ADITYA BIRLA
HINDALCO

21st August, 2020

BSE Limited Phiroze Jeejeebhoy Towers Dalal Street Mumbai: 400 001 **Scrip Code: 500440**	**National Stock Exchange of India Limited** Exchange Plaza, 5th Floor Plot No. C/1, G Block Bandra Kurla Complex Bandra (East) Mumbai – 400 051 **Scrip Code: HINDALCO**
Mr. Daniel Schammo Banque Internationale A Luxembourg Societe Anonyme, 69, Route d'Esch L-2953 Luxembourg Fax No. 00 352 4590 2010 Tel. No. 00 352 4590-1	

Sub: Sustainability report of Hindalco Industries Limited ('the Company')

Ref: Regulation 30 of Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015 ('Listing Regulations')

Dear Sir/ Madam,

Pursuant to Regulation 30 of Listing Regulations, please find attached the Sustainability report for the FY 2019-20 of the Company.

Achieving another milestone in its journey towards sustainable development, the Company is releasing 10th Sustainability report for FY 2019-20. The report showcases an overview of Hindalco's sustainability performance and plans. The report is prepared in accordance with the GRI Standards – Comprehensive Option and is aligned with key global reporting standards and frameworks such as UNGC and SDGs.

The theme of the report entitled 'Building a Resilient, Responsible and Reliable future' describes its journey on the path of transformation while focussing on key areas of stakeholder engagement, environment stewardship, responsible mining, community development, health & safety and product development. Hindalco's sustainability report is an effort towards long-term value creation and demonstrates its commitment towards its people, communities and the environment.

Following are key highlights of the report:

- Achieved 66% of bauxite residue utilisation across three out of its four plant locations and a cumulative 27% utilisation considering all four plant locations.
- Reduction of 15% in specific GHG emissions of aluminium operations with respect to the base year of FY 2010-11.
- Rainwater harvesting of 9.4 million M3 during FY 2019-20.
- Formation of special task forces for water and waste management to strengthen approach towards water and waste related risk management.
- Commissioning of 15.2 MW renewable power generation capacity, taking cumulative installed renewable energy capacity to 45.2 MW during FY 2019-20.
- By way of its community-led initiatives, Hindalco made a difference to the lives of 1.13 million people from 714 villages across 11 Indian states through its strategic focus areas of education, healthcare, social reforms, sustainable livelihood and infrastructure.
- Hindalco's workforce comprises of 6.81% of females at its management positions reiterating its commitments towards gender inclusivity.
- Launched India's first all-aluminium freight trailer, thereby providing a sustainable alternative to the logistic industry.
- Launched aluminium foil-laminated jute bag substituting plastic bags used at Tirumala Tirupati Devasthanams (TTD), Andhra Pradesh for carrying prasadam. This added to its innovative range of value-added product portfolio.
- As a response to the global COVID-19 pandemic, Hindalco undertook several measures such as providing the employees remote working options, sanitising and cleaning workplaces and spreading awareness among its communities. In order to continue the supply of essentials to the people, some of the plants were kept functional thereby serving its people during these critical times of need.

The above is for your information and record.

Thanking you

Yours faithfully

For HINDALCO INDUSTRIES LIMITED

ANIL MALIK
President & Company Secretary
Encl: as above

ADITYA BIRLA

HINDALCO

Building a Resilient, Responsible and Reliable Future

Sustainability Report FY 2019-20

Transforming towards a Resilient, Responsible and Reliable Future

We, at Hindalco, are on a path of transformation. As stakeholder expectations evolve and resources become scarce, adopting sustainable business practices has become an imperative to future-proof the Company.

We operate with an integrated business model, ranging from bauxite and coal mining to the production of value-added aluminium and copper products. This involves exposure to an ever-evolving business environment at both national and global levels. Considering these variations in the business environment, we have continued our focus on strengthening systems and frameworks. This helps us in improving the business performance, while developing resilient corporate governance and risk management practices.

Since we belong to a resource-intensive industry involving complex operations, the focus on environment, society, and health and safety is of paramount importance for us. We understand our responsibility in addressing the environmental and social impacts of our operations and take necessary steps to minimise them. In order to ensure a safe workplace, we constantly strive to improve our health and safety performance. Our initiatives in the areas of environment, community stewardship, and health and safety as outlined in this report demonstrate our approach towards operating in a responsible manner.

Our operations are supported by strong employee-centric policies catering to the needs and requirements of our workforce, consisting of 23,751 permanent employees. In addition to this, our focus on research and development, customer centricity and efficient supply chain operations has contributed to us becoming a reliable organisation.

This report presents an outline of the initiatives and efforts undertaken on our path of transformation towards a resilient, responsible and reliable future.

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Message from the Chairman

The world is at a stage where industrial growth needs to be synonymous with sustainable development. In the last few years, industries across the globe have stepped up and synergised their efforts to address the pressing issues of climate change and resource criticalities.

We recognise the challenges ahead of us, as the world deals with the COVID-19 pandemic and its impact on global economies. We are confident our Resilience-backed business operations and Responsible business strategy will help us embrace the changing world and emerge a winner through these critical times. At Hindalco, development of sustainable business practices with increased environmental accountability has been a consistent priority.

Changing business dynamics and evolving customer needs call for agile and creative actions. For Hindalco, innovation forms the backbone of all its business endeavours. This is evident in the way we have continually built up our range of value-added products portfolio globally, a vertical that contributes strongly to our organic growth.

In our efforts to reduce environmental footprints, Hindalco aligns its sustainable initiatives with the UN Sustainable Development Goals (SDGs). We operate with a sense of responsibility towards our communities and actively mitigate the impact of our resource-intensive operations on the surroundings. Our community-led initiatives are aimed at sustainable socioeconomic development of underserved and underprivileged communities.

It is a matter of pride for Hindalco to be honoured with the National CSR Award this year for its contribution in the domains of skill development and livelihoods. It reaffirms our belief in our core value of giving back to society, and strengthens our commitment towards building a Resilient, Responsible and Reliable future.

Hindalco's 10th sustainability report presents the progress of its sustainability initiatives in FY 2019-20. Our belief and efforts have brought us a long way and we aim to set a benchmark for the industry through exemplary business practices. Sustainable development is a long-term mission, and we will continue our journey with a promise of building a Greener, Stronger and Smarter world.

Kumar Mangalam Birla
Chairman

About the Report

This is the 10th Sustainability Report of Hindalco Industries Limited, covering reporting period from 1st April, 2019 to 31st March, 2020. This report has been prepared in accordance with the GRI Standards: Comprehensive option. The reporting principles therein have been applied to define the content and quality of the report to align with GRI Standards. All disclosures have been reported as per GRI Standards 2016, except for GRI 303: Water and Effluents and GRI 403: Occupational Health and Safety for which 2018 standards have been referred. This report is also aligned with the Government of India's National Voluntary Guidelines (NVGs) for responsible businesses and the principles of the United Nations Global Compact (UNGC).

Through this report, we provide a brief summary of our sustainability approach and the initiatives we have taken in the reporting period. We have also presented our goals for the coming years.

The report covers our India operations, including the aluminium, copper and mining businesses. Indian operations contribute 34% to our total revenue. Our wholly owned subsidiary, Novelis, publishes its own sustainability report with material topics specific to its operations, and has therefore been omitted from the boundary of this report. Novelis contributes 66% to our total revenue, as per the FY 2019-20 consolidated financial statement.

This report has been independently assured by Ernst & Young Associates LLP. The assurance is based on International Standard on Assurance Engagements (ISAE) 3000 and AccountAbility 1000 Assurance Standard (AA1000AS) 2008. The Assurance Statement is provided as part of this report.

We publish our sustainability reports annually. All our sustainability reports, including the most recent one published in July 2019, are available on our website http://www.hindalco.com/sustainability/sustainabilityreport. We welcome any feedback on the content and approach of this report at hindalco.sustainability@adityabirla.com

Message from the Managing Director

Hindalco's business strategy is to create value sustainably and operate responsibly. Our focussed approach towards sustainability is backed by strong policies and institutional frameworks that help us track our progress, fuel innovation and build strong ties with stakeholders. This is our Resilient, Responsible and Reliable model, and we present our progress in the Annual Sustainability Report for FY 2019-20.

Our approach towards responsibility and future-proofing is exemplified in how we deal with tough issues. During April 2019, we faced a challenging situation with an incident of bauxite residue (red mud) spillage at our storage facility in Muri, Jharkhand. Within a very short span of time, our team at the site was able to clear more than 0.75 million MT of bauxite residue. We carried out a detailed investigation to gauge the impact of the incident on the environment. Expert inputs were taken to develop a robust plan to prevent future incidents.

Bauxite residue disposal is a challenge and concern globally, and we have been exploring solutions to the issue. We are driving a collaborative solution that can reduce environment load and create value for the bauxite residue. We now supply bauxite residue to 40 cement plants in India, where it replaces mined minerals such as laterite and lithomarge. We are the first aluminium company in the world to have enabled such large-scale commercial application for bauxite residue.

Another example of our sustainability thinking is our proactive and pioneering development of all-aluminium commercial vehicles for the logistics and freight industries. In FY 2019-20, we launched India's first all-aluminium freight trailer, which is a big draw because of its light weight, fuel-saving, low maintenance and low life-cycle cost benefits. An interesting sidebar is our focus on reducing plastic waste -- we launched India's first aluminium foil-laminated jute bag to replace the thousands of plastic bags used at Tirumala Tirupati Devasthanams (TTD), Andhra Pradesh.

In early 2020, the COVID-19 pandemic placed nations, societies and industries across the globe under pressure from an unprecedented crisis. We were prompt in implementing a series of measures to protect the safety and health of our 54,118-strong workforce, and our communities. These included providing the work-from-home option to a majority of the employees in our metropolitan offices, running our plant operations with reduced staff capacity, instituting virtual meetings, and ensuring regular and rigorous cleaning and sanitisation of all our locations. We also took on the responsibility of sanitising villages around our plants, providing health support and supplying essentials to communities through our CSR teams.

The criticality of our aluminium metal supplies to the pharma and other essential industries made it necessary for us to keep some plants running, despite severe operational challenges of the lockdown. Our plants ran with specific permissions from authorities, and with all necessary safety precautions in place. Our courageous Hindalco warriors were at the forefront of this battle. They kept going against all odds, and we are proud of them.

During the reporting period, our India operations delivered a steady performance with full-year revenue of INR 40,324 crore, EBITDA of INR 5,483 crore and Profit After Tax of INR 958 crore. The India business achieved record aluminium metal production of 1.31 million tons and record Continuous Cast (CC) copper rods production of 0.263 million tons.

Our business strategies backed by a strong R&D team with technical expertise have enabled us to cater to emerging market needs through our advanced product development approach. We have built strong customer relationships through after-sales services for our B2B segment products. Going ahead, we plan to strengthen our profile in downstream products. Our acquisition of aluminium rolled products maker, Aleris Corporation, is a big step in this direction, as it raises our profile as the world's biggest aluminium value-added player in the world.

Beyond business, our social investments have led us to touch the lives of 1.13 million people belonging to 714 villages in 11 Indian states.

Our journey of clean and responsible manufacturing includes several initiatives. We are a part of Xynteo - a Norway-based environmental advisory platform - that helps us partner with several industry leaders globally to consolidate our efforts towards sustainable development.

With resource-intensive operations, we are aware of our impacts on the environment and strive to ensure that our approach is environmentally responsible. Limited availability of natural resources has led us to take initiatives for water and energy conservation to the next level. For instance, we have achieved Zero Liquid Discharge (ZLD) for 11 of our 15 manufacturing plants, with the remaining four plants well on their way. We are adopting renewables by commissioning around 15.2 MW of renewable energy projects during the reporting period and aim to install a 100 MW solar plant by FY 2020-21.

Employees constitute one of the strongest pillars of our business. We continue to focus on our talent management process, with initiatives towards workplace diversity, equal opportunity and overall well-being of our employees. We aim to bridge the gender gap at our workplace by bringing more women employees on board. During the reporting period, women constituted 6% of our management and staff employees.

Beyond business, our social investments have led us to touch the lives of 1.13 million people belonging to 714 villages in 11 Indian states. Our CSR spend for FY 2019-20 stands at INR 38.53 crore, and our CSR strategies are aligned with the UN Sustainable Development Goals. We were indeed proud to receive the Government of India's National CSR Award in recognition of our initiatives in skilling and livelihoods.

We believe recognition of our sustainability initiatives has helped us secure the third position among Materials Sector-Aluminium Industry peers, as we debuted in the Dow Jones Sustainability Emerging Markets Index 2019 edition. This has also helped us identify areas that require attention.

I would like to thank our team for performing to the best of their abilities and contributing to our continuous and all-inclusive growth. I believe our holistic commitment towards people, environment and business will carry us forward towards a Responsible, Resilient and Reliable future.

We are pleased to share our FY 2019-20 Sustainability Report with you and welcome your feedback and suggestions.

Satish Pai
Managing Director

Message from Chief Sustainability Officer

With a constantly evolving market landscape and disruptive challenges being faced by businesses across the globe, importance of incorporating sustainable practices in all aspects of business decisions, across the value chain, has been increasing every day. Transitioning to a sustainable business has become central to Hindalco's business strategy over last many years.

As we move forward on path of transformation towards a Resilient, Responsible and Reliable future, Hindalco's approach encompasses several focus areas - responsible mining operations, resource conservation in operations, innovative product development, upliftment of local communities, further empowering our employees, among others. We have been working to integrate sustainability into every facet of our operations. To do so, we place utmost emphasis on understanding and meeting stakeholder expectations. In our process to safeguard the interests of our stakeholders, we engage with them through various platforms and modes, on a regular basis. We used the findings from these interactions to arrive at the material issues and these have helped us shape our business goals. Further, we have redefined our sustainability SOPs wherein we increased involvement of our leadership in the decision-making processes to strengthen our sustainability efforts. As a result of our efforts, we were able to make it to DJSI Emerging Markets Index as part of DJSI Corporate Sustainability Assessment 2019. We are now at 3rd position Globally and the only company from India to have achieved this benchmark in Materials Sector - Aluminium Industry.

