● Milestone not met



## INDEPENDENT LIMITED ASSURANCE REPORT

### TO THE MANAGEMENT AND DIRECTORS OF MMG LIMITED ON THE 2016 SUSTAINABILITY REPORT

We have undertaken a limited assurance engagement on the subject matter, as defined below within the Subject Matter and Reporting Criteria section (the 'Subject Matter'), as presented in MMG Limited's ('MMG') 2016 Sustainability Report in order to state whether anything has come to our attention that would cause us to believe that the Subject Matter has not been reported and presented fairly, in all material respects, in accordance with the Reporting Criteria described below.

### SUBJECT MATTER AND REPORTING CRITERIA

The Subject Matter has been assessed against the criteria prescribed in the International Council of Mining and Metals ('ICMM') *Sustainable Development Framework Assurance Procedure* ('Reporting Criteria'). The Subject Matter and Reporting Criteria for our limited assurance engagement for the year ended 31 December 2016, for the reported boundary, was ICMM Subject Matters 1 to 5, as described in the table below.

For the purposes of this engagement, the specific Subject Matter and Criteria were defined as follows:

Area	Subject Matter	Criteria (and location in MMG's 2016 Sustainability Report)
ICMM Subject Matter 1	The alignment of MMG's sustainability policies to ICMM's 10 Sustainable Development ('SD') Principles and mandatory requirements set out in ICMM Position Statements	MMG's reported alignment of its sustainability policies to ICMM's 10 SD Principles and mandatory requirements set out in ICMM Position Statements (refer to Appendix on <a href="http://www.mmg.com">www.mmg.com</a> )
ICMM Subject Matter 2	MMG's material sustainability risks and opportunities based on its own review of the business and the views and expectations of stakeholders	MMG's description of the process for identifying material issues and the Global Reporting Initiative ('GRI') definition of completeness per the G4 Sustainability Reporting Guidelines
ICMM Subject Matter 3	The existence and status of implementation of systems and approaches used by MMG to manage a selection of material sustainability risks and opportunities (selected through a random double-blind process) including: <ul style="list-style-type: none"> <li>&gt; Tailings and waste rock management               <ul style="list-style-type: none"> <li>— G4-EN22: Total water discharge by quality and destination</li> </ul> </li> <li>&gt; Social and economic impacts of mine closure               <ul style="list-style-type: none"> <li>— G4-MM10: Number and percentage of operations with closure plans</li> </ul> </li> <li>&gt; Strategy and growth               <ul style="list-style-type: none"> <li>— G4-EC1: Direct economic value generated and distributed</li> </ul> </li> </ul>	MMG's description of the systems and approaches to manage the selected material sustainability risks and opportunities
ICMM Subject Matter 4	MMG's reported performance during the 1 January 2016 to 31 December 2016 reporting period for the material sustainability risks and opportunities identified in Subject Matter 3 above	Performance information criteria disclosed by MMG for each indicator including: <ul style="list-style-type: none"> <li>&gt; G4-EN22: Total water discharge by quality and destination (page 37 and Appendix page 13)</li> <li>&gt; G4-MM10: Number and percentage of operations with closure plans (page 41)</li> <li>&gt; G4-EC1: Direct economic value generated and distributed (pages 28 and 30)</li> </ul>
ICMM Subject Matter 5	MMG's self-declared application level of the GRI G4 Sustainability Reporting Guidelines	GRI G4 "in accordance" Core criteria

The Subject Matter did not include:

- › Data sets, statements, information, systems or approaches other than the Subject Matter
- › Management's forward looking statements
- › Any comparisons made against historical data.

### **MANAGEMENT AND DIRECTORS' RESPONSIBILITY FOR THE SUBJECT MATTER**

The Management and Directors of MMG are responsible for:

- › Ensuring that the Subject Matter in the 2016 Sustainability Report is prepared and presented in accordance with the Reporting Criteria
- › Confirming the measurement or evaluation of the underlying Subject Matter against the applicable Reporting Criteria, including that all relevant matters are reflected in the Subject Matter information
- › Designing, establishing and maintaining internal controls to ensure that the Subject Matter in the 2016 Sustainability Report is prepared and presented in accordance with the Reporting Criteria.

### **DELOITTE'S INDEPENDENCE AND QUALITY CONTROL**

We have complied with the independence and other relevant ethical requirements relating to assurance engagements, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm applies Auditing Standard ASQC 1 *Quality Control for Firms that Perform Audits and Reviews of Financial Reports and Other Financial Information, Other Assurance Engagements and Related Services Engagements*, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### **DELOITTE'S RESPONSIBILITIES**

Our responsibility is to express a limited assurance conclusion on the Subject Matter based on the procedures we have performed and the evidence we have obtained.

We conducted our limited assurance engagement in accordance with Australian Standards on Assurance Engagements ASAE 3000 *Assurance Engagements Other than Audits or Reviews of Historical Financial Information* ('ASAE 3000'), issued by the Australian Auditing and Assurance Standards Board in order to express a conclusion whether, based on the procedures performed and the evidence obtained, anything has come to our attention that causes us to believe that the Subject Matter has not been prepared and presented in all material respects in accordance with the Reporting Criteria. That standard requires that we plan and perform this engagement to obtain limited assurance about whether the Subject Matter is free from material misstatement.

