SOUTH32

**FY19
SUSTAINABILITY
PERFORMANCE
REPORT**

OUR PURPOSE

Our purpose is to make a difference by developing natural resources, improving people's lives now and for generations to come. We are trusted by our owners and partners to realise the potential of their resources.

WHO WE ARE

South32 is a globally diversified mining and metals company. We produce bauxite, alumina, aluminium, energy and metallurgical coal, manganese, nickel, silver, lead and zinc at our operations in Australia, Southern Africa and South America. We are also the owner of a high grade zinc, lead and silver development option in North America and have several partnerships with junior explorers with a bias to base metals.

OUR VALUES

Care

We care about people, the communities we're a part of and the world we depend on.

Trust

We deliver on our commitments and rely on each other to do the right thing.

Togetherness

We value difference and we openly listen and share, knowing that together we are better.

Excellence

We are courageous and challenge ourselves to be the best in what matters.

This report details South32's performance in the financial year 2019 across the health, safety, environment, people and community related aspects of our business. Further detail on these topics, including how we manage them, is available at *www.south32.net*.

IMPORTANT NOTICES AND DISCLAIMER

CONTENTS

See the rest of our 2019 annual reporting suite at *www.south32.net*.

- Annual Report
- Corporate Governance Statement
- Our Approach to Climate Change
- Our Approach to Water Stewardship
- Tax Transparency and Payments to Governments Report
- Modern Slavery Statement (November 2019)

FROM THE CSO

I am pleased to present the FY19 Sustainability Performance Report.

Sustainable development is essential to our business. For us, this means continually strengthening our approach to responsible and safe ways of working, becoming stewards of our shared natural resources and contributing to society in a targeted and sustaining way.

Our FY19 Sustainability Performance Report reflects this commitment. It represents a voluntary and transparent disclosure of our people, health, safety, environment and community performance, that not only looks at what we are doing well, but importantly, where we can improve.

This financial year, we have 'met' or 'achieved target' on three of our four sustainability measures, as outlined in our South32 Business Scorecard (see page 4 of this report). This is a reflection of the work we have put into creating strong foundations that deliver stable and predictable performance, and developing ways to measure and monitor the outcomes of our work into the future.

At South32, there is nothing more important than making sure everyone goes home safe and well at the end of every shift. While we were slightly behind target on our safety sustainability measure, our total recordable injury frequency continued to improve this year, with a 12 per cent reduction from FY18. We also delivered a meaningful reduction in our occupational exposures. We remain committed to year-on-year improvements in health and safety.

We believe that if done well, mining can change people's lives for the better. We go through rigorous processes to understand the unique social, cultural and legal contexts we're operating in. We have regular, open and honest conversations to better understand what our stakeholders need and expect. From providing jobs and business opportunities, to empowering suppliers and supporting community programs, we can make a significant contribution to the way people live and work. This year we're proud to have contributed US$17.3 million to community development projects and we've committed to investing up to US$125 million over the next five years.

At South32, tailings storage facilities failure is managed as a material risk within our risk management framework and continues to be a strong focus. In FY19 we published our Tailings Storage Facilities Management report which details our approach to tailings management, in line with the Investor Mining and Tailings Safety Initiative.

In our third Our Approach to Climate Change report we've expanded our disclosure of the physical impacts of climate change to include all our operations. This year's report also highlights progress on decarbonisation studies at Illawarra Metallurgical Coal and Worsley Alumina, as we work towards our goal of net zero emissions by 2050.

This year we also released our inaugural water report, Our Approach to Water Stewardship. We have set three contextual water targets and the report reflects the importance of this shared resource to our business and to society.

At South32, sustainability underpins our strategic, integrated thinking and inspires us to innovate. We remain committed to being part of a solution to the challenges which face current and future generations.

We are working with the communities we are part of to see beyond what is possible today, to create a better tomorrow for us all.

Rowena Smith

Rowena Smith
Chief Sustainability Officer

FRAMEWORKS

We report our sustainability information and data in accordance with international standards and frameworks.

Our GRI Sustainability Reporting Navigator FY19 shows where we meet the various Global Reporting Initiative (GRI) core level requirements. The GRI Sustainability Reporting Navigator FY19 also identifies how we address the 10 principles of the International Council on Mining and Metals (ICMM) and the United Nations Sustainable Development Goals (SDGs). Our sustainability information and data, excluding the Our people section, within the annual reporting suite is independently assured by KPMG. A copy of this assurance opinion is located on page 14 of the GRI Sustainability Reporting Navigator FY19.

South32 supports the United Nations (UN) Sustainable Development Goals (SDGs). The United Nations 2030 Agenda for Sustainable Development defined 17 SDGs in September 2015 that seek to address the world's greatest challenges. The SDGs build on the work undertaken through the Millennium Development Goals but have a greater focus on the involvement of the private sector. South32 plans align with the SDGs. The key to a successful result is working with stakeholders to develop and implement actions that contribute to sustainable development.

GOVERNANCE

The Board has established a Sustainability Committee to discharge its responsibilities effectively and efficiently.

The role of our Sustainability Committee (Committee) is set out in its Terms of Reference. The Committee comprises Directors appropriately skilled in health, safety, environment and community (HSEC) matters as determined by the Board.

Key responsibilities under the Terms of Reference include:

- The appropriateness of the Group's[1] HSEC framework and management systems;
- The Group's systems for compliance with applicable HSEC related legal and regulatory requirements;
- The Group's Sustainability Policy and position statements for key sustainability issues;
- The Group's performance in relation to HSEC matters; and
- Making recommendations to the Remuneration Committee on appropriate key performance indicators for the HSEC component.

The Committee's work is supported by the Chief Executive Officer, Chief Sustainability Officer and the Chief Operating Officers. You can read more about our Board Committees in our Corporate Governance Statement and at *www.south32.net*.

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(1)   The Company and its related bodies corporate.

WHAT MATTERS MOST: MATERIALITY AT SOUTH32

Each year, we carry out a materiality analysis, which assists us to prioritise what matters most to both us and our stakeholders.

Our materiality process provides us with insight into industry trends, key risks and opportunities, looking both internally and externally. It helps align our strategic focus so that we can continue to deliver reliable value to our stakeholders – and improve our sustainability work, governance actions and subsequent annual reporting.

We disclose the most material issues we identify, and how we manage these within our business, including improvement activities. We disclose to a 'core' level, using the Global Reporting Initiative (GRI) standards, and we carry out the materiality process annually, which is a key requirement in meeting these standards.

STEP ONE: IDENTIFICATION

Firstly, we identify the sustainability topics that are important to a wide range of internal and external stakeholders. We consider information that is general to our industry, as well as specific to our company. We collate and analyse existing information and opinion gathered and add input from workshops with sustainability experts or in-depth interviews with our business leaders. This gives us a clearer understanding of our most pressing issues, and how these can present opportunities or risks for us.

An important part of this is considering impacts to voiceless stakeholders such as ecosystems and future generations. This aligns with our purpose, and specifically, helps us maintain our commitment to the responsible stewardship of natural resources to make sure they continue to provide value for future generations. The boundaries of each sustainability topic are defined, allowing us to see whether an impact may occur within or outside of our direct operational control. These boundaries are indicated in our GRI Sustainability Reporting Navigator FY19, on our *website*.

STEP TWO: PRIORITISATION

Once we've identified the topics, we prioritise them so that we know which topics are the most important. Depending on the stakeholder group, this can be done in different ways. For example, when we look at the comments made by community members in community meeting minutes, we prioritise based on the number of times a topic is raised. We rank the results of the discussions in workshops or interviews according to how important or impactful the sustainability experts believed the topics to be.

STEP THREE: VALIDATION

At this stage, we need to make sure our materiality assessment is reasonable, balanced and encompasses all our major stakeholders. This ensures that our reporting is accurate, and that we disclose on both positive and negative aspects of our sustainability performance. We report data about each topic in our Sustainability Performance Report and Annexure 1, our Sustainability Data Tables. This helps readers make an easy comparison on our performance compared with other companies and demonstrates alignment of our reporting with the GRI standards.

STEP FOUR: REVIEW

Once the materiality process is completed, we review the results and ensure that the key topics are allocated sufficient depth and breadth in our reporting, in accordance with the GRI standards and our commitment to transparency. We also work with an independent third party, KPMG, to provide assurance over our sustainability data and disclosures. For FY19, KPMG verified that we followed a credible materiality process to select and define our FY19 Sustainability Performance Report content.

OUR FOCUS IN FY19

This year we identified the following key sustainability topics as material to both us and our stakeholders. We've indicated actions we're taking to address these topics within our business.

Decreased our Total Recordable Injury Frequency by 12 per cent to 4.5. Decreased our Total Recordable Illness Frequency by 26 per cent to 1.3

We are developing a social performance framework, and in FY19, updated many of our Social Impact and Opportunity Assessments as well as all engagement and investment plans.

Progressed decarbonisation studies for our long-life, emissions intensive operations Worsley Alumina and Illawarra Metallurgical Coal

Strengthened our approach to risk management with new software which will be piloted in FY20 to manage our compliance obligations

Assessed catchment-based water risks and opportunities for all operations and set three contextual water targets

Increased representation of females on the South32 Lead Team to 40 per cent and 37 per cent in the Senior Leadership Team. In FY19 we spent A$6 million on leadership development

New biodiversity risk and opportunity screening process competed for all operations

Transparent disclosure of our tailings storage facilities in our Tailings Storage Facility Management 2019 Report

On-track to achieve our FY21 Scope 1 target to maintain our emissions at or below our FY15 baseline. Progressed decarbonisation studies for our long-life, emissions intensive operations, Worsley Alumina and Illawarra Metallurgical Coal

Our annual Tax Transparency and Payments to Governments Report allows us to demonstrate that our tax affairs are conducted in accordance with our corporate values and commitment to ethical business practices. In FY19 we invested US$17.3 million in our communities

Inner ring topics:
- The health and safety of our people
- Understanding and managing our impacts on local communities
- The future energy mix and security of supply
- Compliance with environmental regulations
- Water management considerations and ensuring the availability of supply
- The changing nature of the workplace and attracting, retaining and developing our people
- Biodiversity
- Safe and effective management of our tailings facilities
- Reducing our emissions and our contribution to climate change
- Fair share and community investment

WHAT MATTERS TO OUR COMPANY AND OUR STAKEHOLDERS

BUSINESS SCORECARD LINKED SUSTAINABILITY PERFORMANCE

We include sustainability targets as part of our Business Scorecard. Our targets and performance in FY19 are listed below, and can be found in detail on page 58 of the Remuneration section of our Annual Report:

Targets	Performance
Emissions reduction	Better than target
Improving our total recordable injury frequency	Target not met
Reducing material occupational exposures	Outstanding
Making progress in the way we invest in our communities and how we measure that performance	Target met

Performance against these targets is directly linked to all employee remuneration, including for the Lead Team.