As a responsible corporate citizen, we aim to minimise the impacts of our resource-intensive operations on the environment at every key step. We are equally focused on all aspects pertaining to our environmental stewardship agenda, such as energy & emissions management, water conservation, waste management and biodiversity. Our efforts towards effluent management have helped 11 of our 15 manufacturing plants achieve zero liquid discharge (ZLD) status. We also have dedicated task forces in place for waste and water management initiatives at each plant. Formation of these task forces involve employees from each unit separately thereby driving collective efforts at every stage of operation. These task forces are responsible for streamlining the efforts focusing both on resource conservation and risk mitigation processes.

At Hindalco, service to our people and society is central to our value system. To contribute towards bridging the socioeconomic gap, we have taken a strategic approach to our corporate social responsibility (CSR) initiatives. Our community development programmes span across five focus areas of education, healthcare, social reform, sustainable livelihoods and infrastructure. Our efforts in the areas of skill development and livelihood generation, having been recognised nationally under the CSR category, are testament to our perennial efforts of serving underserved and underprivileged communities.

Further, in our efforts to build a resilient future, we offer a wide range of innovative products to meet the expectations of our customer base globally. Our recent launch of India's first all-aluminium freight trailer has provided the logistics industry with an innovative transport solution with much lower carbon footprint as compared to the conventional freight trailers.

Our goal of being a reliable employer remains a priority, with commitment to human capital deemed as one of our biggest assets. Our workforce policies not only help us nurture inclusive growth, but also empower employees by creating sustainable livelihood opportunities through skill development and training initiatives.

Our workforce policies not only help us nurture inclusive growth, but also empower employees by creating sustainable livelihood opportunities through skill development and training initiatives.

Taking a holistic business approach, we aim to build resilience through our risk management frameworks to mitigate business, environmental and operational risks. This robust and resilient structure, built through our expertise and experience, will help us become a greener, stronger and smarter organisation. Furthering our efforts towards this end, we continue to serve the country during these critical times of the global COVID-19 pandemic, which has affected people and economies the world over. Despite a country-wide lockdown, Hindalco resumed its operations to continue supplying essential products, such as packaging material for medicines.

Viewing every aspect through a sustainability lens has set us on a path of transformation towards a resilient, responsible and reliable tomorrow. With a promise to continue on this journey, we bring to you our 10th annual Sustainability Report, showcasing our progress and improvements on this front.

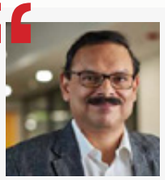
We look forward to your feedback and suggestions.

Deeksha Vats
Chief Sustainability Officer
Aditya Birla Group

Leaders Speak

With focus on value creation for our stakeholders, we aim at leveraging sustainability initiatives to improve business performance through robust risk management, productivity of capital and growth through innovation and digitization. In the process of moving towards a resilient, responsible and reliable future, we are committed to support the decision making process by enhancing business intelligence systems, quality risk reward analysis and other relevant analytical tools.

Praveen Maheshwari
Chief Financial Officer and CEO (Copper Business)



At Hindalco we are committed to a culture that supports a Responsible, Reliable and Resilient business through empowered, capable and responsible people who deliver consistent results in all situations. Responsibility starts with living up to our ABG Values of Integrity, Commitment, Passion, Speed and Seamlessness. We expect and encourage employees to manage their time effectively and to ensure that they consistently get work done to agreed quality and deadlines at the least possible cost. We also expect employees to take initiative and be trusted to work on their own without constant supervision. We believe that the true measure of any leader or manager is his or her ability to act based on knowledge, past experience and gut feelings, respond in real time to current circumstances, and then to recover quickly and move on with new lessons learned. Our performance management and reward systems and processes measure and reward the above behaviours

Samik Basu
Chief Human Resource Officer, Hindalco

Manufacturing Centre of Excellence has selected appropriate technologies for SO_X and NO_X reduction in Hindalco. These projects are being implemented progressively in various power plants. Technological solutions for bauxite residue utilisation in cement plants and mine backfilling are other areas where we are partnering with private companies and Government agencies. These steps are going to mitigate risks in alumina production. In smelters, we are implementing in-house technologies to reduce energy intensity in aluminium production. We are systematically increasing our non-carbon energy portfolio with projects that harness energy from solar and hydrocarbon resources.

Bibhu Mishra
Head - Manufacturing Centre of Excellence, Hindalco

Our mining operations are committed towards the guiding principles of Sustainable Mining initiatives through development of sustainable mining charter with focus on sustainable land use, water stewardship, emission reductions, biodiversity management, local economic development, health and safety, and waste management.

Pramod Unde
Senior President - Mining and Minerals, Hindalco

As a leading player in aluminium we are committed to promote the adoption and use of aluminium for light-weighting, packaging, electrical applications in key segments like transportation, power and pharmaceuticals - which in in line with our philosophy of sustainable growth. Usage of aluminium for light-weighting for example, will lead to lower consumption of fossil fuels and while consuming a perennially recyclable resource.

Devotosh K Das
Chief Marketing Officer (Aluminium), Hindalco

To survive and thrive in a VUCA world, Hindalco needs to build RESILIENCE to face adversities and crisis. To achieve this, we must build capability to:

- *REDUCE unfavourable events by taking clues from leading indicators and proactively acting on it*
- *Be better prepared to RESPOND to crisis and disasters when they occur*
- *RECOVER from such disasters and continue operations with minimal or no interruption*

The Risk Management team is committed to build resilience through Enterprise Risk Management, Crisis Management and Business Continuity Management

Anil Mathew
Chief Risk Officer, Hindalco

At Hindalco Chemicals, we are committed to a Responsible, Reliable and Resilient future for Hindalco by manufacturing Alumina and Hydrates that help our customers have the leading edge in making water potable, in electrification of the nation, in producing steel and other materials efficiently and in offering smarter solutions to electronics, all doing so by efficiently managing the by-products and taking care of the environment.

A Krishna Kumar
Head - Chemicals, Hindalco

Laws and regulations are dynamic. So is technology, macro/micro economic scenario and market demand/ needs. To ensure business keeps pace with these changes and needs, change in laws and regulations or seeking proactive intervention from the Central/State Governments on policy issues, it is important for the legal and advocacy to play a head start role. Anticipating and acting quickly is the key.

VR Shankar
Chief Legal Officer, Hindalco

Hindalco Downstream is committed to Sustainable Growth of the Business with 3R philosophy. Aluminium Downstream focuses on Energy and Water Conservation. Taloja plant started receiving power from the 4 MW Hydroelectric Power station which is a Joint Venture between Hindalco and a partner. This serves about 15% of Taloja's Power requirement. Alupuram plant is expanding its Solar Power capacity from 1 MW to 3 MW and the expanded capacity will be commissioned by second quarter of this financial year. This capacity expansion will make this factory 30% dependent on renewable energy. Business will be increasing its renewable energy consumption further. Also several water conservation efforts are yielding results including water harvesting facilities at Mouda and Taloja plants. Downstream business recycles 100% of run around aluminium scrap (RAA) generated during the manufacturing of products in plants . Business is also focussing on collecting process scrap from customers to increase recycling content in products. Last year, Taloja plant collected recycling amounting to 4,316 MT from the customers.

Arun Kumar B
Head - Downstream Operations, Hindalco

Integrating sustainability in our operations, we have continued to achieve newer milestones while transforming towards a Resilient, Responsible & Reliable Future. We started disclosing our sustainability performance in FY 2010-11 and have been on the forefront to align our initiatives with the Sustainable Development Goals (SDGs) to improve our sustainability performance. This has helped us in being transparent with our stakeholders including investors and analysts. The Sustainability Report serves as a platform to share our performance, achievements and best practices on Environment, Social and Governance aspects.

Vaishali Surawar
Head - Sustainability and Environment, Hindalco

Key Highlights

Waste Management

27% of bauxite residue (Red mud) utilised as a raw material for cement and construction industry and which includes 66% of bauxite residue utilised cumulatively at three out of four plant locations.

173% of phosphogypsum re-used for various applications. 100% of phosphogypsum generated in FY 2019 -20, and 73% of previous year's phosphogypsum has been utilised.

135% of copper slag utilised for useful applications. 100% of Copper Slag generated in FY 2019 -20, and 35% of previous year's Copper Slag has been utilised.

Formation of special Waste Management Task Force (WaMTF) for each plant location.

Dow Jones Sustainability Index

Hindalco was able to make it to DJSI Emerging Markets Index and was ranked at 3rd position Globally in Materials Sector - Aluminium Industry.

Water Availability

Zero liquid discharge status achieved at 11 of the 15 operational units.

Special Task Forces for Water Management formed for each plant location.

9.4 million m^3 rain water Harvested in FY 2019-20

Techplast

TECHPLAST (Ready Mix Plaster) is GreenPro IGBC Certified Eco Friendly Product

Energy Security

INR 90.98 crore invested in energy conservation equipment and projects.

Commissioning of 15.2 MW capacity renewable power generation across three locations, taking cumulative installed renewable energy capacity to 45.2 MW.

Reduced specific process energy consumption by 17% in aluminium production, as compared to the base year FY 2011-12.

Emissions

Achieved 15% reduction in specific GHG emissions in aluminium production from the base year of FY 2011-12.

Purchased 3,86,695 Renewable Energy Certificates (REC), equivalent to GHG offset of 3,17,090 tCO_2e.

Reduction in particulate matter emissions by 8.62% from FY 2018-19 with various initiatives including upgrading rectifiers of Electrostatic Precipitator with High Frequency Transformer Rectifier (HFTR)

Community Development

Touched lives of 1.13 million people belonging to 714 villages across 11 Indian states through community led initiatives

Green Belt Development

4,373 acres of green belt developed.

Employee Stewardship

40% female recruitment at GET level

Training hours increased from 45 to 60 hours per employee

Occupational Health & Safety

Developed Fatality Prevention Plan to achieve zero fatalities.

Developed Crisis Management Plan in association with National Disaster Response Force (NDRF).

R&D Innovation & Technology

Launched India's first all-aluminium freight trailer.

Launched India's first aluminium foil-laminated jute bags for Tirumala Tirupati Devasthanams (TTD).

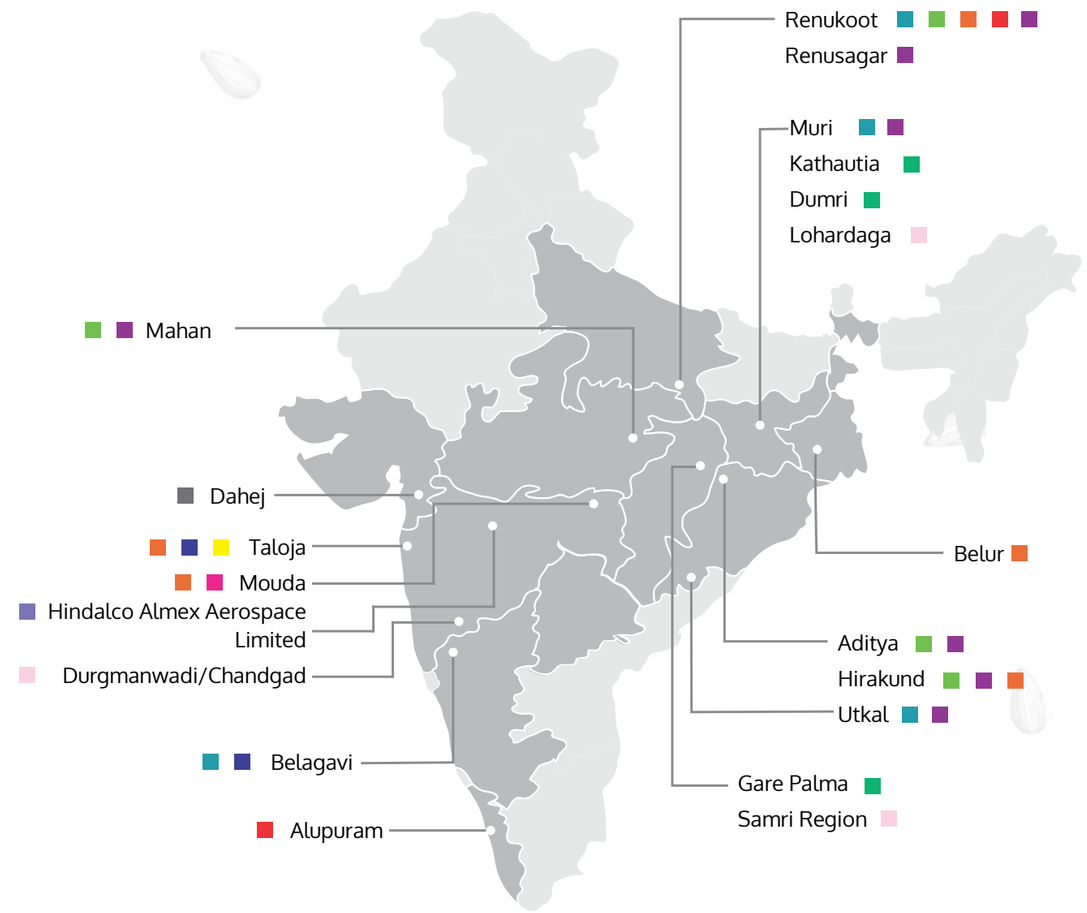
About Hindalco

Hindalco Industries Limited , a flagship company of the Aditya Birla Group (ABG), is an industry leader in aluminium and copper business. Our business is built on our values and guided by our vision to be a global leader in the metals and mining sector, excelling in everything we do and creating value for our stakeholders.

Established in the year 1958, we are the world's largest aluminium rolling company and one of Asia's biggest primary aluminium producers. Headquartered in Mumbai, our mining and manufacturing operations are spread across nine states in India and the global footprint spans 50 units in 11 countries.