A limited assurance engagement in accordance with ASAE 3000 involves identifying areas where a material misstatement of the Subject Matter information is likely to arise, addressing the areas identified and considering the process used to prepare the Subject Matter in the 2016 Sustainability Report. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures we performed were based on our professional judgement and consisted primarily of:

- › Making enquires of management to obtain an understanding of the overall governance and internal control environment, risk management, materiality assessment and stakeholder engagement processes relevant to the identification, management and reporting of sustainability issues and selected performance indicators
- › Sample testing of reported data, performance statements, claims and case studies included in the Subject Matter against supporting source information and MMG's reported boundary. This included procedures conducted on site at MMG's Las Bambas mine

## ASSURANCE TERMS AND STATEMENT (CONTINUED)

- › Sample testing as to whether the methods for collating and calculating data for the selected Performance Indicators were aligned with the stated Criteria
- › Reading selected management information and documentation supporting assertions made in the Subject Matter
- › Reading selected MMG policies and standards and assessing alignment with ICMM's 10 Sustainable Development Principles and other mandatory requirements as set out in ICMM's Position Statements
- › Performing a comparison of the content of MMG's 2016 Sustainability Report and GRI Index against the "in accordance" Core criteria option requirements of the GRI G4 Sustainability Reporting Guidelines.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express an opinion providing reasonable assurance about whether the Subject Matter has been properly prepared and presented, in all material respects, in accordance with Reporting Criteria.

### INHERENT LIMITATIONS

There is an unavoidable risk that work planned and executed in accordance with the ASAE 3000 may not detect a fraud, error or non-compliance with laws and regulations, where there has been concealment through collusion, forgery and other illegal acts. MMG acknowledges that we may not detect fraud, error or non-compliance where there has been concealment, forgery or other illegal acts. In all other circumstances, MMG relies on Deloitte to identify material errors as part of the assurance engagement. However, we will communicate to you, as appropriate, any such matters that come to our attention.

While our limited assurance engagement considered the effectiveness of MMG's internal controls relevant to the preparation of the Subject Matter when determining the nature and extent of our procedures, our limited assurance engagement was not designed to provide assurance on internal controls over the preparation of the Sustainability Report and the Subject Matter, respectively.

### LIMITATIONS OF USE

Our assurance report has been prepared solely for the Management and Directors of MMG in accordance with our engagement letter dated 31 October 2016. We disclaim any assumption of responsibility for any reliance on this report or on the Subject Matter to which it relates, to any person other than the Management and Directors of MMG or for any purpose other than that for which it was prepared.

### MATTERS RELATING TO ELECTRONIC PRESENTATION OF INFORMATION

Our limited assurance engagement included web-based information that was available via web links as of the date of this statement. We provide no assurance over changes to the content of the 2016 Sustainability Report after the date of this assurance statement.

### CONCLUSION

Based on the procedures performed and the evidence obtained, nothing has come to our attention that causes us to believe that the Subject Matter has not been properly prepared and presented, in all material respects, in accordance with the Reporting Criteria for the year ended 31 December 2016.

*Deloitte Touche Tohmatsu*

DELOITTE TOUCHE TOHMATSU

*Sh. Tyagi*

Shailesh Tyagi  
Partner  
Sydney, 12 May 2017

## REGULARLY OCCURRING ACRONYMS

AMD	acid and metalliferous drainage
ASM	artisanal and small-scale mining
CEO	Chief Executive Officer
CMC	China Minmetals Corporation
DRC	Democratic Republic of the Congo
GRI	Global Reporting Initiative
ICMM	International Council on Mining and Metals
ISO	International Organization for Standardization
Lao PDR	Lao People's Democratic Republic
LTIF	lost time injury frequency
LXML	Lane Xang Minerals Limited Sepon
MCA	Minerals Council of Australia
MMG	MMG Limited
NAF	non-acid forming waste rock
PAF	potentially acid forming or unsegregated waste rock
SHEC	Safety, Health, Environment and Community
SSHE	Safety, Security, Health and Environment
STEP	Success Through Every Person
TRIF	total recordable injury frequency
TSF	tailings storage facility
UN	United Nations
VPSHR	Voluntary Principles on Security and Human Rights

## DEFINITIONS

**acid and metalliferous drainage (AMD):** AMD 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 responsibly managed, AMD can impact the revegetation of mining wastes, and degrade surface and groundwater quality. Waste rock with the potential to form AMD is termed 'potentially acid forming' or PAF waste rock.

**artisanal and small-scale mining:** Artisanal mining is often characterised as mining practised by individuals, groups or communities, often informally (illegally), using low technology or mechanisation. It can be highly organised, involving many people in different roles and hierarchies.

**km99:** km99 is the temporary transfer station located in Arequipa province where containers of Las Bambas copper concentrates are transferred from road transport to rail wagons for delivery by Peru Rail to the Las Bambas storage facility at the Port of Matarani.

**Life-of-Asset Plan:** A strategic planning process which looks to optimise the value derived from an operation over its life cycle.

# KEY CONTACTS

We welcome your comments on this report. Please contact us with your feedback or suggestions.

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