SAFETY PERFORMANCE

The most important commitment we all make at South32 is that everyone goes home safe and well.

You can read about how we manage safety on our _website_.

Our internal safety standards and system of risk management were the two main areas of focus to improve safety in FY19.

IMPROVING OUR STANDARDS

We put a revised safety standard in place, which included key improvements in entanglement and other common fatality risks. A gap analysis was carried out to make sure that our core safety processes and minimum controls for common fatality risks, were being applied at all our operations. We will be using this analysis to drive action throughout FY20.

OUR SYSTEM OF RISK MANAGEMENT

To improve our company-wide system of risk management, we:

- Reviewed identified risks and aligned them with our material risk registers;
- Implemented a risk and event management tool, Global360; and
- Delivered risk capability training to over 5,500 of our people in every continent where we operate.

Risk walks: An important part of risk management is making sure that risk is not normalised by familiarity with a task or an operating environment. We used risk walks to help identify our entanglement risks. We made 'fresh eyes' a priority, so that the physical environment and ways of working were reviewed in depth. Internal and external risk experts, operational leaders, health, safety and environment specialists and members of our workforce were all involved. Completed in the second half of FY19, risk walks were successful in engaging many people across our global business, with the aim of effectively managing entanglement risks.

GLOBAL360

We began rolling out our new risk and event management tool, Global360, at Cannington in November 2018.

Global360 is an integrated platform that we use across our operations to collect and analyse data. It helps us to make decisions and improve our risk management performance. Through it, we manage risks related to operating safely and sustainably.

By March 2019, the platform was running across our global operations. We facilitated this through a global change management program – coordinated and supported by dedicated change leads across the organisation.

We'll continue to use and improve Global 360 in FY20. We will also use a suite of key risk indicators, including control effectiveness and verification in our management processes, with a focus on potential material exposures in health, safety and environment.

MEASURING OUR SAFETY PERFORMANCE

We measure safety performance using the benchmarked measure, Total Recordable Injury Frequency (TRIF[2]). In addition to TRIF we internally report significant events, including near misses and the ratio of significant hazards identified to significant events. Encouraging the reporting of hazards helps us to take preventative actions to reduce the risk of injury. By completing investigations and taking corrective actions, we can drive continuous improvement.

PERFORMANCE IN FY19

FY19 has been a fatality free year and we are committed to sustaining this.

Diagram 1 TRIF FY17 - FY19

This year our TRIF improved by 12 per cent to 4.5 per million hours worked, compared with our FY18 TRIF of 5.1 per million hours worked. While this is an improvement, we haven't met the high standards we set ourselves. This outcome does not meet target against our FY19 Business Scorecard, however it continues the improved TRIF performance trend with a net reduction of 22 per cent since FY15, our first year of reporting performance.

Table 1 Safety fines

	FY19
$US	45,730

In 2014, prior to Demerger, an employee at our Worsley Alumina operation was fatally injured while at work in the refinery. In FY19, Worsley Alumina accepted a charge in connection with this incident and was fined US$45,730.

(2) Total Recordable Injury Frequency (TRIF): The sum of (fatalities + lost-time cases + restricted work cases + medical treatment cases) x by 1,000,000 ÷ by actual hours worked, for employee and contractors. Stated in units of recordable injuries per million hours worked.

HEALTH PERFORMANCE

The health of our people and communities
is of great importance to us.

You can read about how we manage health
on our *website*.

OCCUPATIONAL EXPOSURES

To protect the health of our people, we anticipate, measure, evaluate and control hazardous workplace exposures. In FY19, we targeted material exposure reduction projects across our operations, and included eight material exposure reduction projects in our FY19 Business Scorecard. An additional material exposure reduction project was identified and completed at Mozal Aluminium.

MATERIAL EXPOSURE REDUCTION PROJECTS

These projects contributed to a reduction in the number of workers potentially exposed to carcinogens and respirable coal dust by nearly 12 per cent:

- GEMCO: Improvements in drilling controls;
- Illawarra Metallurgical Coal: Upgrade of ventilation process controls;
- Cerro Matoso: Improvement of local exhaust ventilation system for fines;
- Cannington: Installation of a new underground crusher;
- Hillside Aluminium: Installation of an automatic relining machine for induction furnace; and
- Mozal Aluminium: Improvement in pitch ventilation treatment system in paste plant.

These projects were implemented as a preventative measure towards potential material exposures greater than 100 per cent above the exposure limit:

- Wessels: Installation of diesel particulate matter filters in vehicles;
- Khutala: Installation of filtration units and continuous real-time dust monitors; and
- Wolvekrans: Overburden drill dust control optimised.

PERFORMANCE IN FY19

The decrease in potential occupational exposures against the Occupational Exposure Limit (OEL) has been rated as *outstanding* performance in our FY19 Business Scorecard.

Table 2 Occupational exposures

Occupational exposures	% change from FY18
Material occupational exposures	12% decrease
Potential exposures to airborne contaminants	16% decrease
Potential exposure to noise	6% decrease

Material occupational exposures include potential exposure to carcinogens and respirable coal dust. FY19 is the first year we have been reporting coal dust as material, in response to the global re-emergence of coal workers' pneumoconiosis.

OCCUPATIONAL ILLNESS

Our FY19 Total Recordable Illness Frequency (TRILF[3][4]) was 1.3 occupational illnesses per million hours worked, which is a decrease of 26 per cent from 1.7 in FY18.
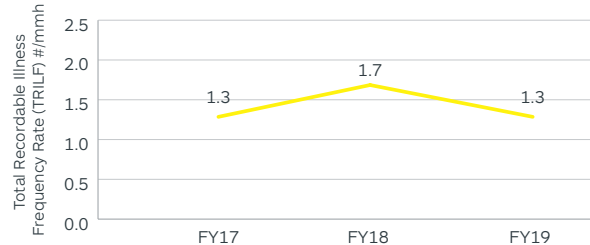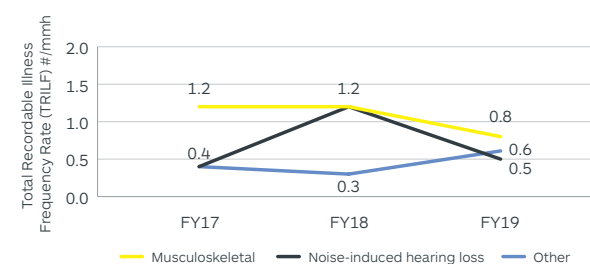
Diagram 2 TRILF FY17 - FY19

Diagram 3 Employee Occupational Illnesses

MUSCULOSKELETAL ILLNESS AND INJURY RISK REDUCTION

In FY19, we implemented a participatory ergonomics program to reduce the risk of hazardous manual tasks at Australia Manganese. In FY20, this work will form part of our TRIF and TRILF reduction strategy as we extend this to other operations. The program uses work crews' knowledge and expertise to help assess hazardous manual tasks associated with musculoskeletal injuries and illnesses in the workplace. These crews assist our health specialists identify engineering controls, with the aim of better managing risk.

PROACTIVE WELLBEING

Mental health continues to be a focus area with some of our operations continuing to undertake awareness and supervisor training. In FY20, we will create an inclusive strategy for sustained awareness and management of mental health issues and risks for our people.

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(3) To ensure that incident classification definitions are applied uniformly across our workforce, we have adopted the United States Government Occupational Safety and Health Assessment guidelines for the recording and reporting of occupational injuries and illnesses.

(4) Total Recordable Illness Frequency (TRILF): The sum of total occupational illness x 1,000,000 ÷ actual hours worked, for employees and contractors. Stated in units of recordable illnesses per million hours worked.

OUR PEOPLE

Our people are the foundation of our success and the key to our sustainability and productivity[5].

You can read about our approach to managing people on our *website*.

(5)   People data and information is not subject to independent assurance by KPMG.

EMPLOYMENT

Together we create an inclusive workplace where we hold ourselves and each other to account to demonstrate our values, where we're empowered to be the best we can be and contribute to exceptional business performance and sustainability outcomes.

We seek to attract, retain and develop people who want to make a real difference through the work they do.

We are targeting increased recruitment of women, and in South Africa, of Black People[6]. This year we made progress on both objectives. In South Africa, 83 per cent of new hires were black, and overall 31 per cent of new hires were women.

We are working to build a strong talent-pipeline. We have achieved gender balanced recruitment of women in 'development roles' and 'scholarships', and are working with government, education and community organisations to demonstrate the value of a career in Science, Technology, Engineering and Maths (STEM) within the resources industry.

During the year, we improved our people processes by implementing the cloud-based software, SuccessFactors. SuccessFactors supports mobile, real-time access to employee and organisation information, and enables greater visibility and easier processing of employee lifecycle and data changes. It also supports talent management, recruitment, goals and performance management, compensation management and training through the learning management system.

Table 3 Employee headcount by age, gender, employment contract and location

	<30 years old	30-50 years old	>50 years old	Female	Male	Permanent	Temporary	Total
Australia	429	3,214	1,153	720	4,076	4,565	231	4,796
Brazil	0	14	3	8	9	16	1	17
Canada	0	2	0	0	2	2	0	2
Colombia	41	627	216	106	778	827	57	884
Mozambique	82	850	140	97	975	1,065	7	1,072
Singapore	6	96	14	66	50	111	5	116
South Africa	779	4,717	1,753	1,534	5,715	6,900	349	7,249
United Kingdom	0	23	6	16	13	27	2	29
United States	16	44	19	23	56	72	7	79
Total	1,353	9,587	3,304	2,570	11,674	13,585	659	14,244

ENGAGEMENT

We regularly check in with our employees to get insights into what's working well or needs to improve in our workplaces.

During FY19 we surveyed our employees on safety, leadership, engagement and their experience at work. We had a strong uplift in perceptions of safety, with 79 per cent of respondents to our May 2019 survey agreeing that '*at South32, people will always stop work if conditions are unsafe*'. This was an increase of seven per cent from our June 2018 survey. We also recorded two-point increases in results for leadership capability and engagement.

(6)   Black People refers to Africans, Coloureds and Indians who are citizens of the Republic of South Africa by birth or descent (as more fully defined in the Broad-Based Black Economic Empowerment Amendment Act 2013 (South Africa)).

INCLUSION AND DIVERSITY

We believe an inclusive workplace is one where each person's unique differences are recognised, valued and celebrated. We're working hard to build a diverse workforce that is representative of the countries and communities we operate in.

We have measurable objectives and targets focused on building inclusivity and improving diversity representation, particularly gender and ethnicity. These take into account our starting point and emerging trends in the countries and communities where we work.