VALUES

Geographical Spread of our operations across India



- Alumina Refinery
- Aluminium Smelter
- Aluminium Rolled Products
- Aluminium Extrusion Plant
- Power Plant
- Innovation Centre
- Aluminium Foil Plant
- Recycling Facility
- Coal Mines
- Bauxite Mines
- Integrated Copper Complex
- D. C. Cast Aluminium hard Alloys

Map is not to the scale

Aluminium Business

- One of the top five global aluminium producers.
- Integrated approach, with low-cost base and dynamic presence across the value chain propels diverse aluminium product offerings that include extrusions, flat rolled products, foils, wire rods and billets, among others.
- Customer base spread across the following markets:
  - Automotive and transport
  - Building and construction
  - Defence
  - Electricals and electronics
  - Industrial applications
  - Pharmaceuticals and packaging
  - White goods

Copper Business

- Operate one of the largest single-location customs copper smelters in the world.
- Produce copper cathodes and continous cast copper rods of various sizes.
- Birla Copper manufactures continuous copper rods, copper tubes and other applications in the form of alloys and sheets.
- Markets served by the copper products:
  - Agrochemical
  - Automotive and transport
  - Consumer durables
  - Electrical equipment
  - Railways
  - Wire and cable industry

Our Business Verticals

Chemical Business

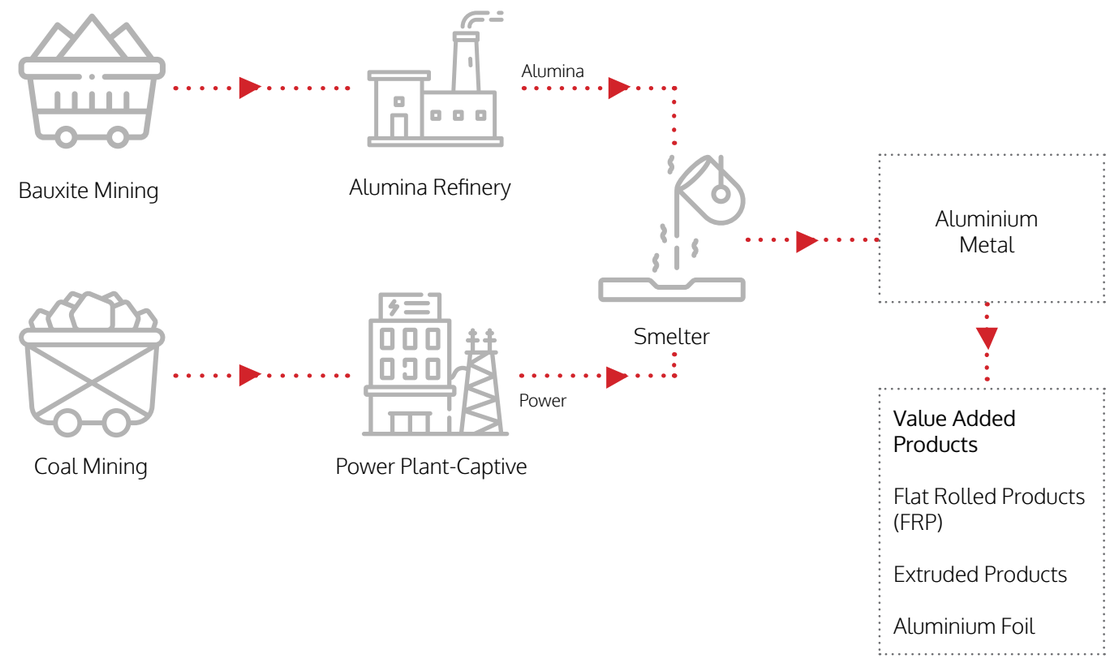
- Chemical business involves manufacturing chemical grade specialty alumina and hydrates.
- Operations in Belagavi alumina refinery and Muri alumina refinery are significant contirbutors to the chemical business.
- The chemical business serves the following markets:
  - Ceramics
  - Refractories
  - Polishing
  - Glass
  - Water treatment
  - Fire retardent fillers

Aluminium

We are industry leaders in Asia for manufacturing aluminium and aluminium products. We own and operate bauxite mines in Jharkhand, Chhattisgarh, Maharashtra and Odisha, serving as raw material for our alumina refineries at Utkal, Muri, Renukoot and Belagavi. The alumina refineries use state-of-the-art technology smelters to produce a range of high-quality alloys. Our refineries are fuelled by the captive power plants supported by coal from captive coal mines in Chhattisgarh and Jharkhand.

The Utkal Alumina International Limited (UAIL) refinery is strategically placed near the Baphlimali bauxite mines, ensuring access to superior quality bauxite ore. UAIL supplies alumina to our new-age smelters placed at Mahan Aluminium in Madhya Pradesh and Aditya Aluminium in Odisha. The ingots and sows produced from these smelters are accredited by the London Metal Exchange as good delivery brands against its high-grade primary aluminium contracts.

Our finished products include alumina and primary aluminium in the form of ingots, billets and wire rods. The value-added products include rolled products, extrusions and foils. Some of our brands include Eternia Windows, Maxloader and Hindalco Extrusions under the extrusions segment; Lithographic Sheets and Everlast Roofing under the flat rolled products segment; and Freshwrapp and Superwrap under the aluminium foil segment.



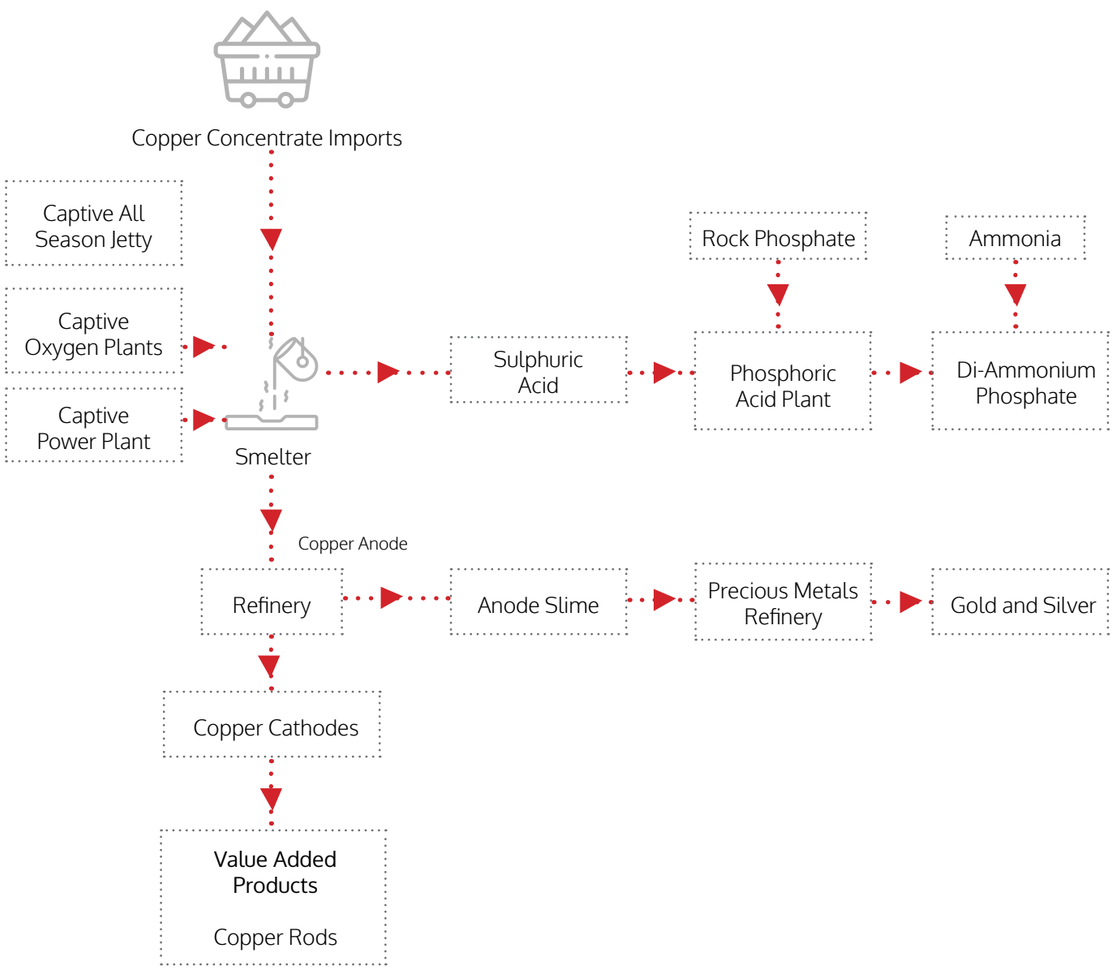
Chemical

Our growing chemical business deals with producing chemical-grade hydrates and alumina from our refineries in Belagavi and Muri. Our products find use in fire retardants, ceramics, polishing, refractories and other markets.

Copper

Our copper operations take pride in operating one of the largest single-location custom copper smelters in the world, at Dahej. The complex houses smelter, sulphuric acid plant, refinery, rod plant, a jetty and a captive power plant, besides other utilities. The sulphuric acid is partly utilised to produce phosphoric acid and fertilisers like di-ammonium phosphate (DAP). The copper brands, namely Birla Copper and Birla Copper-II, are recognised for purity and consistency in quality, and are registered on the London Metal Exchange as Grade-A copper brands.

We produce LME grade copper cathodes and continuous cast copper rods in various sizes, and precious metals like gold and silver. We are a major manufacturer of 19.6 mm diameter copper rods, used in railway electrification.



Stakeholder Engagement and Materiality Analysis

Stakeholders' expectations, needs and aspirations are at the core of our business strategy. We firmly believe in growth, while ensuring interests and addressing concerns of stakeholders. The materiality assessment helps us focus on topics that have direct and indirect impacts on our business and ability to create long-term value for our stakeholders.

During the reporting period, we had a relook at our stakeholder engagement and materiality assessment mechanism from the point of view of completeness, relevance and inclusivity. We took steps to strengthen the existing mechanism to suit current business needs. The exercise was carried out in collaboration with the enterprise risk management function to ensure that the topics identified through materiality assessment are instrumental in helping us move towards a resilient, responsible and reliable future.

Stakeholder Engagement

Engaging with stakeholders offer us the opportunity to understand their concerns and subsequently focus on addressing them. Our group-level stakeholder engagement policy acts as a guiding principle for stakeholder engagement at Hindalco.

Stakeholders were identified from respective stakeholder groups relevant for our business. These include shareholders, employees, customers, suppliers, regulatory authorities, media, industry associations, communities, NGOs and peer companies. A comprehensive stakeholder engagement exercise was carried out to engage with prioritised stakeholders from each of these groups. The exercise helped us understand their concerns and feedback.

On the basis of feedback received from respective stakeholder groups, appropriate action plans are developed to address their expectations. These concerns and expectations form a vital input for our materiality assessment and for developing short and long-term business goals. The relevant concerns are then updated in monthly review meetings chaired by the MD. Some of these concerns are presented by the MD to the Board of Directors during Board Meetings.

The summary of responses received from our stakeholders is given below:

Stakeholder Group	Engagement Channels	Frequency of Engagement	Key Issues of Interest	Our Approach
Employees	• Emails and meetings • Intranet portals • Employee satisfaction surveys • Training programmes • Performance appraisal reviews • Grievance redressal mechanism	Continuous	Fair wages and rewards	About 65% of the workforce is covered under the provisions of collective bargaining.
				100% compliant in terms of payment of minimum wages.
			Training and skill development; and Career Growth	Technical and behavioural trainings.
				Hindalco Technical University focusing on technical skill development of employees.
			Work-life balance	'A World of Opportunities' campaign for employees and their families.
			Occupational health and safety	Fatality prevention programme in place.
				Disaster management plan.
			Transparent communication	Sufficient notice regarding significant operational changes to management, staff and other employees.
Customers	• Emails and meetings • Customer satisfaction surveys • Grievance redressal mechanism	Continuous	Post-sales support	Net Promoter Score model is a combination of top-down and bottom-up approach.
			Chinese and local competition	Aluminium and copper manufactured as per LME specifications.
Suppliers	• Emails and meetings • Vendor assessment & review • Supplier audits • Training workshops and seminars • Stakeholder engagement surveys	Continuous	Continuity of orders	Supply chain and procurement policy.
			Capacity building	Supplier Code of Conduct.
			Pricing and negotiation	Supplier risk assessment.
				Contractor safety management system.
				Ethics and transparency is part of the management framework.

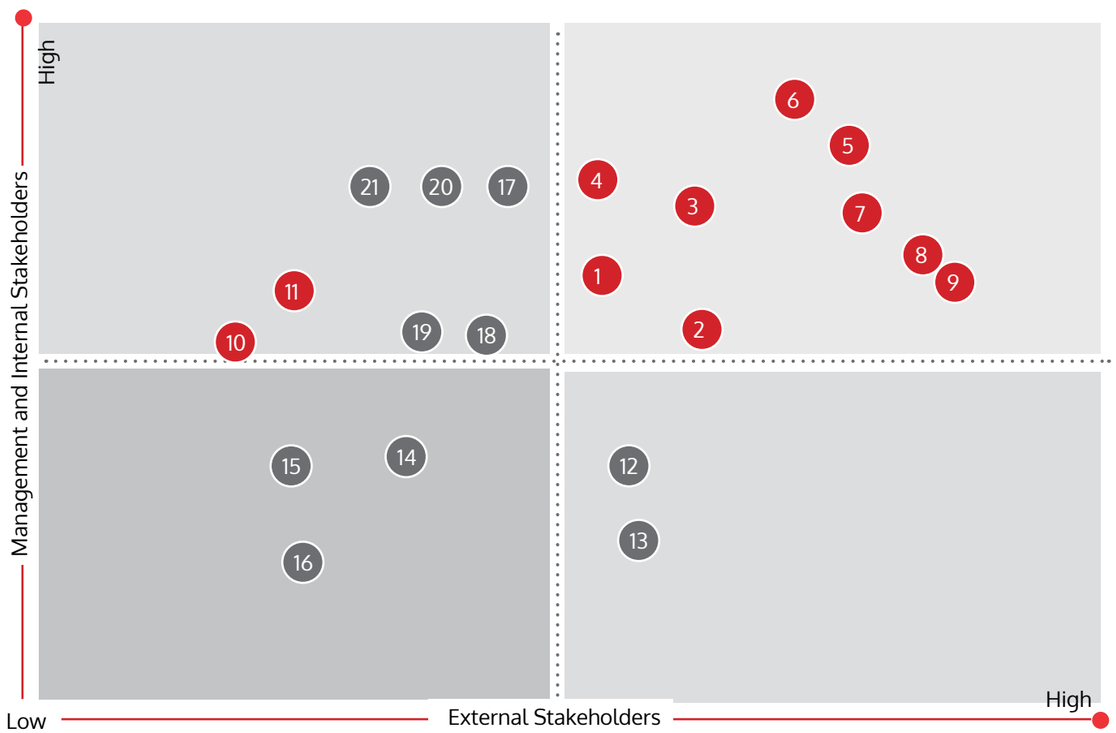
Stakeholder Group	Engagement Channels	Frequency of Engagement	Key Issues of Interest	Our Approach
Communities	• Stakeholder engagement surveys • Training and workshops • Regular meetings • Need assessment and satisfaction surveys • CSR reports	Continuous	Infrastructure development	Development of community Infrastructure such as village approach roads, check dams and bus stops.
			Training and livelihood programs Local Employment	Focus on livelihood and skill development programmes.
				Skill development programmes for women.
			Participation in social services	Social awareness camps.
				Focus on societal reforms.
Investors and Shareholders	• Board meetings • Annual reports • Newsletters • Regular business interaction	Quarterly	Sustainable growth and returns	Stable operational performance.
			Market share	Focus on cost optimisation.
			Operational performance	Focus on value-added products.
			Risk management	Enterprise Risk Management framework
			Corporate governance	Robust corporate governance framework
Regulatory Bodies	• Annual reports • Communication with regulatory bodies • Formal dialogues	As per requirement, at least once a year	Tax and royalties	Regular payment of applicable taxes and royalties.
			Pollution prevention	Strengthening of emissions monitoring.
				Adoption of renewable energy.
Media	• Social media • Press releases • Interviews • Website	As per requirement	Community relations	Transparent communication.
				Communicating business and sustainability initiatives through annual report and sustainability reports.
Industry Associations	Meetings	As per requirement	Regulations, compliance with industry standards	Participation in meetings and discussions related to the industry.