In FY19, we surpassed our targets for representation of women on our Board and Lead Team. In South Africa, we increased the representation of Black People in both management and total positions. Progress against the remainder of our targets has been mixed (see Table 4 below), and we'll continue to focus on these going forward.

The Board has direct oversight of our diversity targets and review these annually.

Table 4 Diversity targets

Measurable objectives		Stated Target		Progress	
		Target %	Target Date	FY18	FY19
Improve representation of women in total workforce	Total Employees	YoY Improvement		17%	18%
Improve representation of women in leadership teams	Board	30%	30 June 2019	33%	38%
	South32 Lead Team	30%	30 June 2019	29%	40%
	Senior Leadership Team[7]	40%	30 June 2020	31%	37%
	Operational Leadership Teams[8]	20%	30 June 2020	18%	18%
Improve representation of Black People in South Africa	Management Roles[9]	70%	30 June 2020	45%	49%
	Total Employees	85%	30 June 2020	81%	82%
Achieve gender pay equity	Funds allocated to address gender and ethnicity pay equity			US$1m	US$63.5K

OUR FRAMEWORK FOR INCLUSION AND DIVERSITY

We created an Inclusion and Diversity Framework to support and guide us to make a substantial change to our inclusion and diversity practices. The framework focuses on three pillars:

- Pillar 1: Build Inclusion;
- Pillar 2: Build the Future Pool; and
- Pillar 3: Build and Hire Diverse Talent.

To achieve these outcomes, each pillar recommends a pathway of options for leadership to take, with activities focusing on:

- Driving leadership accountability for creating inclusive and diverse teams;
- Fostering diverse talent, supported by development and career progress;
- Improving work facilities;
- Encouraging work rhythms which are more family friendly;
- Engaging with the pipeline sooner, to encourage female participation in STEM and mining careers;
- Retaining women;
- Driving inclusive behaviours;
- Identifying and addressing leakage points in the recruitment process; and
- Creating Inclusion Networks.

We are working hard to promote the success of women in our workforce and maintain a focus on pay equity through global annual reviews. Since August 2017, we've been a Workplace Gender Equality Agency (WGEA) Pay Equity Ambassador. Our ongoing focus in this area, including our annual review of pay equity, has contributed towards closing the gap.

This year, our annual review resulted in the lowest spend to date, pointing to a positive trend in addressing pay parity within the business. This review offers improved visibility on pay parity for both gender and ethnicity across our company, with the results reported to our Board each year.

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(7)   The Senior Leadership Team are our Leaders who report directly to the South32 Lead Team.

(8)   Operational Leadership Team includes Managers and General Managers who report to Vice President Operations or General Managers at an operation.

(9)   Management Roles are Leaders with an identified job grading, based on the requirements of their role and salary rate, of 13 or higher.

DEVELOPING OUR PEOPLE

We invested heavily in our leaders throughout FY19, spending over A$6 million on programs to build their skills. In line with our Breakthroughs, Business Plans and values, we're supporting each person to be the best they can be.

Some of our key initiatives include:

The Leadership Capability Development Program: We use capability assessments to build personalised insight into each of our leaders' strengths and development areas. Each of our leaders received a customised development plan and coaching debrief to build their effectiveness.

Culture Catalyst: This program is designed to accelerate business performance by building trust and effectiveness within teams as a catalyst for culture change.

The Emerging Leaders Program (South Africa): We focus on creating coaching, mentoring and learning opportunities to improve our leaders' relationships and the bottom-line results of their team.

The Leadership Series: We challenge our leaders to improve their rhythms and routines and apply what they've learnt in Culture Catalyst and the Leadership Capability Development Program.

In FY19, we did a Global Training review, to help us refresh our Global Training approach. During FY20 we'll rollout the SuccessFactors Learning Management System across our organisation. This system will help us to deliver a stronger and more robust, consistent training management approach as well as to provide governance to support safe work practices, compliance and skills development.

Our people also have access to LinkedIn Learning, an online training platform providing access to skills development through over 7,000 self-paced courses.

In FY19, we continued to improve our approach to performance and goal setting. This allows us to cascade our strategic goals to individual goals and includes regular check-ins between employees and their leader. Our approach is designed to set individual accountability and expectations and to help meaningfully connect our people to our purpose, Breakthroughs, Business Plans and key business risks. It provides the link between business performance, employee contribution, recognition and reward, helping to drive excellence.

EMPLOYEE RELATIONS

Around the world, we have a unified and mutually agreed approach to employee relations, and we've put processes in place to enable compliance with all country-specific, labour-related legislation. We created a global Employee Relations Framework in FY19. It describes our overarching employee relations philosophy and sets the standard for how employee relations management is approached globally. It provides a principles-based governance framework, embedded in each operation and function.

Sixty-two per cent of our employees are engaged under collective bargaining agreements.

Our negotiations comply with relevant legislation and aim to create outcomes that balance both our business and employee needs. This year, we successfully re-negotiated nine collective agreements at work sites across our operations without any major industrial stoppages or incidents. These included GEMCO, Cannington, TEMCO, Illawarra Metallurgical Coal (Appin Mine, Appin Mining Supervisor's, Dendrobium Mine, Dendrobium Mining Supervisors and the Dendrobium Coal Preparation Plant) and Cerro Matoso. While we did experience limited industrial action during the Appin Mining Supervisors' negotiation, we were able to conclude an agreement that received majority support from the impacted employees.

HILLSIDE ALUMINIUM

Due to increased global competition and market volatility, Hillside Aluminium made the decision to engage with its workforce and their representatives in a consensus-seeking process to review operational requirements. This occurred in compliance with Section 189 of the South African Labour Relations Act. Salaries and benefits were reviewed and a new operating philosophy implemented. After extensive consultation, this arrangement was agreed to by union representatives in April 2019 and has since been successfully implemented.

ENVIRONMENT PERFORMANCE

It's important that we are responsible stewards of the environment and treat our natural resources with care so that they are available for future generations.

You can read about our approach to managing the environment on our *website*.

AIR QUALITY

We continue to monitor and implement controls to minimise the potential impacts of dust, gaseous emissions and noise across our operations so that we comply with, remain within regulatory limits and address community concerns.

You can read about how we manage air quality on our *website*.

FOCUS ON ENHANCING OUR AMBIENT AIR MONITORING PROGRAMS

We are committed to managing air quality emissions in line with our internal standards, recognised industry guidelines and regulatory frameworks where we operate. We continue to engage in local airshed (air catchment area) forums and studies, such as the Collie Airshed Study in the south-west of Western Australia, to reduce the potential impact on our local communities. In FY20, we will keep reviewing and improving our ambient air monitoring programs across our portfolio.

PERFORMANCE IN FY19

In FY19, we emitted 37.8 kilotonnes (kt) of oxides of sulphur, a six per cent increase compared to FY18, and 24.8kt of oxides of nitrogen, a 127 per cent increase compared to FY18. The reason for the increase in nitrogen emissions is that Hillside Aluminium began annual sampling and reporting on nitrogen this year. This is not a requirement of Hillside Aluminium's Atmospheric Emissions Licence, but it will be included moving forward.

Table 5 Emissions

Total in tonnes	FY17	FY18	FY19
Total oxides of sulphur	39,192	35,803	37,799
Total oxides of nitrogen	10,425	10,892	24,763[10]
Total mercury	0.86	0.72	0.85

LAND AND BIODIVERSITY

We continue to strengthen our approach to land and biodiversity management.

You can read about how we manage land and biodiversity on our *website*.

OUR BIODIVERSITY RISK PROFILE

In line with recent changes to our environmental standards, in FY19, we developed a new risk and opportunity screening process. The process is designed to improve identification of biodiversity risk and opportunities, taking into account a series of internal and external factors, including:

- Projected changes in climate conditions;
- Proximity of the operation to areas of high conservation value, including interactions with threatened species, vegetation communities and threatening processes;
- Regional context, development planning and cumulative impact implications;
- Regulatory framework and compliance;
- Community concerns and perceptions; and
- Media analysis.

The screening process enabled us to identify additional potential risks. To assess their materiality, we will conduct detailed risk assessment processes through FY20.

For operations with a biodiversity-related material risk, we undertake a detailed biodiversity assessment. This includes the potential for impact from the disturbance footprint, cumulative impact assessment and climate modelling where relevant to the risk. We develop controls and implement them in line with regulatory requirements, taking into account the mitigation hierarchy.

As at the end of FY19, GEMCO is the only site with a biodiversity related material risk. This risk relates to the potential for a cane toad incursion on Groote Eylandt (you can read more about that on page 9 of our Environment 2018 report on our *website*. Following the risk and opportunities process completed during FY19, we expect that our biodiversity risk profile will change. We will focus on the design and implementation of key controls that eliminate and/or minimise impact to the surrounding ecosystem.

REHABILITATION

As at FY19, we have rehabilitated 41 per cent of our previously disturbed land.

During the year, we rehabilitated a total of 427 hectares, increasing our total rehabilitated area to 15,550 hectares. This is compared to a disturbed land footprint of 22,747 hectares.

We continue to support conservation, with a total of 2,010 hectares of our land currently set aside.

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(10) The reason for the increase in nitrogen emissions is because Hillside Aluminium began annual sampling and reporting on nitrogen this year. This is not a requirement of Hillside Aluminium's Atmospheric Emissions Licence, but it will be included from now on.

INTELLIGENT LAND MANAGEMENT (ILM)

In FY19, we continued to identify landholdings that can be used to improve the climate resilience of the land as well as to generate shared financial, social and environmental value.

We have completed ILM assessments for Worsley Alumina and Illawarra Metallurgical Coal. We will further evaluate and develop the identified projects from the assessments, with the aim of implementing the first of them in FY20.

Our current ILM projects are:

- Illawarra Metallurgical Coal: Creation of three biobanking sites that seek to ensure the long-term protection and management of important conservation values in the Illawarra region;
- Cerro Matoso: Community-led farming initiative that has converted non-operational land formerly used for grazing, into more intensive horticultural land with 40 families now farming the land to grow melons; and
- SAEC: Continuation of a concept study into the generation of biogas produced from crops grown on rehabilitated land and using mine recycled water. The goal is to partially power our diesel trucks, reducing our carbon footprint.

We have also started work on a biodiversity offset strategy for Worsley Alumina. The intent of the strategy is to guide our approach to future offsetting over the life of the operation in a way that will help future approvals and deliver shared value in line with ILM principles.

PERFORMANCE IN FY19

In FY19, we had one significant environment event which occurred at Worsley Alumina. The event related to detection of dieback infestation (an infection which impacts native trees in Western Australia) in an area of site that contains a number of threatened species. Following the event, we have engaged with the relevant authorities and remain committed to working with them to identify and implement improvements in our dieback management aimed at avoiding similar occurrences.