Materiality Analysis

Materiality analysis is a detailed analysis that helps us identify critical economic, environmental and social issues that are significant to business performance and stakeholder interest. The analysis showcases the significance of Environmental, Social and Governance (ESG) topics with reference to influence on stakeholders' assessments and decisions.

Material topics are identified based on the results of stakeholder engagement survey. Additionally, industry research, benchmarks and internal & external conventions, including the United Nations Global Compact Principles on Environment, Human Rights and Corruption are also considered to identify these topics. The outcome is then used to develop a materiality matrix, which showcases high priority sustainability topics. To build a stronger company, we align our business to focus on these topics.

During the reporting period, materiality analysis was carried out considering views and feedback received from stakeholders (including the senior management). The following matrix represents the outcome of this exercise:



1. Market Presence 2. Waste and Hazardous Materials Management 3. Energy & GHG Emissions Management 4. Air Emissions 5. Compliance Management 6. Water Management 7. Occupational Health and Safety 8. Product Stewardship 9. Macro-Economic Fluctuations 10. Diversity and Inclusion 11. Employee Well-Being

12. Material Management 13. R&D Innovation and Technology 14. Supply Chain Transformation 15. Land Use 16. Biodiversity Impacts 17. Ethics and Integrity 18. Community Relations 19. Security and Human Rights 20. Artisanal and Small-Scale Mining 21. Economic Performance

Topics that are rated of high importance by external stakeholders as well as by internal stakeholders (including management) are considered as material topics. The topics reflecting in top right quadrant of the above matrix represent these material topics. Being an organisation with a workforce of 23,751, we have also considered employee well being and, diversity and inclusion as material topics. Following table provide details of material topics and respective section in this report where we have presented how we respond to the topic.

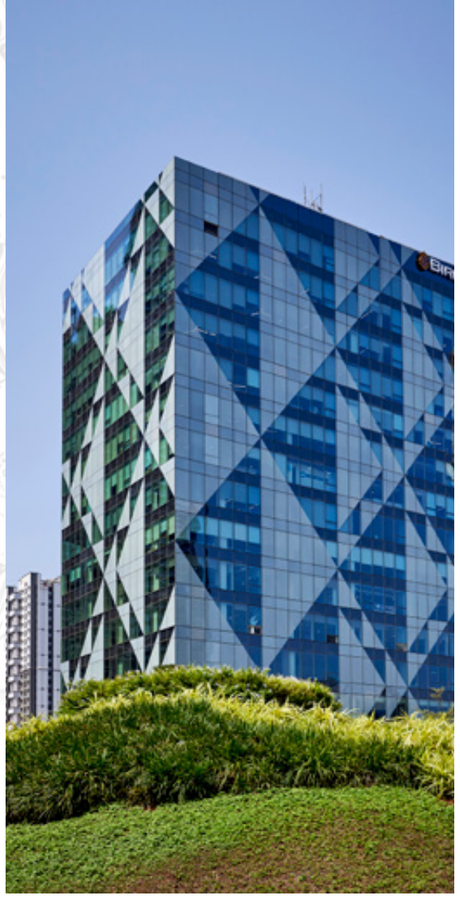
Material Topic	GRI Material Topic	Report Section
Market Presence	Non-GRI Topic	Product Stewardship
Waste and Hazardous Materials Management	Effluents and Waste	Environmental Stewardship
Energy & GHG Emissions Management	Energy	Environment Stewardship
Air Emissions	Emissions	Environmental Stewardship
Compliance Management	Environmental Compliance	Environmental Stewardship Community Stewardship
Water Management	Water	Environmental Stewardship
Occupational Health and Safety	Occupational Health and Safety	Health & Safety
Product Stewardship	Marketing and Labeling	Product Stewardship
Macro-Economic fluctuations	Economic Performance	Economic Stewardship
Diversity and Inclusion	Diversity and Equal Opportunity	Employee Stewardship
Employee Well-Being	Employment	Employee Stewardship

Resilient

25 Corporate Governance

31 Risk Management Framework

34 Economic Stewardship



Corporate Governance

Our corporate governance philosophy finds its roots in the rich legacy of ethical corporate governance practices laid down by the Aditya Birla Group, and forms a keystone of our business operations. We strive to adopt best governance and ethical practices and adhere to their true spirit. Our cardinal principles of board accountability to the Company and shareholders, strategic guidance and effective monitoring by the Board, protection of minority interests and rights, equitable treatment of all shareholders as well as superior transparency and timely disclosures serve as means for implementing the philosophy of corporate governance. In line with this philosophy, the Company, as a continuous process, strengthens the quality of disclosures on the Board composition and its functioning, remunerations paid and level of compliance with various corporate governance codes and regulatory compliances

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We believe that to accomplish a successful business, we must exhibit highest standards of corporate behaviour towards everyone we work with, the environment we function in, and the communities we operate in. This paves the way for consistently creating value for our stakeholders by being competitive and profitable in a responsible manner. Our governance structure is built to be resilient and compliant to all regulatory requirements. Our Board of Directors and the committees play a key role in identifying, mitigating and managing key risks, reviewing the policies, setting goals and monitoring performance.

We believe that to accomplish a successful business, we must exhibit highest standards of corporate behaviour towards everyone we work with, the environment we function in, and the communities we operate in.

We ensure compliance to all the requirements under Securities and Exchange Board of India's (SEBI) Listing Obligations and Disclosure Requirements Regulations, 2015 and amendments made thereafter.

The Board of Directors

Hindalco's Board of Directors plays a primary role in ensuring good governance and functioning of the Company. Our Board of Directors, chaired by Mr. Kumar Mangalam Birla, Non-Executive Chairman, comprises of 11 Non-Executive Directors as on March 31, 2020. The Board periodically meets to review performance, address major operational concerns, vet new initiatives and suggest improvements in implementation. The details of our Board of Directors are given below:

Name of Director[1]	Nature	Category
Mr. Kumar Mangalam Birla[2]	Non-executive	Chairman, Non-Independent Director
Mrs. Rajashree Birla	Non-executive	Non-Independent Director
Mr. A.K Agarwala[3]	Non-executive	Non-Independent Director
Mr. D. Bhattacharya	Non-executive	Non-Independent Director
Mr. K. N Bhandari	Non-executive	Independent Director
Mrs. Alka Bharucha	Non-executive	Independent Director
Mr. Y. P Dandiwala	Non-executive	Independent Director
Mr. Ram Charan	Non-executive	Independent Director
Mr. Sudhir Mittal[4]	Non-executive	Independent Director
Dr. Vikas Balia[5]	Non-executive	Independent Director
Mr. Satish Pai	Executive	Managing Director
Mr. Praveen Kumar Maheshwari	Executive	Whole-Time Director

There is a formal evaluation framework in place for measuring the performance of the Board, Committees, Individual Directors and Chairman of the Board, reference to which is given in the Annual Report. All our Board of Directors attended at least 1 out of the 6 (i.e. 17%) total meetings held during the reporting period, thus, adhering to the meeting attendance criteria as per Section 167-1 (b) of Companies Act 2013.

Adhering to various corporate governance codes ensures resilience of our governance structures, while strengthening the Board's effectiveness, transparency and accountability.

1. *Mr. Girish Dave has resigned as Independent Director w.e.f. November 2019 due to age and personal reasons.*
2. *Mr. M M Bhagat has ceased to be an Independent Director w.e.f August 30, 2019 due to old age.*
3. *Mr. A. K. Agarwala was an Executive Director till September 10, 2003. Thereafter, he has moved to other responsibilities in the Aditya Birla Group.*
4. *Mr. Sudhir Mital was appointed as an Independent Director w.e.f November 11, 2019.*
5. *Dr. Vikas Balia was appointed as an Independent Director w.e.f July 19, 2019.*

Committees of the Board of Directors

The Board delegates responsibilities to different types of committees, constituted to deal with matters and monitor the activities falling within the respective terms of reference. There are three types of committees based on the level and nature of responsibility - Committees of the Board of Directors, Business Committees, and Executive Committees.

The committees to the Board include

- Corporate Social Responsibility (CSR) committee
- Sustainability Board
- Apex Safety Board
- Value Standards Committee
- Remuneration Committee

The Corporate Social Responsibility Committee is responsible for formulating the CSR policy, recommending the key activities to be undertaken by the company and the amount of expenditure to be incurred in the activities suggested, providing guidance on carrying out these activities and monitoring its progress. The CSR committee is constituted of the following members:

- Mrs. Rajashree Birla
  Chairman
- Mr. Satish Pai
  Member
- Mr. A.K. Agarwala
  Member
- Mr.D. Bhattacharya
  Member
- Mr. Y. P. Dandiwala
  Member
- Dr. Pragnya Ram
  Permanent Invitee

Sustainability Committee is involved in developing the Company's sustainability policy, institutionalising clear goals and targets for the company, and setting out frameworks for monitoring performance across diverse aspects of business operations. These include mining practices, energy conservation, recycling, environment-friendly disposal of industrial waste, safety practices, socioeconomic development of the communities around the plant, and empowerment of our employees. The committee is a part of the Business Committee, which is led by our Managing Director.

The Apex Safety Board holds the responsibility of evaluating the safety performance of all the businesses of the Company at regular intervals. It reviews performance and suggests different interventions for business units to mitigate risks.

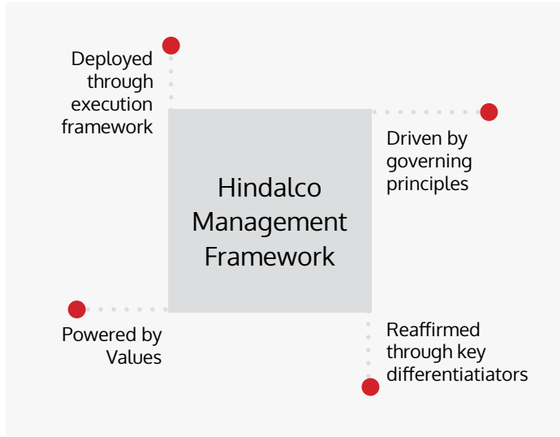
Ethical behaviour is imperative to the Company's business. The Value Standards Committee handles all matters related to whistle blower cases, sexual harassment and other matters of illegal and unethical behaviour. The Company has a Vigil Mechanism and Whistle Blower Policy, under which employees are free to report violations of applicable laws and regulations and Code of Conduct.

The Nomination and Remuneration Committee identifies and recommends to the Board individuals from the company qualified to become a Director or part of the Senior Management. It gives the Board approval on inducting or removing a person from the Senior Management. It is also responsible for devising the Board Diversity Policy, evaluating the performance of every Director, and recommending the remuneration for the Directors, managerial positions and other employees. Under the Clawback clause of our Remuneration Policy, the excess remuneration received, of what is payable to the executive, would be recovered as per the restated financial statements in case of any fraud or non-compliance with any requirement of the Companies Act, 2013.

Our annual compensation ratio for FY 2019-20 is 520.15. The corresponding ratio for percentage increase in annual compensation is 1.2.

Code of Conduct

The Hindalco Code of Conduct, as adopted by the Board of Directors, is applicable to all Directors and the Senior Management of the Company. The Code is available on the Company's website: http://www.hindalco.com/investor-centre/codeof-conduct. It is based on Hindalco's values of Integrity, Commitment, Passion, Seamlessness and Speed. All Directors, Senior Management members and employees adhere to the Company's Code of Conduct, and no complaints of its violation were received during the reporting period. As part of our corporate governance structure and the Code of Conduct, we have placed necessary safeguards to avoid any conflicts of interest. As per regulatory requirements, we maintain necessary registers for recording interests of all Directors, with reference to conflicts of interest. The management is also required to confirm that they have not entered into any material transaction that could have potential conflict of interest with our business. Any incident of conflict of interest is brought to the notice of management, as per the provisions of Code of Conduct. During the reporting year, there were no incidents of violation of the Code of Conduct. No cases on the grounds of anti-competitive behaviour or anti-trust legislations have been filed. No non-compliance strictures/penalties have been imposed on the Company by Stock Exchange(s) or SEBI or any Statutory Authority on any matters related to capital markets during the last three years.



Sustainability Framework

Hindalco endeavours to become a leading metals company for sustainable business practices across global operations, balancing its economic growth with environmental and societal interests.

At Hindalco, we have adopted a well-structured sustainable business model, based on our three guiding principles of resilience, reliability and responsibility. We strive to emerge a leader in the sphere of sustainable business practices by meeting the national and international legal requirements, leveraging our technologies and enhancing our stakeholder engagements.