Table 6 Natural capital: Land-holdings and rehabilitation

Hectares of	FY17	FY18	FY19
Total land disturbed	23,028	23,313	22,747
Total land rehabilitated	15,144	15,560	15,550
Total land set aside for conservation	2,107	2,001	2,010
Land owned, leased or managed	609,279	607,623	679,617

Table 7 Biodiversity management plans (BMPs)

	FY19
Implemented required BMPs	100% of BMPs have been implemented where required

Table 8 Designated protected areas FY19

	Areas adjacent to land managed by our operations	Areas on land managed by our operations	Size of common land on or overlapping designated protected area
	Number	Number	Hectares
Mozambique			
Terrestrial	0	0	0
Freshwater	0	0	0
Maritime	0	0	0
South Africa			
Terrestrial	1	0	50
Freshwater	0	0	0
Maritime	0	0	0
Australia			
Terrestrial	2	10	43,196
Freshwater	0	0	0
Maritime	1	0	0
Colombia			
Terrestrial	4	0	34
Freshwater	1	0	0
Maritime	0	0	0
South32 total			
Terrestrial	7	10	43,280
Freshwater	1	0	0
Maritime	1	0	0

ENERGY

We have invested in energy efficiency initiatives at our operations and continue to support viable renewable energy schemes.

You can read about how we manage energy on our *website*.

We buy hydro-generated electricity for TEMCO in Australia, Cerro Matoso in Colombia and Mozal Aluminium in Mozambique. At our Metalloys manganese smelter in South Africa, we have a co-generation plant that sources its primary energy from furnace off-gas. This is both cost-efficient and reduces our demand from the national grid. At TEMCO, we have an energy recovery unit that creates efficiency by sourcing energy from furnace off-gas.

GAS AT OUR ILLAWARRA OPERATION

At Illawarra Metallurgical Coal, our extensive gas drainage system means we can extract high purity methane from underground mining areas across our Bulli Seam operations. The captured gas is directed to third party operated power generation facilities. During FY19, our increased focus on gas drainage meant that we generated approximately 37 megawatt-hours (MWh) of electricity through these facilities.

Surplus gas captured through the system (i.e. gas that cannot be beneficially used for power generation) is directed through flaring units located at our Appin West facility, which helps us to minimise our potential GHG emissions. The flaring units are registered as an abatement project under the Australian Government's Emission Reduction Fund. During its lifetime, the project has created approximately 240,000 Australian Carbon Credit Units under the federal scheme.

RENEWABLE ENERGY INTEGRATION

We continue to integrate renewable energy into our portfolio, with the commissioning of a three MW solar farm at Cannington during FY19.

The hybrid gas/solar energy solution is the second largest solar installation in a remote, off-grid mining operation in Australia and the first to be integrated into a gas-fired power station. The plant also provides an emissions benefit, enabling approximately four kt CO_2 -e to be abated per year.

The use of sustainably sourced biomass at Worsley Alumina continued with approximately 23kt of biomass consumed in FY19. This created abatement of approximately 29kt CO_2 -e (an increase from six kt CO_2 -e in FY18). In line with our decarbonisation efforts, we will continue to focus on biomass consumption at Worsley Alumina through FY20.

We are looking into a number of Power Purchase Agreements (PPA) involving renewable energy project partnerships, which will help us to reduce our Scope 2 footprint in a cost-effective manner.

ENERGY IN SOUTH AFRICA

Eskom is the state-owned power supplier in South Africa to all of our Southern African operations (via Motraco for Mozal Aluminium). In FY19, Eskom experienced financial and technical performance challenges that led to a number of system emergencies being declared. This meant its customers (including South32) had their supply temporarily curtailed. Our aluminium smelters also experienced increased load shedding (in line with the provisions of the power contracts) so that Eskom could meet its peak demand. Eskom received financial assistance from the South African government and is implementing a recovery plan focused on cost reduction and improving maintenance practices. Over the next five years, we expect Eskom's supply reliability to gradually improve.

PERFORMANCE IN FY19

In FY19, our total energy use was 176 petajoules, of which 18 per cent was renewable energy.

Table 9 Energy[11]

Total use in petajoules	FY17	FY18	FY19
Electricity	79	79	79
Coal and coke	42	42	43
Natural gas	27	27	27
Other	18	18	17
Distillate/gasoline	7	7	9
Total	174	174	176
Renewable	37	33	31

(11) Measured according to the World Resources Institute/World Business Council for Sustainable Development.

WATER

Water is a valuable shared resource that requires integrated and detailed management so that it is available and suitable for use by the whole of society.

OUR APPROACH TO WATER STEWARDSHIP

In FY19, driven by the increasing challenge of water to our operations and communities, we released our inaugural water report, 'Our Approach to Water Stewardship'. The report outlines our commitment to sustainable water management, and details our interactions with water, our associated risks and opportunities, and our performance for the year. In the report we detail our new contextual water targets and work undertaken in FY19.

PERFORMANCE IN FY19

Under the WAF[12] water is categorised by type and source. Sources included groundwater, surface water, seawater, third party and other. Type is classified as:

- Type 1 (close to drinking water standards);
- Type 2 (suitable for some purposes); and
- Type 3 (unsuitable for most purposes).

In FY19, our total water inputs and our inputs of type 1 water decreased by six per cent (each) compared with FY18. This was mainly due to higher rainfall at several operations, as well as increased water recycling, which reduced our overall reliance on water from third party suppliers.

You can find a full set of our water data including operations with water-related material risk in Our Approach to Water Stewardship on our _website_.

In February 2019, Illawarra Metallurgical Coal was fined A$30,000 by the New South Wales Environment Protection Authority. The fine comprised two A$15,000 amounts for failure to operate/maintain pollution control equipment and alleged pollution/impact to the Georges River against conditions of our Environmental Protection Licence. No impacts to aquatic fauna were observed and potential environmental impacts were reduced due to prompt action by South32 to pump the discharge back to on-site storage dams at Appin East colliery. Tests two weeks after the Environment Protection Authority inspection showed water in the area was clear with no residue detected. South32 environment personnel carried out remediation work and have improved maintenance and monitoring systems with the intention to avoid a similar occurrence in the future.

Table 10 Environmental fines

	FY19
US$	23,719
Number	4

WASTE

We recognise the potential risks posed to communities, our workforce, the environment and shareholders from tailings and water retaining dams and remain committed to safe and responsible dam management.

You can read about how we manage waste and tailings on our _website_.

TAILINGS DISCLOSURE IN FY19

In FY19, we published our Tailings Storage Facilities (TSF) Management report which represents full and transparent disclosure on our TSF construction methods, locations, size, status, risks and management strategies, in line with the Investor Mining and Tailings Safety Initiative. As a member of ICMM, we fully support its work to establish an independent panel of experts to develop an international standard for TSFs. You can read our FY19 TSF Management report on our _website_.

WASTE MANAGEMENT

In FY19, our focus was to identify waste management opportunities and drive circular economy thinking. We are formalising our approach and will be progressing the work in FY20.

PERFORMANCE IN FY19

Table 11 Waste

		FY17	FY18	FY19
Hazardous waste – mineral total	Kilotonnes	16,226	22,627	23,741
Non-hazardous waste – mineral tailings	Kilotonnes	16,236	5,909	5,458
Accidental discharge of water and tailings[13]	Megalitres	0.0	0.0	24.6

In February 2019 Cannington's port facility in Townsville experienced an extreme weather event. Due to this event, an uncontrolled release of stormwater took place. During the initial overflow, two samples showed lead slightly above the Environmental Authority Limit (EAL). However, no lead above the EAL criteria was identified at any sampling points downstream and the overall average lead concentration in stormwater sampled at the discharge point was below the EAL across the release. We shared all relevant data with the Queensland Department of Environment and Science which also conducted an inspection. No action was taken by the Department, given the severity of the weather event and overall results of sampling undertaken during the event. Cannington continued to manage and treat water during the event to minimise impact and return to controlled releases as soon as practical.

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(12) We report our water data in line with the Minerals Council of Australia's Water Accounting Framework (WAF). The WAF is an accepted industry water accounting standard and aims to improve data integrity and comparability across the sector to ensure the continuous improvement of water reporting.

(13) Data reported for environmentally significant events.

EMISSIONS

Our focus on emission reduction continues and we remain on track to meet our FY21 Scope 1 target.

You can read about our management approach to emissions and emissions reductions on our _website_ in our disclosure, Our Approach to Climate Change, which is aligned to the recommendations of the Task Force on Climate-related Financial Disclosures.

GREENHOUSE GAS (GHG)

Our emissions are:

- From within our boundaries (Scope 1);
- Indirectly from energy purchased (Scope 2); and
- Indirectly from our value chain (Scope 3).

We monitor and report on our Scope 1 and 2 emissions as per our reporting standards, as well as country-specific regulatory requirements, for example, the National Greenhouse Gas Emission Reporting Regulations (2017) in South Africa and the National Greenhouse and Energy Reporting Act 2007 (NGER) in Australia. We also track and report on our Scope 3 emissions.

PROGRESS TOWARDS OUR FY21 TARGET AND PLANNING FOR FY26

We are on track to achieve our FY21 Scope 1 target to maintain emissions at or below our baseline set in FY15, with an abatement surplus of approximately 578 kt of CO_2 -e, representing an improvement of 224 kt of CO_2 -e within the past 12 months. Our current forecasts suggest our emissions will be below our target in FY21. Our focus in the short-term continues to be gas drainage efficiency at Illawarra Metallurgical Coal and biomass consumption at Worsley Alumina. In FY20, we will define our next five-year emissions target to FY26.

DECARBONISATION PLANNING AND PROGRESS TOWARDS OUR 2050 CARBON NEUTRALITY GOAL

In FY19, we undertook planning and assessment work for concept level decarbonisation studies for our emissions intensive, long-life operations, Worsley Alumina and Illawarra Metallurgical Coal. Further information on these studies is provided on page 17 of Our Approach to Climate Change on our _website_.

We will continue to look into options for lower carbon energy sources and further fugitive capture at Illawarra Metallurgical Coal. Our carbon offset planning will progress to address residual long-term emissions. You can read more about our carbon offset planning on page 14 of Our Approach to Climate Change.