Building on our principle of reliability, we focus on our operations, stakeholder engagement and product stewardship. Our work towards environmental sustainability and well-being of our people and community forms the basis of our principle of responsibility. Steady economic performance and a balanced product portfolio contributes towards building resilience in the backdrop of ever-changing market dynamics.

To achieve this, we have a set of policies in place for our respective sustainability focus areas. These policies help us in developing our systems and processes that, in turn, help us enhance our sustainable business model.

Key sustainability policies are as follows

- Environment Policy
- CSR Policy
- Human Rights Policy
- Energy and Carbon Policy
- Safety and Occupational Health Policy
- Governance and Compliance policy
- People Policy
- Technology Policy
- Information Technology Policy
- Quality Policy
- Sustainability Policy
- Policy on Prevention, Prohibition, and Redressal of Sexual Harassment at the Workplace

Our associations with key Industry and Trade Associations

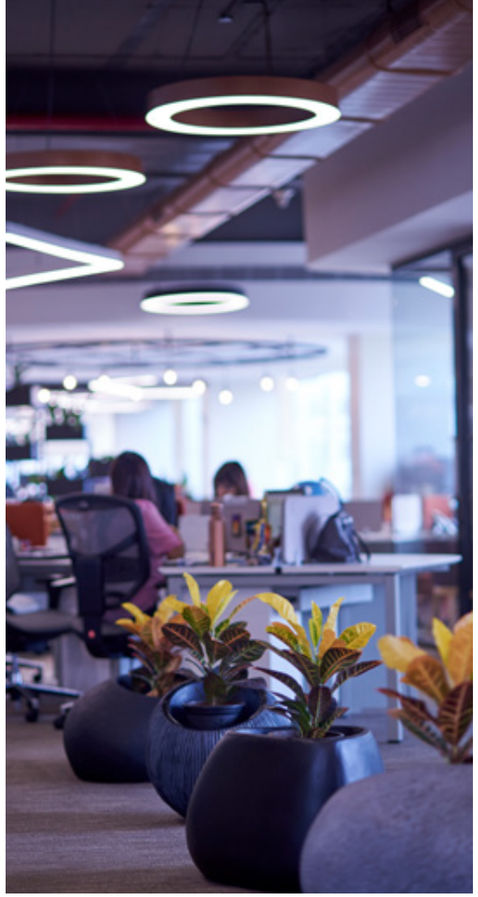
- Aluminium Association of India
- Confederation of Indian Industry
- Winding Wire Association
- Federation of Indian Chambers of Commerce & Industry
- International Copper Association India
- Indian Copper Development Centre
- Maharashtra Chamber of Commerce, Industry & Agriculture
- Automotive Research Association of India
- Indian Electrical and Electronics Manufacturers' Association
- Primary Copper Producers Association

Sustainability Coordinators Meet 2019

A Sustainability Meet was held in September 2019 where various keynote speakers and experts from the industry met to discuss the way forward of integrating sustainability measures into operational aspects of Hindalco's business. Insights on various dimensions of climate change, resource utilization, and growing importance of sustainability among dynamic market trends were shared by the experts during this meet.

The two-day long meet commenced with an opening speech by Mr. Satish Pai wherein he spoke about sustainability at Hindalco and emphasized on measures like achieving water balance at all sites, adequate emissions management, involvement of all employees to drive sustainability and launch of a hot line to capture environment related incidents within Hindalco. This was followed by panel discussions on topics such as Hindalco's strategy of diversified portfolio, rapid changing regulatory landscape, growing need for transparency and ownership, EHS challenges, aspects related to capacity expansion at Muri. Some of the other topics covered were carbon pricing for Hindalco, bauxite residue (BR) and spent pot lining (SPL) management, integration of zero freshwater consumption and wastewater management and Hindalco's sustainability performance among others. A group activity was conducted to identify sustainability challenges and its associated solutions, which was used to develop an action plan in the following session.

As part of this meet, an action plan was developed taking inputs from the previous discussions. Formation of Water and Waste Task Forces at plant levels, reduction of GHG and air emissions, and way forward for compliance related aspects were some of the action points included in this plan of action.



The massive scale of our operations, along with the interdependencies involved at multiple levels, requires us to become resilient to deal with the dynamic external environment. Robust integration across the value chain (from mining to metal to market) protects us from supply-demand related vagaries. Additionally, we have a strong risk management framework in place, which helps us become resilient to deal with dynamic external environment. It helps us to protect and, at the same time, stretch our resources within well-defined risk limits and, in turn, enhance the return from Hindalco's assets. With the philosophy of 'Predict, Plan, Prevent and Be Prepared', the framework inspires a disciplined and proactive approach to identify, monitor and mitigate risks. The Risk Management Committee is responsible for the approval and regular review of the risk management plan. Consequently, we have developed a comprehensive risk management policy, which is authorised by the Risk Management Committee. This policy forms the backbone of our risk management framework and institutionalises a holistic risk management approach encompassing operations such as mining, production, energy generation and waste disposal, while ensuring the health and safety of our employees, procurement of resources and community relations. Our risk management process is based on three main steps:

Risk Management Framework

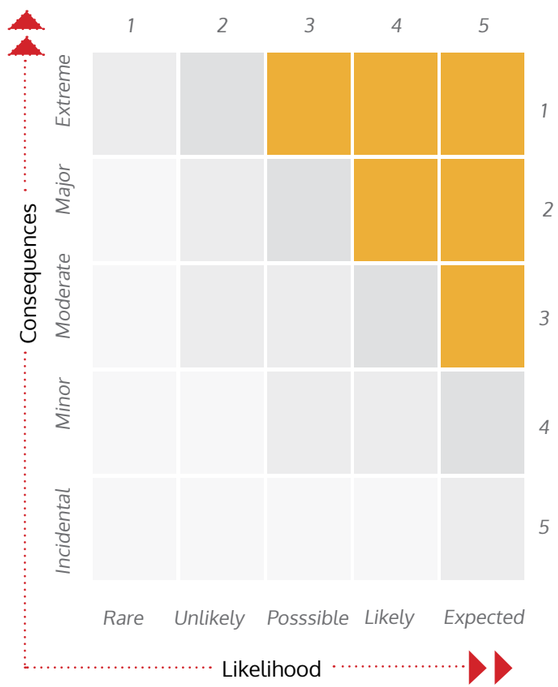
Such an approach helps us foresee different short-term risks like business risks, operational risks, technological risks as well as long-term risks such as strategy risks, reputational risk or business model risk. All the known risks are captured within risk registers at various levels (Department level, Site level, Business level, Company level etc.); a reasonable attempt is made to identify unknown risks as well, through scenario planning exercises. The identified risks are categorised based on their severity and a mitigation strategy is developed keeping in mind the short term and long-term implications of the risks on the organisation. These are incorporated in our governance and business strategy to achieve success in our overall business performance. Our risk management framework is given below.

Risk Management Framework

Responsibility for risk management is percolated down the line through a well-designed governance structure. At the helm of this governance is Risk Management Committee of the Board of Directors, including the Managing Director; this committee is mandated to review our risk management processes. The site-level risk teams help us understand the relevant operational challenges and identify our operational risks. The risk management framework is reviewed periodically by the senior management through the Risk Management Committee. Thus, we ensure having a robust risk reviewing framework that is in line with our vision of future-proofing our business

We are cognizant of the fact that the business ecosystem continues to evolve, which exposes us to new volatilities in the market. Therefore, it is vital for us to not only investigate risks through a monetary lens, but also regulatory and reputational lenses. This aids in devising the immediate and long-term remedial measures to be taken by the company. For a leading metals and mining business like us, transparency in our operations and objectivity in reporting them is of vital importance. An evolved risk monitoring and reporting mechanism helps us in triggering timely actions at various echelons of management.

Our risk evaluation methodology is based on gauging the likelihood of a risk event and the severity of its impact. Risk reporting is facilitated by a set of well-chosen leading and lagging risk indicators.



Snapshot of Risk Reporting Tool

We have adopted an Enterprise Risk Management (ERM) system across the Company to become more forward-looking and effective at evaluating, embracing and managing the uncertainties we face. The ERM is oriented towards an integrated approach to address a broad spectrum of risks in an interrelated portfolio that enables the entire organisation to view the risks in a similar context as that by a risk manager. Thus, as an organisation, we can cohesively work towards mitigating risks and drive better results. The ERM is embedded within our governance setup to ensure participation at a board and apex management level. This robust review mechanism thus establishes a system of assigning risk ownership from the operational level to strategic leadership. It has evolved into an overarching framework that encompasses all other frameworks for health and safety, financial risk assessment, compliance and others.

We anchor a risk management culture in the whole process while building a culture and risk management capabilities across the ranks. We ensure that identification, mitigation planning, execution and reporting are used to augment employees' risk management capabilities at the corporate, business unit and plant level. Additionally, we have invested in developing risk response capabilities of the organisation to respond to any unfortunate occurrences by preparing emergency response plans, crisis management action plans and business continuity strategies.

Towards the end of the reporting year, the world faced the COVID-19 pandemic, which led to a nationwide lockdown. Due to the nature of our operations, we were granted special permission to operate our mines and plants during the lockdown. However, we faced operational challenges in terms of labour, logistics and resource flow, in addition to those related to the demand of our products. The agility and resilience of our operations enabled us to mount an effective response to the pandemic. We were able to continue our operations in a fairly uninterrupted manner, on the basis of availability of customer orders.

The trade war between the US and China has also led to an increase in export of downstream products by Chinese manufacturers to India, due to the massive tariffs introduced in the US on Chinese products. These products have a low cost, due to which our domestic as well as international markets were affected. We have undertaken several operational changes and increased the focus on value-added products to mitigate this emerging risk. We are also working with industry associations to avoid the dumping of foreign products, and practice fair trade in India by increasing import duties on primary, scrap and downstream products.

The current production of copper by primary producers in India meets the need of the estimated domestic demand of refined copper. However, as more and more countries sign the Free Trade Agreement (FTA) with India, they are allowed to supply duty-free metal to the country. One-third of the current domestic demand is met by metal imported from such countries (majority through ASEAN FTA), reducing demand for domestic copper due to the low cost of foreign metal. We have strategised our sourcing to maximise cost benefits and increased focus on high product quality as a differentiating factor for Hindalco. Moreover, a few of our products are already approved by the Bureau of Indian Standards (BIS), and we are working with governmental agencies to establish a standard practice of streamlining the copper scrap recycling process in India, protect the market, and assure quality of end products, safety and environment.

We have strategised our sourcing to maximise cost benefits and increased focus on high product quality as a differentiating factor for Hindalco.

The Global Risks Report 2020 by the World Economic Forum highlights the likelihood and impact of environmental risks. As a metals and mining company, our business operations are dependent on the natural resource flow and these operations have certain implications on the environment. Our risk management framework also considers the identified environmental vulnerabilities related to climate change , water availability, land degradation, land availability and extreme weather events. We have formulated plans to minimise our impacts on the environment and mitigate environmental risks.

Economic Stewardship

Despite challenges such as strong competition from Chinese markets, subdued consumption, and lower demands from user industries like automotive and construction, we continue to deliver a strong economic performance in FY 2019-20. Strategising our business approach in line with the dynamic market and catering to diverse customer needs has proved to be a significant growth factor for us. Our array of value-added products and customer centricity are our key focus areas. We also aim at value creation for all our stakeholders through robust mechanisms and a well-defined business model.

Through our operational activities, we strive to bring in change in the lives of our communities by providing them with livelihood opportunities. We believe in all-inclusive growth and continue to bring changes in the lives of our people through our economic contributions. Providing fair compensation to our employees, procuring locally manufactured resources for our operations (wherever feasible), investing in community-centric initiatives and timely payment of statutory taxes are some of the ways in which we strive to contribute towards the economic growth of the geographies we operate in. However, this is subject to various factors, viz. nature of our operations, business environment, customer preferences and regulatory requirements.

In our endeavour to build a resilient organisation, we delivered strong economic performance in FY 2019-20 through our operational practices and risk mitigation strategies. For the reporting period, revenue with profits are recorded to be at INR 40,324 crore and EBITDA stood at INR 5,483 crore. Our PAT stood at INR 958 crore.

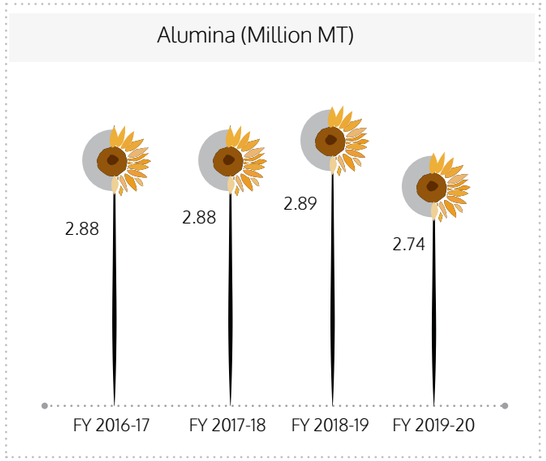
We believe in all-inclusive growth and continue to bring changes in the lives of our people through our economic contributions.