PERFORMANCE IN FY19

Scope 1 and 2

In FY19, our Scope 1 and Scope 2 emissions totalled 23.5 million tonnes (Mt) of CO_2 -e, which was below our FY19 forecast of 24.3Mt of CO_2 -e.
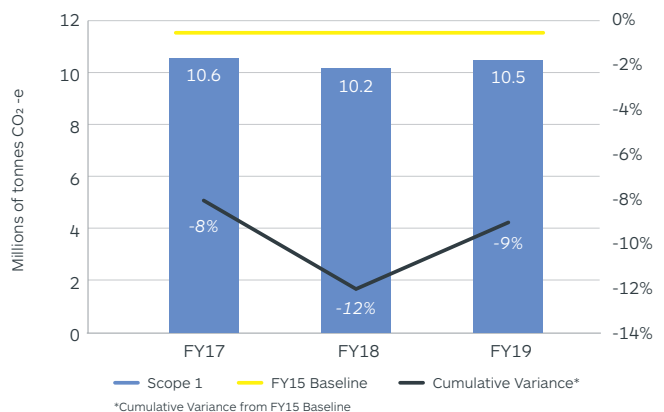
Our performance against this forecast, our progress on decarbonisation studies at Worsley Alumina and Illawarra Metallurgical Coal, as well as our progress towards our FY21 target and increase in abatement surplus, rate as _better than target_ in our FY19 Business Scorecard.

Approximately 85 per cent of our total Scope 1 and 2 emissions come from four operations (Hillside Aluminium, Worsley Alumina, Illawarra Metallurgical Coal and Mozal Aluminium). Our emissions profile is summarised as follows:

- Scope 1 emissions (direct emissions): Worsley Alumina and Illawarra Metallurgical Coal account for approximately 55 per cent of our global Scope 1 footprint. Our smelting operations account for approximately 25 per cent; and
- Scope 2 emissions (imported electricity): Hillside Aluminium and Mozal Aluminium account for approximately 90 per cent of our global Scope 2 emissions.

Higher production at Illawarra Metallurgical Coal and the instability of the hydroelectricity supply to Mozal Aluminium resulted in a three per cent increase in our combined Scope 1 and Scope 2 total compared to FY18.

Diagram 4 Scope 1 Emissions from FY15 Baseline

Millions of tonnes CO_2 -e

	FY17	FY18	FY19
Scope 1	10.6	10.2	10.5
Cumulative Variance	-8%	-12%	-9%

Scope 1 — FY15 Baseline — Cumulative Variance*
*Cumulative Variance from FY15 Baseline

Our Scope 1 GHG emissions increased by three per cent to 10.5Mt of CO_2 -e in FY19 compared to FY18. However we remain on track to meet our short-term emissions target by FY21.

Scope 3

Our Scope 3 emissions[14] (upstream and downstream emissions) for FY19 were 116Mt of CO_2 -e which remains unchanged from FY18. The anticipated divestment of South Africa Energy Coal (SAEC) will reduce our Scope 3 footprint by approximately 46 percent. You can find a detailed breakdown of our emissions performance, including the Scope 3 calculation methodology, at *www.south32.net* or in Our Approach to Climate Change report on our *website*.

Table 12 GHG Emissions[15] Total

Millions of tonnes of CO_2 -e	FY17	FY18	FY19
GHG - Scope 1[16]	10.6	10.2	10.5
GHG - Scope 2 market-based[16]	12.0	*12.6*	13.0
GHG - Scope 2 location-based[17]	*19.6*	*19.8*	19.6
GHG Scope 1 and 2[16]	22.6	*22.8*	23.5
Scope 3[14]	125.0	117.0	116.0

Table 13 GHG Emissions by Source[15][16]

Millions of tonnes of CO_2 -e	FY17	FY18	FY19
GHG from electricity	12.0	*12.6[18]*	13.0
GHG from fugitive sources	3.0	2.5	2.7
GHG from coal and coke	3.8	3.8	3.8
GHG from other sources	1.9	1.9	1.9
GHG from natural gas	1.4	1.4	1.4
GHG from distillate and gas	0.5	0.6	0.7
Total	22.6	*22.8[19]*	23.5

CLOSURE

We have Closure Plans at all our operations, which integrate the ICMM Closure Toolkit.

You can read about how we manage closure on our *website*.

NEW CLOSURE STANDARDS

In FY19, we released our new closure standards, to standardise our approach to closure management across our operations.

Our standards align with ICMMs Guidelines for Encouraging Responsible Closure and are applicable to all our assets under our operational control. They cover four main areas:

- Closure planning;
- Closure cost provisioning;
- Progressive rehabilitation; and
- Execution of closure activities.

Implementation of the standards has begun and will continue into FY20.

ENVIRONMENTAL COMPLAINTS AND GRIEVANCES

You can read about how we manage our complaints and grievance processes on our *website*.

Some of the complaints and grievances we receive are related to environmental topics such as dust and noise. Further information regarding our Complaints and Grievances can be found on page x of this report.

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(14) The calculation of our Scope 3 emissions is in accordance with the methodologies in the World Resources Institute Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

(15) South32 currently uses Global Warming Potentials (GWPs) from the Intergovernmental Panel on Climate Change (IPCC) Assessment Report 4 (AR4).

(16) Measured according to the World Resources Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol.

(17) In accordance with the GHG Protocol Scope 2 disclosure requirements, our location-based Scope 2 emissions were 19.6Mt of CO2 -e, which is 6.6Mt of CO2 -e higher than our market-based emissions. This difference is associated with our purchase of hydroelectric power at Mozambique Aluminium. Unless otherwise noted, all Scope 2 emissions reported are calculated using the market-based method.

(18) Scope 2 emissions from electricity have been restated to better reflect newly available assumption data.

(19) Total GHG restated due to the change in Scope 2 emissions, as per footnote 18.

PRODUCT STEWARDSHIP

By applying the ICMM Sustainable Development Framework, we encourage responsible design, use, reuse, recycling and disposal of our products along the supply chain.

You can read about our approach to product stewardship on our *website*.

IMO 2020 – CUTTING SULPHUR OXIDE EMISSIONS IN THE SHIPPING INDUSTRY

From 1 January 2020, new marine sector regulations from the International Maritime Organization (IMO) will come into effect. These aim to reduce sulphur emissions by using a lower sulphur content marine fuel or through air pollution control equipment known as scrubbers. Sulphur oxides (SOx) are harmful to human health, and in the atmosphere, can lead to acid rain. Limiting SOx emissions from ships will improve air quality and help protect the environment.

While we do not own any vessels, we are working closely with ship owners to prepare fuel transition plans that will support compliance with the new regulations.

SUSTAINABLE SHIPPING INITIATIVE

In FY19, we became a member of the Sustainable Shipping Initiative (SSI). SSI is a multi-stakeholder initiative that brings together leading, like-minded organisations with shared goals and equal determination to improve the sustainability of the shipping industry from a social, environmental and economic perspective. By becoming members, our goal is to explore ways to reduce our environmental impact and create a culture of future thinking around our, and our industry's, approach to shipping.

ENVIRONMENTAL LIFE-CYCLE ASSESSMENT

To deepen our understanding of the life cycle of aluminium products through the value chain, in FY19 we partnered with one of our customers to take part in an environmental life cycle assessment. We examined the inputs and outputs of the production of our bauxite and alumina from Worsley Alumina. By taking part, we hope to contribute to a greater understanding of the full life cycle of our bauxite and alumina and where it goes in the value chain once it is bought by our customers and turned into aluminium product. This will give our customers, and our business, the right data to better understand our products' impact in the value chain.

COMMUNITY AND SOCIAL PERFORMANCE

Wherever we operate, we believe we have a responsibility to get behind our communities.

You can read about our approach to community on our *website*.

COMMUNITY PROGRESS

In FY19, we updated our Social Baseline Studies and Social Impact and Opportunity Assessments at many of our operations consistent with our community standards. We apply a uniform approach across the business to identify and analyse stakeholders and updated Community Perception surveys at three of our operations. We also carried out Human Rights Impact Assessments at eight of our operations.

Table 14 Community engagement plans

	FY19 (%)
Operations with implemented local engagement, impact assessments and development programs	100

RECONCILIATION ACTION PLAN (RAP)

In Australia we recognise and celebrate reconciliation, to strengthen relationships between Aboriginal and Torres Strait Islander peoples and non-Indigenous peoples, for the benefit of all Australians. In October 2018, we officially launched our first RAP.

While a number of our operations have had longstanding relationships with Aboriginal and Torres Strait Islander communities, we have started our formal reconciliation journey at the entry level, 'Reflect' RAP. This has helped us to establish the foundations of our approach. In the first half of FY20 we will finalise our next plan at the level of 'Innovate'.

A local Aboriginal participation strategy was developed at GEMCO focusing on improving performance in local business development, contracting, employment and training.

Through our community investment plans across Australia, we identified opportunities for future partnerships and we intend to pursue these in FY20. Our current key partnerships include:

- The MJD Foundation on Groote Eylandt, which work with people suffering from Machado-Joseph Disease, to support the funding of new medical equipment and technology, services such as physiotherapy, and improvements to remote community service delivery;
- Polly Farmer Foundation learning clubs on Groote Eylandt to tutor and support primary school-age children; and
- Mila Foundation's Aboriginal Youth Leadership Program at Collie Senior High School in the southwest of Australia.

We report our RAP progress annually on our website.

COMMUNITY INVESTMENT

The more we understand our local communities, the better we can refine our community investment plans. This is what we did in FY19, creating long-term investment objectives and identifying new investment opportunities.

Our priority investment areas target three Sustainable Development Goals (SDGs):

- SDG 3: Good Health and Well Being;
- SDG 4: Quality Education; and
- SDG 8: Decent Work and Economic Growth.

During FY19, we:

- Invested US$17.3 million in community initiatives and activities;
- Contributed US$800,000 in response to floods in Townsville Australia;
- Contributed US$250,000 to support the recovery from Cyclone Idai in Northern Mozambique;
- Matched A$138,000 of employee contributions; and
- Paid US$980.7 million in taxes and royalties, as reported in our FY19 Tax Transparency and Payments to Governments report available on our _website_.

Since 2016 more than A$390,000 of employee contributions have been matched through our Matched Giving Program.

During FY19, we reviewed our approach to community investment. This helped us to identify the metrics we can build into future partnerships. Implementation of our Community Investment Framework, and our work to define social impact measurement rates as '_met target_' against our community Business Scorecard measure.

Diagram 5 Community investment[20]

(Bar chart, US$ million: FY17 = 14.3, FY18 = 20.4, FY19 = 17.3)

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(20) Community investment consists of cash, in-kind support and administrative costs and includes donations and investment of funds in the broader community where the target beneficiaries are external to the Company. The amount accounts for actual expenditures in the reporting period, not commitments, prepared on an accruals basis and representing South32's equity share.

COMPLAINTS AND GRIEVANCES

Protests in South Africa

In South Africa, there are some key social challenges, including high youth unemployment, access to clean water and low access to higher education. In South Africa, we sometimes experience community unrest at our operations.