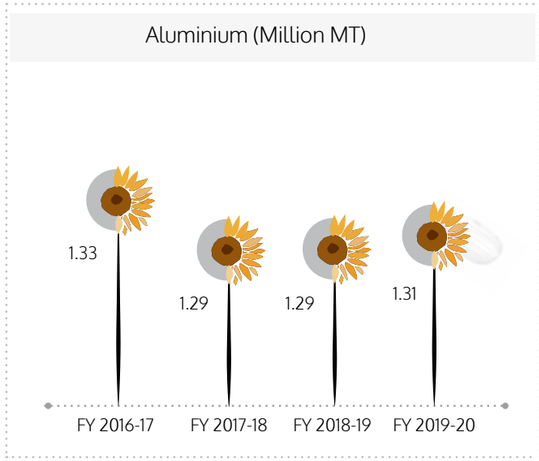
Our aluminium and copper business have witnessed stable growth during the reporting period. Highlights of these have been provided below in a tabular form:

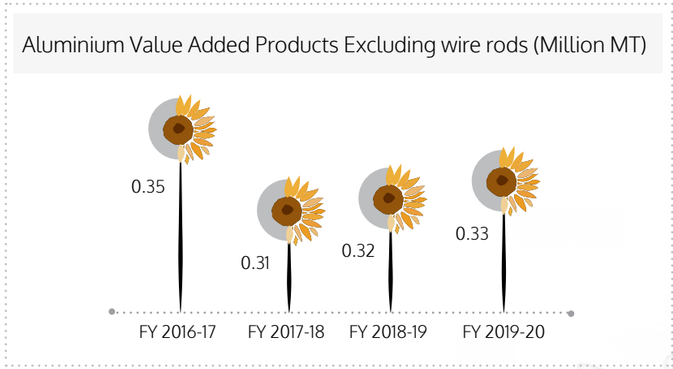
India Operations (Hindalco standalone and Utkal)	Aluminium (including Utkal)		Copper	
	FY 2018-19	FY 2019-20	FY 2018-19	FY 2019-20
Revenue from operations (INR crore)	23,775	21,749	22,198	18,533
Segment EBITDA (INR crore)	5,096	3,729	1,683	1,276

With an innovative approach towards product stewardship, we succeed in offering our customers a unique array of products keeping environmental needs at the forefront. We launched India's first all-aluminium freight trailer in 2019, providing an environment-friendly solution for the logistics industry. Despite challenges on account of the COVID-19 pandemic, we recorded a 2% YOY increase for aluminium value-added product sales.

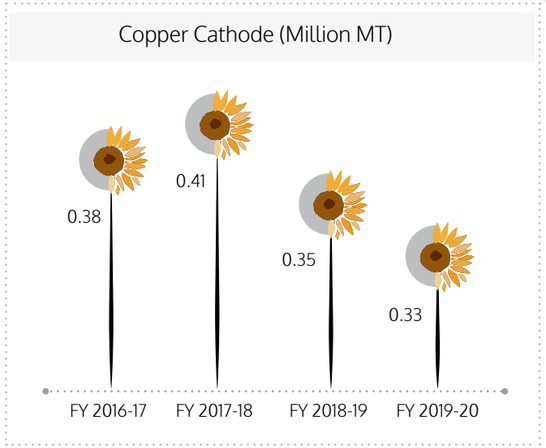
Trends in terms of production for aluminium products have been presented graphically as under:

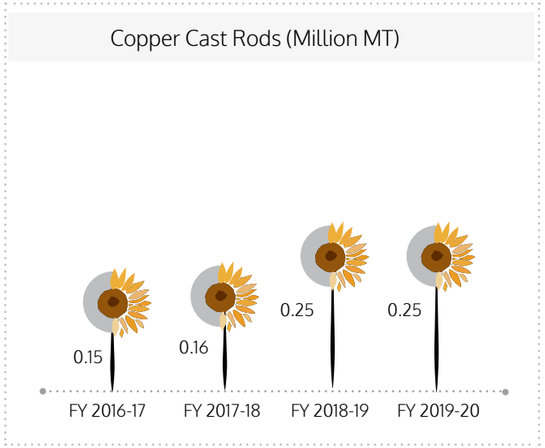






Given below is a graphical representation of the production trends of our copper business:





Stakeholder value creation is fundamental to strategic planning of our operational activities. This has helped us grow holistically, thereby assuring our benefits reach our stakeholders.

In continuation, we have presented the details of the economic value generated, distributed and retained for the reporting period in a tabular form below . Additionally, during the reporting period we contributed INR 36 lakhs towards various trade associations, industry associations and business associations in the form of their membership fees. Donations of INR 29 crore (which includes INR 10 crore paid to AB General Electoral Trust and INR 19 crore through Electoral Bond) were also made towards political contributions during FY 2019-20.

	Hindalco India-Aluminium	Hindalco India-Copper	Hindalco India-Corporate	Utkal Alumina International Ltd.
Economic value generated (INR crores)				
Net sales by business	21,747.09	18,495.40	-	0.78
Revenue from financial instruments	79.73	134.41	521.34	158.21
Revenue from sale of assets	(19.16)	2.93	0.14	0.02
Total generated	21,807.66	18,632.74	521.49	159.01
Economic value distributed (INR crores)				
Operating costs	17,437.46	17,270.17	(67.46)	1,752.36
Employee wages and benefits	1,571.35	152.19	198.16	67.11
Payments to providers of capital	900.68	133.30	645.54	229.88
Payments to government	-	-	332.02	186.69
Community investments	0.75	-	15.07	-
Depreciation and other exceptional income	1,578.34	158.98	35.06	304.32
Total distributed	21,488.59	17,714.65	1,158.39	2,540.37
Economic Value retained (INR crores)				
Total retained	339	924	(643)	317

With an aim to serve society through our contributions, we take efforts to fulfil all our regulatory obligations in a timely manner. We ensure regular payment of taxes and procure benefits as a result of various governmental schemes and policies.

Significant financial assistance received from the government has been presented here for the reporting period :

Significant Financial Assistance from Government Subsidies	Hindalco India – Aluminium (INR crore)	Hindalco India – Copper (INR crore)
a) Export	279.72	-
b) Domestic	10.62	-

We offer our employees various benefits through our initiatives. Medical benefits, post retirement and provision for liabilities towards earned leaves are some of the benefits we provide our employees with.

Our contributions are also made towards the provident fund through the government and approved trusts. We contribute a certain percentage of salaries for all managerial employees in superannuation funds such as the National Pension Scheme (NPS).

Details of our spending related to defined benefit plan obligations and other retirement plans are presented as below:

Defined Benefit Plan Obligations	Hindalco - India - Corporate (INR crore)	Utkal Alumina International Ltd. (INR crore)
Present value of Defined Benefit Obligations at the beginning of the year	962	8
Current Service Cost	52	1
Interest Cost	71	1
Actuarial (Gain) or Loss	72	1
Benefits Paid	(63)	(0)
Present value of Defined Benefit Obligations at the end of the year	1,094	10

Responsible

39 Responsible Mining
44 Environmental Stewardship
74 Health and Safety
80 Community Stewardship

Responsible Mining

Responsible mining is an integral part of our business imperatives. We are focussed on achieving operational excellence and ensuring the well-being of our people and the environment. We have our mines spanning across four states in India viz. Jharkhand, Odisha, Chhattisgarh and Maharashtra. We are operating a total of 35 mining sites across India, 29 of which are in the operational state at present. Of these 29 mines, 25 are bauxite mines and 4 are coal mines.

Our primary operational activities at mining locations involve the extraction of natural resources, and we recognise the impact of this on the environment and our communities. This leads us to work with a sense of responsibility towards our environment and its resources through all stages of our operational activities. To realise our vision of inclusive growth, we undertake several initiatives to preserve and restore our ecosystems and empower our communities through our contributions. A responsible and resilient approach to our mining activities leads us towards economic development, backed by community empowerment.

Our approach to responsible mining is defined by three key parameters viz., watershed management, mine design and plans, and monitoring parameters. In view of this, we focus on reducing water consumption, rainwater harvesting, minimising land disturbance, preventing pollution and reclaiming land to an equivalent condition post-closure. In addition to this, we also focus on biodiversity management, proper rehabilitation and resettlement of the impacted communities.

01 Monitoring parameters

- Ambient air quality
- Noise level
- Water quality

02 Mine design and plans

- Implementation of progressive and final mine closure plan
- Systematic mine planning and material extraction

03 Watershed management

- Rainwater harvesting ponds
- Gully plugs
- Bunds
- Contours and terraces

Sustainable Mining Approach

Mission	Goals	Activities		Outputs
Sustainable Mining Create best-in-class sustainable practices recognised as a model for India's mining	**Environment** Reconceive mining of the future that is environmentally responsible and enriching sustainable Land use pattern **Society** Address individual, community and societal needs, contributing to inclusive, long-term local development **Economics** Mining operations as profitable, innovative and valued by its diverse stakeholders	• Sustainable Mining Charter • Shared Value Model • Local Economic Development • Build Awareness	Collaboration and Research	• Governance & Transparency • Mining Technology • Water Stewardship and Green Cover • Enrichment of Land Use • Education & Skills Development • Compliance & Safety • Biodiversity & Climate Change • Recycling & Waste Management • Sustainable Livelihoods • Health and Sanitation

Developing sustainable mining practices is one of our focus areas. We aim to create best-in-class sustainable practices that can be recognised as a model for the mining industry in India. Environment, society and economics of mining operations are the three most important building blocks of our sustainable mining framework. The framework is designed keeping mind the need of integrated, comprehensive and practical-to-implement initiatives across mining operations. With the help of this framework, we ensure that the operational expansion and economic benefits are balanced with the focus on environmental sustainability, upliftment of local communities and safety at mining locations.

We take various initiatives as part of our sustainable mining programme. This includes deploying advanced mining equipment like surface miners and ripper dozers, which result in minimum dust emissions and reduced levels of noise pollution through drilling and blast-free features of functioning. This equipment also helps in improving operational efficiency on account of continuous and pre-crushed production. Further, in our efforts to minimise our impacts, we use ropeways and conveyors for transportation of more than 60% of the total bauxite extracted (nearly 8.5 million MT) in a year. This further helps us to reduce our environmental footprints due to reduced fuel consumption. In addition to this, we make use of solar energy at our mines for ancillary purposes, which not only helps us increase our share of clean energy but also reduces our environmental footprint.

Eco-Restoration for aesthetics and sustainable livelihood at Bagru Bauxite Mine

As part of our soil conservation initiatives, we use topsoil in reclaimed areas and plant trees to prevent erosion of soil. We also make efforts towards water conservation by harvesting rainwater in our mining areas and utilise the same to minimise consumption of groundwater in our activities.

We recognise the impact of mining operations on our biodiversity, and hence, we conduct biodiversity impact assessment studies in collaboration with environmental experts. As one of the initiatives towards biodiversity conservation, we have developed biodiversity parks at Bagru mines in Jharkhand, as a step towards the land reclamation process in mine closure dump sites. The project has been developed in 5.5-hectare area of mine closure dump with the themes of Nakshatra Garden, Butterfly Garden, Rose Garden, Panchavati Garden and Medicinal and Spice Garden. The park also has a bamboo pavilion and a pisciculture and duck rearing pond. Details of our biodiversity management plans have been provided in a separate section on Biodiversity Management.

To restore the mined-out areas, we take measures such as planting of native species, and forming of slope and drainage in the affected areas. Extending our efforts in this direction, we carry out tree plantation activities at our mining sites and in the neighbouring villages regularly in a scientific manner. Ecosystem conservation efforts are also taken with the help of our volunteer task force, which patrols forests and helps local forest departments. We also make use of Vesicular-Arbuscular Mycorrhiza (VAM) biofertilizers for rehabilitation of mine closure sites. This helps in restoration and enhancement of soil fertility of the mine closure sites. Our environment management cell is responsible for ensuring proper implementation of sustainable mining operations at all our mining sites. We operated about 254.28 ha of area, which falls under the distributed and unrehabilitated categories of land. During the reporting period 14.41 million MT of overburden was generated as a result of our mining operations.

Year	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
Total mining area leased (operational) (Ha)	11,337	10,159	9,977	9,278
Total area mined out (Ha)	126	159	155	132
Total area reclaimed (Ha)	108	127	156	112
Total area disturbed (Ha)	126	154	155	95
Total area rehabilitated (Ha)	95	118	94	102

Mine Closure

Plantation	Renewable energy	Water reservoir	Sustainable livelihoods
• Soil bio-regeneration • Biodiversity conservation park • Medicinal plants and bamboo garden • Kosa farm - Terminalia Elliptica	• Solar/ wind farm	• Pisciculture	• Capacity building • Alternate employment Enterprise development

We also take efforts to minimise our impacts on our surrounding communities. Based on the risks identified through our risk management framework due to mining activities, rehabilitation and resettlement plans are developed for these communities affected by our operational activities. These rehabilitation plans also form a part of the mines closure plan. As part of the rehabilitation plans, the indigenous and local communities are provided with job opportunities, monetary compensation or sustainable livelihood opportunities, thereby meeting the local regulatory requirements. Our Rehabilitation plans are aligned with the National Rehabilitation and Resettlement Policy, 2007. Some of the initiatives for improving livelihood opportunities include programmes involving integrated agriculture and aquaculture activities.

Fulfilling our responsibilities towards our surrounding and our industry, we ensure compliance to all statutory regulations pertaining to our mining operations. During the reporting period, we did not witness any strike, lockouts or disputes related to land use or customary rights of local communities and indigenous people surrounding our mining operations. No Artisanal and Small-Scale Mining (ASM) operations were conducted on our mining sites or in the neighbouring areas. Periodic reviews of our mining operations are done by internal and external agencies. Sustainability audits of our mines are conducted by the Federation of Indian Mineral Industries (FIMI) periodically. In addition to this, regular internal audits are also conducted. Due consideration is given to the findings and recommendations of these internal audits, in order to incorporate them in our future endeavours.

Fulfilling our responsibilities towards our surrounding and our industry, we ensure compliance to all statutory regulations pertaining to the mining operations.

Sustainable Mining Charter (Xynteo India 2022)

Since our inception, we have focused on striking a balance between our social and environmental performances. Socioeconomic development is central to our growth approach. Xynteo, a Norway-based environmental advisory platform, leads efforts in this direction and acts as catalyst to connect leaders from across the globe.

The Xynteo India2022 programme provides us with an opportunity to collaborate with world leaders to work towards the common goal of building a sustainable environment and healthcare systems. It focuses on the development of a business model that factors in socioeconomic considerations for various sectors, including mining. The aim is to develop solutions for a sustainable environment and healthcare systems.

Moving forward, the India2022 global business coalition is taking collaborative steps to address some of the pressing issues facing the world. Through this coalition, Hindalco is facilitating global efforts to tackle the challenges due to COVID pandemic. Leaders world over are thriving to bring a change and collaborating across sectors to enable conducive work processes to continue serving the economies.

Our endeavours have always prioritised sustainable and responsible growth. Focussed on inclusive development, we adopt mining practices that are sustainable in nature and responsive to our business needs. In order to carry out the same, we have prepared a Sustainable Mining Charter, which serves as an actionable framework to undertake responsible mining operations, ensure social leadership efforts and lead environmental stewardship initiatives. The charter is built around three prime objectives, as described here:

- To move beyond regulatory compliance for creating positive impact on the environment
- To enhance resilience and prosperity of the communities in mining regions
- To build profitable and responsible mining operations

This charter is in alignment with NITI Aayog's 'Strategy for New India @ 75', which focusses on systematic and sustainable growth of the mining and minerals sector. Realising a long-term growth potential, we have adopted a sustainable mining model, identifying seven thematic areas to achieve our goals of responsible operations, social leadership and environmental stewardship. These focus areas are:

Sustainable land use | Water stewardship
Emission reduction | Biodiversity management | Local economic development
Health and safety | Waste Management

We are working closely with various stakeholders including the Government of India to ensure the resilient, reliable and responsible growth of our mining operations.

Environmental Stewardship

Key Performance Highlights

Target | Achieved | Achievement additional to the target

Aluminium

25%

17%

Reduction in Specific Energy Consumption (Energy Intensity)

Base year: FY 2011-12 | Target year: FY 2024-25

Aluminium

25%

15%

Reduction in Specific GHG Emissions

Base year: FY 2011-12 | Target year: FY 2024-25

Aluminium

40%

40% | 2.26% | 42.26%

Reduction in Specific Water Consumption

Base year: FY 2011-12 | Target year: FY 2024-25
Additional target to achieve 5% reduction up to 2022 is committed.

Copper

40%

9.66%

Reduction in Specific Water Consumption

Base year: FY 2011-12 | Target year: FY 2024-25

Aluminium

70%

66%*

Bauxite Residue Utilization

Base year: FY 2011-12 | Target year: FY 2024-25
All four operational locations cummulatively have achieved 27% bauxite residue utilization and the remaining is stored in approved structures.
* Achievement for three out of four operational locations

Aluminium

100%

89%

Dross Utilization

Base year: FY 2011-12 | Target year: FY 2024-25

Target | Achieved | Achievement additional to the target

Aluminium

100%

76% | 24% | 100%

Fly Ash Utilization

76% utilisation for useful applications, such as in cement manufacturing, construction industry, brick manufacturing, backfilling of low-lying areas etc. and the remaining 24% is stored in approved structures.

Copper

100%

100% | 73% | 173%

Phospho-gypsum Utilization

100% of phosphogypsum generated in FY 2019 -20, and 73% of previous year's phosphogypsum has been utilised

Copper

100%

100%

Fly Ash Utilization

100% of fly ash is utilized in FY 2019-20

Copper

100%

100% | 35% | 135%

Slag Utilization

100% of Copper Slag generated in FY 2019 -20, and 35% of previous year's Copper Slag has been utilised.

15.15% Percentage of recycled raw material (external scrap) as percentage of production in Copper business

Environmental Stewardship

Environmental stewardship is central to our business strategy, which is why we integrate sustainability into each stage of our operations. We recognise the resource-intensive nature of our operations; hence, we operate in a manner that minimises our environmental footprints and mitigates risks of resource criticality.

We work with a well-formulated strategy to deal with operational challenges in terms of the environment and have implemented an environmental management system at all our operational locations for this purpose. Involving our workforce right from the top management to line management staff, we work collectively to address the environmental aspects at every stage of our operations. We streamline our approach with our business goals to achieve balanced growth. In doing so, we adhere to all statutory environmental regulations and comply with the requisite standards. We have also started integrating various management systems at our operational locations through a collaborative initiative. The approach to review, certify and improve any management system across our plant locations will involve a standardised process driven by the corporate office. This will provide our units with access to best practices being followed across other locations and strengthen existing management systems.

Our environmental commitments are showcased by the efforts and equal involvement of our top leadership, which forms the Hindalco Sustainability Committee, headed by the Managing Director. This committee assists in assessing environmental performance at the company and unit levels by conducting reviews on a monthly basis.

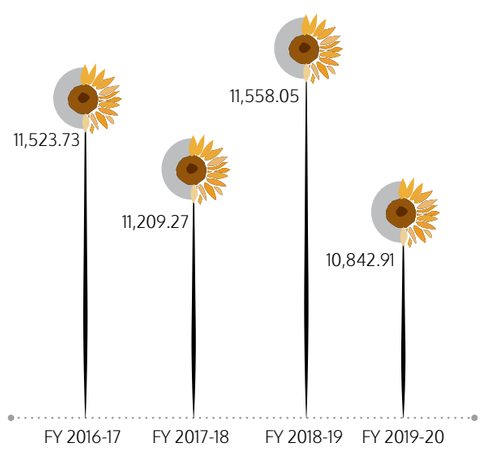
Material Management

Material Consumption

Non-renewable natural resources are a primary source for a major component of our input raw materials. For us, environment conservation is a critical aspect of our business strategy; we, therefore, try to integrate the objectives of environmental stewardship into our business objectives. Our value chain is designed to meet the goals of resource sustainability by following a multi-dimensional approach.

Our alumina refineries are situated in the vicinity of our bauxite mines, which helps us reduce our environmental footprints due to reduced transportation. We witnessed stable consumption of raw materials in terms of our aluminium production. The table below illustrate details of raw material consumed for aluminium and copper production. Trends show a reduction in bauxite, aluminium fluoride and caustic soda consumption for this year. The values for total packaging material consumption stood at 32,205.44 MT, out of which 3,032.25 MT was wood, 875.1 MT was paper and 28,298.09 MT were other packaging materials.

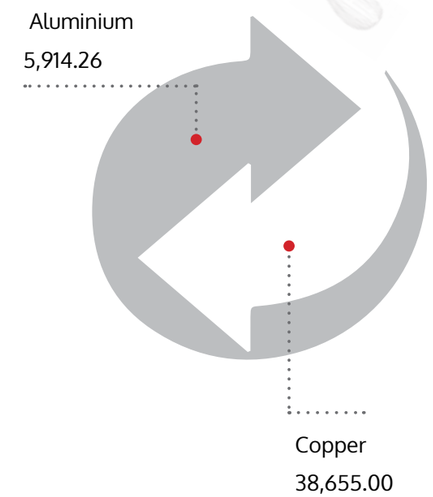
Total Material Consumption (000'MT)



Material Type (000' MT)	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
Bauxite	8,828.43	8,966.37	8,987.99	8,511.77
Aluminium Fluoride	18.59	18.96	21.2	19.44
Calcined Petroleum Coke	490.79	491.81	473.73	518.99
Caustic Soda	289.39	297.88	276.88	222.49
Pitch	108.29	109.01	105.74	113.05
Ammonia	71.53	47.04	77.11	56.10
Rock phosphate	461.68	317. 59	480.57	363.77
Copper Concentrate	1,255.03	1,278.20	1,134.83	1,037.30

Material Recycling

On account of its inherent properties, aluminium proves to be valuable resource for recycling, with options available to recycle it numerous times. To utilise the resource at hand, we explored various opportunities to improve our recycling capabilities, backed by significant investment. Along with aluminium, copper production also forms a major part of our operations and we have taken measures for recycling the residues. During the reporting period, scrap copper as a recycled input material constituted 2.58% of the total input materials for copper production. Details of recycled input materials in our aluminium and copper operations are represented in a tabular form:



Recycled Material Consumption (MT)

Hot Rolling Mill Lubricant Development for FRP Plant at Taloja

Our Hindalco Innovation Centre Semi Fab based in Taloja is the centralised R&D centre for Aluminium Flat Rolled Products (FRP) business. Their major focus areas include tribology (oils and lubricants), metallurgy & process modelling. Our tribology team actively works on new product development (oils & lubricants), process improvements, and analytical support in rolling lubricants, engineering oil, transformer oils & fuels across all our plants.

Hot rolling mill lubricant strongly influences both mill productivity and metal quality. Consistent aluminium rolling lubrication performance is required to ensure effective cooling and protection of the freshly generated aluminium surface, whilst minimising roll wear and avoiding slippage and refusals. Our tribology team has started developing aluminium hot rolling lubricant indigenously, for our Taloja plant. We have observed certain advantages due to the indigenous development of aluminium hot rolling mill lubricant; these can be seen below:

- Decrease in generation of non-conforming products, due to decrease in quality issues
- High sales returns
- Savings in terms of Business Value of Rs 5.6 crore / annum
- Savings in terms of Lubricant Cost of 0.9 crore/ annum
- Regaining customer confidence
- Increase in business volume by 12KTP/300 crore/ annum.

Recycling of Aluminium Beverage Cans at Lucknow

Recognising the relevance of resource criticality, we constantly undertake initiatives towards resource conservation and recycling. Our efforts are focussed around minimising energy consumption and emissions, including GHG emissions. Our subsidiary Novelis recycles a large volume of aluminium scrap.

Channelling our efforts in this direction, we undertook a pilot project on used beverage can collection in Lucknow. The lack of recycling structure did not deter us from carrying out this project. We developed an on-ground network of ragpickers and scrap dealers for the collection of these cans. With their help, we successfully collected close to 4 million used beverage cans in and around Lucknow in a period of 7 months. The collected cans were responsibly recycled using state-of-the-art technology at our plant situated in Korea operating under Novelis and recycled can aluminium sheets were produced as a result of this recycling process.

Eco-Friendly Cold Tamping/Ramming Paste for Smelting Operation

The normal coal tar pitch and anthracene oil-based material liberate volatile organic compounds like benzo pyrene, dibenzo anthracene, benzo fluoranthene that cause health and environmental hazards. An eco-friendly cold ramming paste has been developed by Hindalco Innovation Centre- Alumina, in collaboration with the Carbon Paste Plant of Belagavi to increase the life span of pot. The newly developed product does not liberate such types of hazardous gases, making it very safe to use in smelters as well as in ferro-alloy industries. The strength of this material is also found to be higher, while other required properties are like the presently used material. It is planned to be tested in one of Hindalco's smelters.

Our Future-Looking Development in Chemical Business: A Nano-Hydrate Developed in Our Lab

We have successfully developed a nano-hydrate in lab, as well as in pilot scales. This product has also been approved by one of our domestic customers, who has decided to conduct plant-scale production trial at their end. This value-added product has a wide range of applications in fire-retardant polymeric compounds. The demand of such type of material is expected to go up with the prevailing market and legislative situation. Therefore, its development is a step in the right direction for the growth of specialty hydrate business.

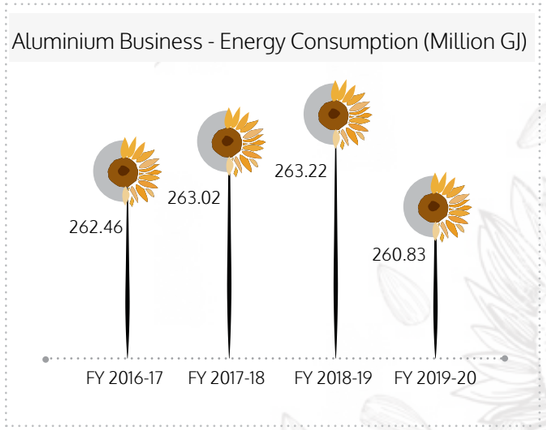
Energy Management

Resource conservation is central to our operational strategies. We understand the exhaustive nature of non-renewable resources and constantly strive to meet our needs through renewable sources throughout our operations. We stay committed with our efforts towards reduction in overall energy consumption, improvement through energy efficiency and integration of clean energy sources. We have adopted a well-formulated strategy to meet our goals of energy management. To reach these goals, we set well-defined targets for energy efficiency, which is followed by regular performance reviews by the top management. Our commitments towards energy conservation helped us draw closer to our target of renewable energy consumption of 100 MW by 2021. In addition to the 30 MW solar power plant commissioned at Aditya Aluminium in November 2018, we have installed and commissioned 4.2 MW solar plant at GP Mines and 7 MW solar plant at Utkal. Also, a 4 MW hydro plant (under JV model) was commissioned for captive consumption at Taloja during this year. With this, our current achievement of renewable energy stands at 45.2 MW for FY 19-20. For both our major businesses viz. copper and aluminium, we have well-structured energy and carbon management plans in place. During the year, three large units viz. Renukoot complex, Mahan Aluminium & Hirakud Power & Smelter were certified as ISO 50001 compliant.

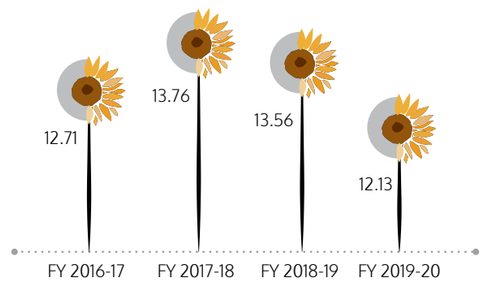
Our employees are constantly encouraged to undertake qualifications of Energy Managers and Energy Auditors. These efforts have led to additional 15 of our professionals being qualified as Energy Managers and Energy Auditors through an examination conducted by the Bureau of Energy Efficiency (BEE) during the reporting period. We also motivate our staff and create awareness among them to make efforts towards energy efficiency, thereby contributing in their own way to the larger picture of our sustainable energy use.

Energy Consumption

We meet our energy consumption needs through a mix of renewable and non-renewable sources. Throughout our business operations, we aim to reduce our energy consumption; and set yearly targets to keep a check on those. Our annual energy consumption target for FY 2019-20 was 274.14 GJ. The reporting period witnessed a total consumption of 273.46 million GJ of energy, including 0.51 million GJ energy consumption for our mining activities . The following graphs represent gate-to-gate energy consumption trends for aluminium and copper businesses .



Copper Business - Energy consumption (Million GJ)



Our energy consumption needs are mostly met through fossil fuels. We also consume renewable power from our captive solar and hydro power plants, in addition to third-party purchases. Our energy consumption details are represented in the table below.