At South Africa Energy Coal (SAEC) we are working in an area with an increasing demand for employment and business opportunities. In February 2019, there were unauthorised mining activities by community members and subsequent protests directed toward SAEC and other mining companies. In response, the local industry collectively engaged with community representatives and an agreement to stop the unauthorised mining activities was reached which allowed employment and business opportunities to be addressed. SAEC continues to work through industry sub-committees, which are focused on employment and skills development, procurement and community issues.

Action Aid

At our 2018 Annual General Meeting in Perth, Action Aid protested in support of the Greater Phola Ogies Women's Forum (GPOWF) - a representative organisation from the community of Phola which is close to our SAEC Klipspruit operation. We worked with both Action Aid and GPOWF, in Australia and South Africa, to address their concerns regarding the impacts of mining on health and the environment, access to employment, damage to homes and a desire for ongoing engagement. We have also focused on employment and business opportunities, with GPOWF included in consultation forums with other stakeholders.

Improvements to our process

To better address local community complaints and grievances, in FY19, we reviewed and updated our process at South Africa Manganese and Hillside Aluminium. Community members can now raise issues in whatever manner suits them and campaigns have been initiated to raise awareness within the community about the updated process.

Our internal guidelines were implemented across all our operations and are based on UN Guiding Principles for Business and Human Rights.

In FY20, we will continue to assess how effective our processes are to make sure:

- Complaints are acknowledged, investigated and documented;
- We take appropriate remedial action;
- Communication is transparent; and
- Our communities feel the process is accessible.

Performance in FY19

We received 123 complaints in FY19, a seven per cent increase on the previous year. Fifty-four per cent of the complaints were noise related. Of these, 61 per cent were recorded at Illawarra Metallurgical Coal and 38 per cent at Worsley Alumina. Noise complaints at both operations were due to localised issues. We engaged directly with the complainants to understand their concerns and work on resolving these issues.

The major cause of noise complaints at Illawarra Metallurgical Coal, has been rail squeal. We have reduced this noise and continue to progress work to eliminate it. Worsley Alumina continues to manage mining activities to regulatory limits and responds to concerns when they arise. As short-term projects at Illawarra Metallurgical Coal came to an end in FY19, traffic management complaints decreased by 67 per cent.

Table 15 Community complaints

Type	FY17	FY18	FY19
Dust	12	10	12
Noise	62	35	66
Odour	2	4	-
Traffic management		21	9
Community amenities		11	2
Business and employment opportunities		7	9
Blasting and vibration		7	3
Community health, safety and security			11
Employee behaviour in the community			2
Social and community engagement			7
Other	41	20	2
Total	117	115	123

Community health

In FY19, we supported the health and wellbeing of our people through targeted health promotional campaigns which included skin checks and annual influenza vaccination. We also recognised World AIDS day across our African operations through education and awareness sessions and HIV screening of our workforce.

We engage with communities near our operations to understand and manage potential impacts of our operations and work with them to address any concerns, in keeping with our commitment to the safe and sustainable development of our resources.

We actively monitor emerging health risks and trends that may impact our communities. Recent examples include nickel exposure, silicosis, coal workers' pneumoconiosis and chronic low-level manganese exposure. We are members of key international industry bodies that provide guidance and facilitate research into best practice management of potential community health impacts.

At our manganese operations close to communities, fit-for-purpose air quality monitoring programs are in place to measure and model the impact of dust. In FY19, we re-designed and enhanced the programs, including the addition of real-time monitoring equipment across GEMCO, TEMCO and Metalloys. The changes will help us continually improve operational management of fugitive emissions, with the aim of continuing to minimise any potential impacts to our people and our local host communities.

In line with our focus on continual improvement, at Cerro Matoso we developed an improved air dispersion model and reviewed the ambient air monitoring program. The identified enhancements will be implemented in FY20.

Update: Managing community health and the environment at Cerro Matoso

In April 2018, Cerro Matoso was notified of a decision by the Constitutional Court of Colombia regarding alleged health and environmental impacts of our operation on the surrounding communities.

South32 appealed against the Court's ruling and in September 2018 the Court annulled orders that required Cerro Matoso to pay direct financial compensatory damages to community members, as well as the order to establish an ethnic development fund. Orders in respect to ongoing health care to community members and the consultative environmental licensing process were not annulled.

Following extensive engagement with community and government institutions, the community consultation process started in January 2019. Over 100 community elders and 24 community technicians were appointed to support and participate as representatives during the consultation process. Communities are supported by independent advisors and consultants including anthropologists, environmental scientists, lawyers and biologists, financed by Cerro Matoso. Although formal consultation with non-Indigenous communities (six non-ethnic and one Afro-Colombian) was not ordered by the Court, Cerro Matoso is conducting additional consultation processes with these groups.

The community consultation process has been conducted in accordance with ICMM guidance and industry best practice. In-principle agreement has been reached with eight of the claimant communities and six additional communities not part of the Constitutional Court Orders. Over the next two months, meetings will be held in the communities to ensure the agreements are well understood, with execution of the agreements expected before the end of 2019.

Cerro Matoso has informed communities of their rights to health care under the Court's order; however no non-Indigenous community members have exercised this right.

Following completion of the community consultation process, Cerro Matoso will submit a request for a new environment licence.

SOCIAL PERFORMANCE

Driven by our social responsibility to stakeholders, we continue to build our capacity in social performance. In FY19, we started developing our social performance framework designed to:

- Formalise our approach;
- Articulate the standards we expect across our operations;
- Provide guiding systems and processes; and
- Enable effective monitoring and measurement of our social performance in the future.

The framework will help us integrate social factors and more broadly, sustainable development, into our corporate strategy and decision-making.

UNITED NATIONS GLOBAL COMPACT

In August 2019, we became a signatory to the United Nations Global Compact (UNGC). Being a member will help us:

- Enhance our expertise;
- Improve our management of human rights issues (and environmental and business integrity performance);
- Strengthen our networks; and
- Help us to, over time, demonstrate leadership in these areas.

Joining the UNGC demonstrates how we are committed to human rights, responsible business, and environmental and social performance – and how we are prepared to align our business to a global framework that requires public disclosure of progress. In FY20, we will report our progress against the UNGC principles.

HUMAN RIGHTS

Understanding human rights in our supply chain

In FY19, independent labour audits were conducted for five suppliers across eight sites in Colombia, South Africa, Lesotho, Mozambique and Australia. These suppliers worked in:

- Safety equipment goods;
- Camp and facility management services (including catering, cleaning and general management services);
- Mechanical and electrical labour services; and
- Drilling and machine maintenance services.

We also continued to work with our suppliers on improvement plan actions from our independent labour audits conducted in China in FY18.

Leading industry collaboration

In FY19, we co-founded an industry working group to share best practice and develop collaborative opportunities to address modern slavery risks within the mining, energy and resources industry supply chains. We formed the group following the introduction of the Australian Modern Slavery Act (2018), to contribute towards the positive impact of this new legislation.

Human rights training in FY19

We rolled out our human rights training program to our supply, legal, compliance, sustainability and operational teams in Colombia, South Africa, Australia and Mozambique. We reached 998 people in 13 geographical locations and 10 functions. Independent Non-Government Organisations also provided specialised training to 82 of our people at Cerro Matoso, GEMCO, and our Perth and Johannesburg offices.

Table 16 Human rights training

	FY17	FY18	FY19
Employees	851	154	546
Contractors	1,254	1,138	452
Total	2,105	1,292	998

Table 17 Human rights reviews conducted

Country	Impact assessments conducted (as a % per country)	Sites reviewed (as a %)
South Africa	100	100
Mozambique	100	100
Australia	100	100
Colombia	100	100

Table 18 Security training

	FY17	FY18	FY19
Total employees and contractors	793	1,185	940

Table 19 Cultural awareness training

	FY17	FY18	FY19
Total employees	1,155	571	1,075

Conflict minerals statement

In FY19, in response to growing requests from customers inquiring about our human rights due diligence, we issued our Conflict Minerals Statement confirming we do not use, purchase or sell any conflict minerals, nor operate in the Democratic Republic of Congo nor surrounding regions. You can access our Conflict Minerals Statements on our *website*.

TRANSFORMATION IN SOUTH AFRICA

The transformation[21] imperative is aligned to our purpose to make a difference by developing natural resources, improving people's lives now and for generations to come. To redress South Africa's historical socio-economic inequalities, legislation has been passed relating to our social licence to operate, including the Broad-Based Black Economic Empowerment (B-BBEE) Act and the Mining Charter.

In the communities in which we operate, we are not only focused on the current local needs, but also the long-term sustainability for future generations. Our actions are focused on building and stimulating economic growth of local communities that will survive beyond the life of the operation.

Changes to the Mining Charter

In September 2018, the new B-BBEE Charter for the Mining and Minerals Industry (Mining Charter 2018) was published. The Charter introduced some changes to targets to strengthen meaningful transformation of the mining and minerals industry. Whilst some aspects of the Mining Charter remain under debate with the Minerals Council of South Africa, we have incorporated the changes and new requirements into our transformation planning process.

Transformation Plan

We have developed a Transformation Plan at each operating entity, and all of them take into account our transformation objectives as well as legislative requirements. The plans are broken down into actions and initiatives that support year-on-year improvements.

DEPARTMENT OF TRADE AND INDUSTRY B-BBEE SCORECARD

All of our South African operating entities are annually audited for transformation progress in terms of the Department of Trade and Industry's B-BBEE Amendment Act 2003 as amended by Act 46 of 2013.

In May 2019, the Department of Trade and Industry released new codes on Preferential Procurement, Enterprise and Supplier Development, Skills Development, General Principles, as well as updates on Interpretations and Definitions. The new requirements are expected to be approved in November 2019 and will require implementation within six months of the dated Gazette.

We have noted these requirements and are in the process of including these in our transformation planning process.

(21) Transformation in South Africa refers to change that allows Black People as defined to participate meaningfully into the main streams of the economy, by ways of owning, managing and controlling productive assets.

Recognition points

Our Transformation Plans have helped us significantly increase our B-BEEE recognition points from FY17. For example, a 150 per cent increase in our Enterprise and Supplier Development spend resulted in a 13.9 point and eight point B-BBEE scorecard increase for Hillside Aluminium and Hotazel Manganese Mines respectively, while the increase in preferential procurement spend resulted in an 18 point and six point increase for Hillside Aluminium and Hotazel Manganese Mines respectively.

Table 20 DTI B-BBEE points[22][23]

Defined on the South Africa Department of Trade and Industry (DTI) B-BBEE scorecard where the maximum score is 109 points.

	FY18
Hillside Aluminium	80.48 Level 5
Samancor	62.98 Level 8
Hotazel Manganese Mines	72.64 Level 7
South Africa Energy Coal	70.21 Level 7

Social Labour Plans (SLPs)

We are committed to deliver socio-economic upliftment as detailed in our SLPs. We developed these in consultation with local leaders and authorities as well as the Department of Mineral Resources. We also carried out social impact and opportunity assessments and social baseline studies to make sure these commitments are aligned to community needs.

In FY19, our social impact and opportunity assessments and social baseline studies identified the following focus areas:

- Education;
- Community health and wellbeing;
- Housing and public service delivery indicators; and
- Economic development/poverty alleviation.

Enterprise supplier development

Through our enterprise and supplier development, our goal is to develop and empower small local businesses to be financially and operationally independent in line with our transformation strategy.

In FY19, we assessed our existing processes, governance and resourcing and found several gaps when we measured them against industry best practice. With due consideration to best practice and our unique needs, several areas for improvement were identified and a new Enterprise and Supplier Development Framework was implemented. The theme of our framework is 'value beyond compliance'.

In FY19, we spent over US$9.5 million on the development of suppliers through our enterprise and supplier development programs in line with our FY19 Transformation Plans. These companies are based in the communities in which we operate. We helped more than 30 businesses through our enterprise and supplier development funding programs, which include the funding of assets, equipment, materials, and tools as well as business mentorship and coaching programs.

Employment equity and skills development

Our Transformation Plans include targets for year-on-year improvements in demographic representation across all levels of management, at all our operations in South Africa. The representation of Black employees across our South Africa operations is 75 per cent of our junior management, 65 per cent of middle management, 50 per cent of senior management and 75 per cent of our top management.

SOUTH AFRICA ENERGY COAL

In line with the South African government's transformation agenda, we're moving forward with the divestment of SAEC, with the intention that it becomes sustainable, black-owned and operated.

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(22) Levels as per Department of Trade and Industry Broad-Based Black Economic Empowerment Codes of Good practice.

(23) FY19 data is undergoing assurance at time of publishing.

ANNEXURE 1: SUSTAINABILITY DATA TABLES

SAFETY

TRIF[(1)(2)]

	FY17	FY18	FY19	Fatalities FY19
	6.1	5.1	4.5	0

Safety fines

	FY19	Description
$US	45,730	In 2014, prior to Demerger, an employee in our Worsley Alumina operation was fatally injured while at work in the refinery. In FY19, the Worsley Alumina operation accepted a charge in connection with this incident and was fined US$45,730.

HEALTH

TRILF[(2)(3)]

	Total FY17	Total FY18	Total FY19	Occupational illnesses employees[(2)(3)] FY19	Occupational illnesses contractors[(2)(3)] FY19
	1.3	1.7	1.3	2.0	0.6

PEOPLE

Employee headcount by age, gender, employment contract and location

	<30 years old	30-50 years old	> 50 years old	Female	Male	Permanent	Temporary	Total
Australia	429	3,214	1,153	720	4,076	4,565	231	4,796
Brazil	0	14	3	8	9	16	1	17
Canada	0	2	0	0	2	2	0	2
Colombia	41	627	216	106	778	827	57	884
Mozambique	82	850	140	97	975	1,065	7	1,072
Singapore	6	96	14	66	50	111	5	116
South Africa	779	4,717	1,753	1,534	5,715	6,900	349	7,249
United Kingdom	0	23	6	16	13	27	2	29
United States	16	44	19	23	56	72	7	79
Total	1,353	9,587	3,304	2,570	11,674	13,585	659	14,244

Employees by employment contract, employment type and gender

	Female	Male	Total
Permanent	2,361	11,399	13,760
- Full-time	2,247	11,255	13,502
- Part-time	114	144	258
Temporary	209	275	484
Total	2,570	11,674	14,244

(1)   Total Recordable Injury Frequency (TRIF): The sum of (fatalities + lost-time cases + restricted work cases + medical treatment cases) x by 1,000,000 ÷ by actual hours worked, for employee and contractors. Stated in units of recordable injuries per million hours worked.

(2)   To ensure that incident classification definitions are applied uniformly across our workforce, we have adopted the United States Government Occupational Safety and Health Assessment guidelines for the recording and reporting of occupational injuries and illnesses.

(3)   Total Recordable Illness Frequency (TRILF): The sum of total occupational illness x 1,000,000 ÷ actual hours worked, for employees and contractors. Stated in units of recordable illnesses per million hours worked.

Percentage of employees by employee category, gender, age and minority group members

	<30 years old	30-50 years old	> 50 years old	Female	Male	Black People[4][5]
Board[6]	0	13	88	38	63	25
Executives and senior management	0	35	65	37	63	33
Management	0	27	73	26	74	48
Supervisory/professional/operational/support	10	34	57	18	82	82

Pay ratio of women to men for each employee category, by country[7] (based on salary)

	Australia	Colombia	Mozambique	Singapore	South Africa	USA	Total
Executives[8] and senior management	0.97	0.00	0.00	0.51	0.98	0.00	0.99
Management	0.93	0.88	0.88	0.82	0.96	0.94	0.92
Supervisory/professional/operational/support	0.97	1.06	1.06	0.93	0.97	0.94	0.96

Percentage of employees recording performance reviews online[9]

	Female	Male	Total
Executives and senior management	100	96	98
Management	96	90	91
Supervisory/professional/operational/support	94	92	92
Total	94	91	92

Employee turnover by region[10]

	<30 years old	30-50 years old	> 50 years old	Female	Male	TOTAL	Turnover rate[11] (%)
Africa	45	184	84	54	259	313	3.8
Asia	0	6	1	3	4	7	6
Australia	35	172	106	77	236	313	6.5
Europe	0	2	0	1	1	2	6.9
South America	1	11	11	3	20	23	2.6
North America	9	7	6	2	20	22	27.2
Total	59	293	147	118	381	680	4.8

New employee hires by region

	<30 years old	30-50 years old	> 50 years old	Female	Male	TOTAL	New hire rate[12] (%)
Africa	234	389	15	230	408	638	7.7
Asia	2	10	1	6	7	13	11.2
Australia	169	514	112	210	585	795	16.6
Europe	0	4	1	3	2	5	17.2
South America	12	24	1	19	18	37	4.1
North America	8	22	5	11	24	35	43.2
Total	425	963	135	479	1,044	1,523	10.7

(4) Black People refers to Africans, Coloureds and Indians who are citizens of the Republic of South Africa by birth or descent (as more fully defined in the Broad-Based Black Economic Empowerment Amendment Act 2013 (South Africa)).

(5) Black People percentage is calculated using the total number of employees in South Africa per employee category as the denominator and the total count per employee category as the numerator.

(6) Board includes Non-Executive Directors.

(7) Countries with less than 50 employees are not displayed however the data is included in the overall total.

(8) Excludes Key Management Personnel.

(9) Setting of personal performance goals for employees and undertaking regular check-ins between employees and their line manager is encouraged across South32. In FY19, not all performance goals were recorded online. The figures included in the above table reflect only where forms have been completed.

(10) Turnover rates included employees who left South32 voluntarily or due to dismissal, retirement, or death in service. These figures exclude employee departures as a result of redundancy or end of contract.

(11) Turnover rates are calculated using the total number of employees per region for FY19 as the denominator and the total count for FY19 as the numerator.

(12) New hire rates are calculated using the total number of employees per region for FY19 as the denominator and the total count for FY18 as the numerator.

Diversity targets

Measurable objectives		Stated Target		Progress	
		Target %	Target Date	FY18	FY19
Improve representation of women in total workforce	Total Employees	YoY Improvement		17%	18%
Improve representation of women in leadership teams	Board	30%	30 June 2019	33%	38%
	South32 Lead Team	30%	30 June 2019	29%	40%
	Senior Leadership Team[13]	40%	30 June 2020	31%	37%
	Operational Leadership Teams[14]	20%	30 June 2020	18%	18%
Improve representation of Black People in South Africa	Management Roles[15]	70%	30 June 2020	45%	49%
	Total Employees	85%	30 June 2020	81%	82%
Achieve gender pay equity	Funds allocated to address gender and ethnicity pay equity			US$1m	US$63.5K

ENVIRONMENT

Environmental fines levied

	FY19
US$	23,719
Number	4

We received three minor water fines relating to Hillside Aluminium.

In February 2019, Illawarra Metallurgical Coal was fined A$30,000 by the New South Wales Environment Protection Authority. The fine comprised two A$15,000 amounts for failure to operate/maintain pollution control equipment and alleged pollution/impact to the Georges River against conditions of our Environmental Protection Licence. No impacts to aquatic fauna were observed and potential environmental impacts were reduced due to prompt action by South32 to pump the discharge back to on site storage dams at Appin East colliery. Tests two weeks after the Environment Protection Authority inspection showed water in the area was clear with no residue detected. South32 environment personnel carried out remediation work and have improved maintenance and monitoring systems with the intension to avoid a similar occurrence in the future.

In FY19, we received five minor non-monetary sanctions.

WATER[16][17][18]

Inputs

Inputs by quality and source[19]	Unit of measurement	FY17	FY18	FY19
Water input by quality – type 1	megalitres	20,051	24,601	23,230
Water input by quality – type 2	megalitres	29,234	23,845	25,447
Water input by quality – type 3	megalitres	42,952	46,626	40,616
Water input by source – surface water	megalitres	49,419	56,376	46,370
Water input by source – groundwater	megalitres	29,295	33,087	38,763
Water input by source – seawater	megalitres	415	863	456
Water input by source – third party water	megalitres	13,107	4,746	3,704

(13) The Senior Leadership Team are our leaders who report directly to the South32 Lead Team.

(14) Operational Leadership Team includes Managers and General Managers who report to Vice President Operations or General Managers at an operation.

(15) Management Roles are Leaders with a Job Grade of 13 or higher.

(16) We report our water data in line with the Minerals Council of Australia Water Accounting Framework (MCA WAF). The MCA WAF is an accepted water accounting framework. It aims to improve data integrity and comparability in the mining sector – and ultimately improve water reporting right across the industry. Since FY18, we have integrated the ICMM Reporting Guidelines into our reporting methodology.

(17) The water quality categories in the MCA WAF are directly linked with current ICMM definitions. Types 1 and 2 are considered 'High Quality' and type 3 considered as 'Low Quality'. The GRI definitions of water quality are divided into 'freshwater' (water with concentration of total dissolved solids equal to or below 1,000 mg/L) and all remaining quality as 'other water'. The GRI definition of 'freshwater' aligns with the MCA WAF definition of type 1. 'Other water' links to types 2 and 3.

(18) In accordance with South32's interpretation of water management per the MCA WAF, ore body dewatering is consistently reported as an input across all South32 operations.

(19) Our operational reporting model does not include the reporting of diversions, being water that is diverted away from or actively managed by a site but not used for any operational purposes.

Total inputs for operations with water-related material risk	Unit of measurement	FY17	FY18	FY19
Total inputs – Worsley Alumina refinery	megalitres	16,690	23,785	19,088
Total inputs – Mozal Aluminium	megalitres	460	467	706
Total inputs – Hillside Aluminium	megalitres	899	1,355	837
Total inputs – Illawarra Metallurgical Coal	megalitres	7,496	5,643	5,618
Total inputs – SAEC	megalitres	32,363	30,885	28,083
TOTAL	megalitres	57,908	62,135	54,332

Inputs in areas of baseline water stress[20]	Unit of measurement	FY19
Water input by quality – type 1	megalitres	9,046
Water input by quality – type 2	megalitres	7,909
Water input by quality – type 3	megalitres	38,146
Water input by source – surface water	megalitres	27,764
Water input by source – groundwater	megalitres	25,016
Water input by source – seawater	megalitres	0
Water input by source – third party water	megalitres	2,321
Total input from operations located in water stressed areas	megalitres	55,101

Outputs[21]

Outputs by quality and destination	Unit of measurement	FY17	FY18	FY19
Water output by quality – type 1	megalitres	36,262	39,797	41,128
Water output by quality – type 2	megalitres	21,972	28,198	27,493
Water output by quality – type 3	megalitres	14,203	9,318[22]	10,312
Total output to surface water	megalitres	15,163	13,581	12,828
Total output to groundwater	megalitres	3,585	14,270	14,352
Total output to seawater	megalitres	3,570	4,034	2,769
Total output to third party	megalitres	11,505	2,382	3,260
Total output to 'other'	megalitres	38,613	43,046	45,724

Total outputs for operations with water-related material risk	Unit of measurement	FY17	FY18	FY19
Total outputs – Worsley Alumina refinery	megalitres	9,685	9,760	9,499
Total outputs – Mozal Aluminium	megalitres	245	340	262
Total outputs – Hillside Aluminium	megalitres	311	797	837
Total outputs – Illawarra Metallurgical Coal	megalitres	5,902	4,541	4,424
Total outputs – SAEC	megalitres	23,374	11,645	13,723
Total	megalitres	39,517	27,083	28,745

Outputs in areas of baseline water stress	Unit of measurement	FY19
Water output by quality – type 1	megalitres	21,638
Water output by quality – type 2	megalitres	3,767
Water output by quality – type 3	megalitres	3,544
Water output to surface water	megalitres	5,801
Water output to groundwater	megalitres	81
Water output to seawater	megalitres	2,302
Water output to third party	megalitres	2,012
Water output to 'other'	megalitres	18,753

(20) As defined using the WRI Aqueduct Tool found at _https://www.wri.org/our-work/project/aqueduct_. Accessed July 2019.

(21) In FY18, seepage and surface assumptions were updated in the GEMCO water model to create increased consistency in reporting between tailings facilities.

(22) There was a 15.2 per cent variance to figure. This variance is due to an update to our water accounting during FY19, which has improved data accuracy.

Water consumption	Unit of measurement	FY17	FY18	FY19
Total consumption by quality – type 1	megalitres	31,875	36,135	36,647
Total consumption by quality – type 2	megalitres	4,520	1,540	2,597
Total consumption by quality – type 3	megalitres	2,218	5,371	6,480
Total consumption	megalitres	38,613	*43,046*	45,724

Water consumption	Unit of measurement	FY17	FY18	FY19
Total consumption for operations located in water stressed areas	megalitres			18,753

Recycling and reuse	Unit of measurement	FY17	FY18	FY19
Water recycled and reused	megalitres	102,264	*117,516*[23]	129,653

Water efficiency	Unit of measurement	FY17	FY18	FY19
Total water efficiency	percentage	53	55	59
Total water efficiency for operations located in water stressed areas	percentage			21

Natural capital: Land holdings and rehabilitation

Hectares of	FY17	FY18	FY19
Total land disturbed	23,028	*23,313*	22,747
Total land rehabilitated	15,144	*15,560*	15,550
Total land set aside for conservation	2,107	2,001	2,010
Land owned, leased or managed	609,279	607,623	679,617

Designated protected areas FY19

	Areas adjacent to land managed by our operations	Areas on land managed by our operations	Size of common land on or overlapping designated protected area
	Number	Number	Hectares
Mozambique			
Terrestrial	0	0	0
Freshwater	0	0	0
Maritime	0	0	0
South Africa			
Terrestrial	1	0	50
Freshwater	0	0	0
Maritime	0	0	0
Australia			
Terrestrial	2	10	43,196
Freshwater	0	0	0
Maritime	1	0	0
Colombia			
Terrestrial	4	0	34
Freshwater	1	0	0
Maritime	0	0	0
South32 total			
Terrestrial	7	10	43,280
Freshwater	1	0	0
Maritime	1	0	0

(23)   There was a 9.8 per cent variance to an FY18 figure. This variance is due to an update to our water accounting during FY19, which has improved data accuracy.

Biodiversity management plans (BMPs)

	FY19
Implemented required BMPs	100% of BMPs have been implemented where required

Energy[24]

Total use in petajoules	FY17	FY18	FY19
Electricity	79	79	79
Coal and coke	42	42	43
Natural gas	27	27	27
Other	18	18	17
Distillate/gasoline	7	7	9
Total	174	174	176
Renewable	37	33	31

GHG Emissions[25] Total

Millions of tonnes of CO_2 -e	FY17	FY18	FY19
GHG - Scope 1[26]	10.6	10.2	10.5
GHG - Scope 2 market-based[26]	12.0	12.6	13.0
GHG - Scope 2 location-based[27]	19.6	19.8	19.6
GHG Scope 1 and 2[26]	22.6	22.8	23.5
Scope 3[28]	125.0	117.0	116.0

GHG Emissions by Source[25][26]

Millions of tonnes of CO_2 -e	FY17	FY18	FY19
GHG from electricity	12.0	12.6[29]	13.0
GHG from fugitive sources	3.0	2.5	2.7
GHG from coal and coke	3.8	3.8	3.8
GHG from other sources	1.9	1.9	1.9
GHG from natural gas	1.4	1.4	1.4
GHG from distillate and gas	0.5	0.6	0.7
Total	22.6	22.8[30]	23.5

Air Emissions

Total in tonnes	FY17	FY18	FY19
Total oxides of sulphur	39,192	35,803	37,799
Total oxides of nitrogen	10,425	10,892	24,763[31]
Total mercury	0.86	0.72	0.85

(24) Measured according to the World Resources Institute/World Business Council for Sustainable Development.

(25) South32 currently uses Global Warming Potentials (GWPs) from the Intergovernmental Panel on Climate Change (IPCC) Assessment Report 4 (AR4).

(26) Measured according to the World Resources Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol.

(27) In accordance with the GHG Protocol Scope 2 disclosure requirements, our location-based Scope 2 emissions were 19.6Mt of CO2 -e, which is 6.6Mt of CO2 -e higher than our market-based emissions. This difference is associated with our purchase of hydroelectric power at Mozambique Aluminium. Unless otherwise noted, all Scope 2 emissions reported are calculated using the market-based method.

(28) The calculation of our Scope 3 emissions is in accordance with the methodologies in the World Resources Institute Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Detail on the specific methodologies used for each Scope 3 category can be found on our website.

(29) Scope 2 emissions from electricity have been restated to better reflect newly available assumption data.

(30) Total GHG restated due to the change in Scope 2 emissions, as per footnote 18..

(31) The reason for the increase in nitrogen emissions is because Hillside Aluminium commenced annual sampling and reporting on nitrogen this year. This is not a requirement of Hillside Aluminium's Atmospheric Emissions Licence, however it will be included moving forward.

Waste

		FY17	FY18	FY19
Hazardous waste – mineral total	Kilotonnes	16,226	22,627	23,741
Non-hazardous waste – mineral tailings	Kilotonnes	16,236	5,909	5,458
Accidental discharge of water and tailings[32]	Megalitres	0.0	0.0	24.6

In February 2019 Cannington's port facility in Townsville experienced an extreme weather event. Due to this event, an uncontrolled release of stormwater took place. During the initial overflow, two samples showed lead slightly above the Environmental Authority Limit. However, no lead above criteria was identified at any sampling points downstream and the overall average lead concentration in stormwater sampled at the discharge point was below the Environmental Authority Limit across the release as a whole. We shared all relevant data with the Queensland Department of Environment and Science who also conducted an inspection. No action was taken by the Department, given the severity of the weather event and overall results of sampling undertaken during the event. Cannington continued to manage and treat water during the event to minimise impact and return to controlled releases as soon as practical.

Spills

Total in kgs	FY19
Lead concentrate	50

Approximately 50kgs of lead concentrate was spilt from a ship loading shute into the ocean at the loading berth in the outer Townsville Port Harbour. The incident was reported and an investigation undertaken, which included sampling and showed no material environmental impact to the surrounding marine environment. A review of operational procedures and practices was undertaken to seek to avoid a future recurrence of this type of event. A formal warning was received post submission of the investigation report.

SOCIETY

Community investment[33]

	FY17	FY18	FY19
US$ million	14.3	20.4	17.3

Community investment by country FY19

	Total in USD$
South Africa	8,895,378
Colombia	3,029,911
Australia	2,921,738
Mozambique	2,229,657
United States of America	188,991
Total	17,265,676

Community complaints

Type	FY17	FY18	FY19
Dust	12	10	12
Noise	62	35	66
Odour	2	4	-
Traffic management		21	9
Community amenities		11	2
Business and employment opportunities		7	9
Blasting and vibration		7	3
Community health, safety and security			11
Employee behaviour in the community			2
Social and community engagement			7
Other	41	20	2
Total	117	115	123

(32) Data reported for environmentally significant events.

(33) Community investment consists of cash, in-kind support and administrative costs and includes donations and investment of funds in the broader community where the target beneficiaries are external to the Company. The amount accounts for actual expenditures in the reporting period, not commitments, prepared on an accruals basis and representing South32's equity share.

Human rights training

	FY17	FY18	FY19
Employees	851	154	546
Contractors	1,254	1,138	452
Total	2,105	1,292	998

Human rights reviews conducted

Country	Impact assessments conducted (as a % per country)	Sites reviewed (as a %)
South Africa	100	100
Mozambique	100	100
Australia	100	100
Colombia	100	100

Security training

	FY17	FY18	FY19
Total employees and contractors	793	1,185	940

Cultural awareness training

	FY17	FY18	FY19
Total employees	1,155	571	1,075

Community engagement plans

	FY19 (%)
Operations with implemented local engagement, impact assessments and development programs	100

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