Fossil Fuels	273.79 million GJ
Purchased Electricity	3.03 million GJ
Renewable Energy	0.23 million GJ
Steam / Heating / Cooling and Other Energy (Non-Renewable) Purchased	0.002 million GJ
Total Non-Renewable Energy (Electricity and Heating & Cooling) Sold	4.10 million GJ

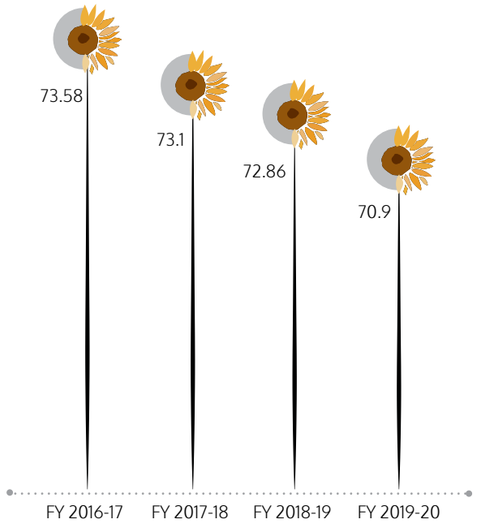
Parameter	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
Renewable Energy (Million GJ)	0	0.01	0.14	0.23
Non-Renewable Energy (Million GJ)	275.17	276.77	276.64	272.73
Total Energy (Million GJ)	275.17	276.78	276.78	272.96

Energy Intensity

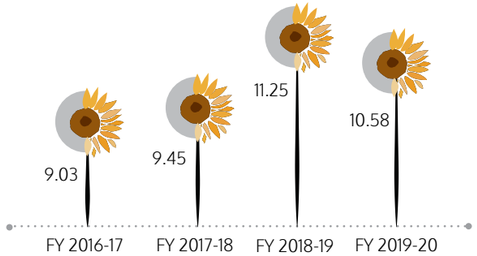
We continue to take efforts to reduce our impact on the environment in every possible way. Our focus on reduction in energy intensity is one such domain. As illustrated through the graphs, we have witnessed a decline in the value of energy intensity for our aluminium business. Major reasons for decline in energy intensity are the execution of a number of energy-saving projects and operational improvements.

Trends of energy intensity for aluminium and copper businesses are represented graphically below:

Aluminium Business - Energy Intensity (GJ/MT)



Copper Business - Energy Intensity (GJ/MT)



For aluminium, the energy intensity is reported for process energy consumed for primary aluminium production, which includes energy consumed in the aluminium refinery, aluminium smelter and carbon anode plants in their ratio of use per ton of metal. For copper, energy intensity is reported for process energy consumption for copper production, which includes energy consumed in the copper smelter and copper refinery per ton of copper produced from copper concentrate.

Solar Power Plant at Aditya Birla

Energy Conservation

Energy efficiency holds a significant place in our energy management program. We are constantly taking efforts to enhance our energy efficiency by exploring various methods to integrate in our operational activities.

As part of our energy conservation agenda, we undertake various energy efficiency and renewable energy projects at our plant locations. During FY 19-20, we completed a total of 130 projects, comprising of 125 energy efficiency projects and 5 renewable energy projects; which resulted in saving of 2.45 million GJ of energy and 0.25 million tCO_2 of emissions. These projects have additionally resulted in a cost saving of INR 3,194 lakhs.

The highlights of some of our energy efficiency initiatives taken during the reporting period are:

I. New generation economiser, replacement of pump seals and various actions to reduce steam consumption in aluminium refinery
II. Reduction in aluminium smelter energy consumption through phased implementation of copper insert collector bar, clamp modification, step stub-anode, pot noise control, etc.
III. Power plant efficiency improvement by improving condenser vacuum through improvised tube cleaning, TG overhauling, duct modification through CFD study, etc.
IV. Replacement of cooling tower fan blade with E-glass epoxy FRP blade
V. Installation of fan-less cooling tower
VI. Auxiliary power reduction through automation & process optimisation
VII. Rationalisation of motor, pump & fan capacities and replacement of inefficient pumps & motors with high efficiency pumps & motors
VIII. Energy efficient & corrosion-resistant coating in pumps
IX. Revamping of preheating/annealing furnaces
X. Phased replaced of conventional lights with energy efficient LED lights
XI. Installation of VFD in variable load application
XII. Compressed air system efficiency improvement through replacement of inefficient compressors, arresting leakages, process optimisation, etc.
XIII. Power factor improvement

Some examples of our energy conservation initiatives are presented in the following section.

Reduction in Power Consumption Through Modification of Busbar of Smelter Pots at Renukoot

A plant at Renukoot was commissioned in 1962. At present, the Renukoot smelter has 11 pot lines that were commissioned years ago. These smelters consumed nearly 14 thousand units per tonne, which is high compared to modern smelters operating at less than 13.4 thousand units per tonne. This difference in power consumption makes this smelter less cost-efficient than modern smelters, and increasing coal prices further add to the power cost.

Aluminium busbars are used in pot lines to carry the current. Power consumption of the smelter depends on two factors, viz. the pot voltage and current efficiency. Current efficiency of Renukoot smelter (94.5%) is comparable to most modern smelters. Total voltage drop in the Renukoot smelter pots is about 4.410 V per pot, which is about 200 mV higher than modern smelters. It was observed that the busbar voltage drop was 200 mV/pot.

In order to resolve this issue of higher power consumption, cross section of busbars was increased to reduce the voltage drop by 50-60 mV/ pot. Through this initiative, a reduction in power consumption of 158 kWh/T was achieved.

Energy Conservation at Renusagar Thermal Plant Through Installation of Capacitor Bank

For the purpose of crushing and conveying coal from mines, crusher and Belt Pipe Conveyor (BPC) is installed. Process water requirement of Renusagar Power Division (RPD) is met from Rihand Reservoir. For this, RPD has installed a make-up pump at the reservoir bank, which is approximately 2 km from the location.

At RPD, coal transportation is carried by the BPC, and its switchgear is powered by 6.6 KV through HT cables from the RPD, having length of approximately 7 km. These motors draw reactive power from the source at RPD through cables, which leads to losses in these cables. This reactive power is ultimately supplied with the help of the generators. In order to save this reactive power and reduce losses in cables, it was proposed to install capacitor banks near the load, so that reactive power can be supplied locally. The capacitor banks led to reduction of high reactance of the HV lines which, in turn, helped in power reduction.

This initiative resulted in a saving of about 1.33 million units of electricity, along with reduction in emissions.

Installation of Solar Power Plant in Mines Area at Gare Palma

Hindalco is committed to increase the use of green energy in the Company's total energy consumption across various operations in the country.

As a part of these initiatives and as a measure of sustainable mining, a 4.2 MWp (3 MW AC) solar power plant was planned in the coal mines at Gare Palma. The project was installed and commissioned in a phased manner. At the first stage, 1.5 MW was commissioned in September 2019 and 2.7 MW was commissioned at the second stage in December 2019.

This is a first-of-its-kind solar plant in a coal mine in India. The project is built over 17 acres of mine land, which is a very difficult terrain to build such a plant.

Many challenges of additional statutory approval for using mine land and land levelling against all odds were overcome.

The project is expected to meet 21% of the total power requirement of the Gare Palma Mines, save 4,100 tons CO2 emission and also save Rs 2.92 Cr annually. The project is also aligned with Hindalco's major initiative on "Sustainable Mining".

Overview of Solar Power Plant at Gare Palma Mines

Emissions Management

GHG Emissions

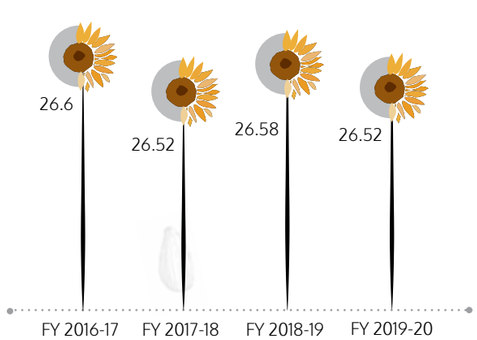
Our aim is to reduce GHG emissions and maximise the share of renewable energy in the overall energy mix of our operations. During this year, solar PV power plant for captive consumption was installed and commissioned at three locations, including 4.2 MW at GP Mines and 7 MW at Utkal Alumina. In addition to these, one 4 MW hydro project (under JV Model) was commissioned for captive consumption of Taloja unit. This contributed to our efforts towards environmental sustainability.

We have a target to reach a collective capacity of 100MW by FY 2020-21, and to move ahead in this direction, we have initiated solar projects at six locations. Further, we have renewable energy capacity addition of close to 55 MW planned to be commissioned during the coming year. We have also initiated a feasibility study for renewable hybrid power project.

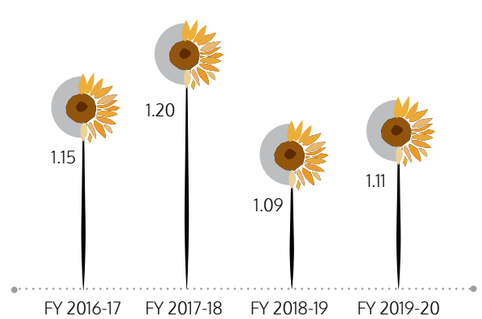
Graphical representations have been given here for the total GHG emissions from our aluminium and copper operations. Details of our scope 1 and scope 2 GHG emissions for Aluminium and Copper have been given in a tabular form. Our targets for scope 1 and scope 2 emissions for FY 2019-20 was 26.76 million tCO_2e and 0.69 million tCO_2e respectively. Further, development of a mechanism for measuring, reporting and monitoring our scope 3 emissions is in process.

	Scope 1 GHG Emissions (million tCO_2)		Scope 2 GHG Emissions (million tCO_2)	
Year	**Aluminium**	**Copper**	**Aluminium**	**Copper**
FY 2016-17	26.07	1.09	0.53	0.06
FY 2017-18	26.09	1.18	0.43	0.02
FY 2018-19	26.07	1.15	0.51	0.04
FY 2019-20	25.94	1.00	0.58	0.10

Aluminium - Total GHG Emissions (million tCO_2)



Copper - Total GHG Emissions (million tCO_2)



Our GHG offset through REC purchase for Aluminium and Copper has been presented in the following table:

Year	Aluminium (million tCO_2)	Copper (million tCO_2)
FY 2018-19	1.01	1.07
FY 2019-20	0.39	0.32

To meet our regulatory obligations, a purchase of 386,695 renewable energy certificates (REC) was made for the reporting year, which is equivalent to a GHG offset of 3,17,090 tCO_2e.

To estimate our GHG emissions, we follow guidelines defined by the World Resource Institute's (WRI) Greenhouse Gas (GHG) Protocol. To determine our GHG emission estimates, we adhere to relevant industry standard factors and factors prescribed by Intergovernmental Panel on Climate Change (IPCC).

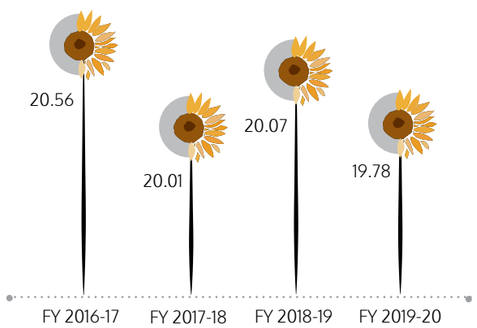
GHG Emissions Intensity

GHG emissions intensity for aluminium is reported for process energy consumed for primary aluminium production, which includes GHG emissions from aluminium refinery, aluminium smelter & carbon anode plant in their ratio of use per ton of metal. Similarly, GHG emission intensity for copper is reported for process energy consumed for Copper production, which includes GHG emissions from Copper Smelter & Copper Refinery per ton of copper produced from copper concentrate.

The graphs below show GHG emissions intensity index and trend for aluminium and copper business.

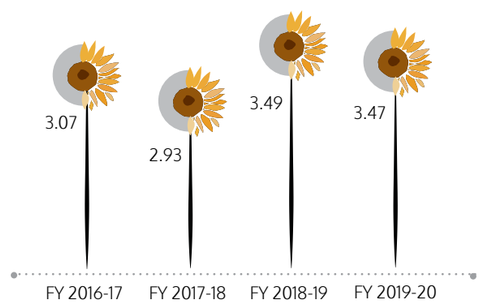
GHG Emissions Intensity Index				
Base Year : FY 2015-16	**FY 2016-17**	**FY 2017-18**	**FY 2018-19**	**FY 2019-20**
Aluminium Business	88.38 %	84.30 %	87.73 %	85.27 %
Copper Business	92.21 %	94.73 %	101.83 %	108.70 %

Aluminium business - GHG Emissions Intensity (tCO_2 /MT)



Aluminium business GHG Emission Intensity includes emission from Power Plant, Aluminium Refinery, Aluminium Smelter and downstream operation

Copper Business - GHG Emissions Intensity (tCO_2 /MT)



Copper business GHG Emission Intensity includes emission from Power Plant, Copper Smelting and downstream operation

NOx, SOx and Other Significant Air Emissions

We keep a check on our significant air emissions such as SOx, NOx, particulate matter (PM) and fluorides, in addition to GHG emissions. We comply with the National Ambient Air Quality Standards (NAAQS) 2009 to ensure ambient air quality parameters. All our plants are equipped with necessary controls to manage these emissions within the permissible limits. We have started monitoring these emissions through Continous Emissions Monitoring System (CEMS) complying with the statutory requirements. The CEMS captures round the clock data and is more precise than the off-line monitoring. Data thus captured is automatically shared the Central pollution control board (CPCB) and state pollution control boards (SPCBs).

Stack emissions intensity for aluminium is reported for process energy consumed for primary aluminium production, which includes stack emissions from aluminium refinery, aluminium smelter & carbon anode plant in their ratio of use per ton of metal. The values for the specific emissions for our aluminium process stood at 9.59 kg/MT for SOx, 5.28 kg/MT for NOx, 3.92 kg/MT for Particulate Matter and 0.18 kg/MT for fluorides for FY 2019-20. 1.92 MT of alumina is indexed to 1.0 MT of smelted aluminium for refining.

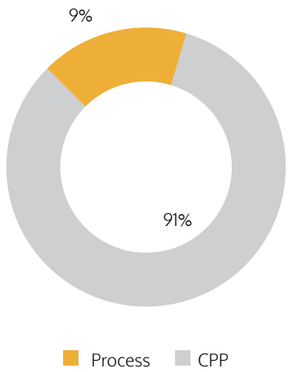
Further, as part of our NOx and SOx emission control measures, we have undertaken pilot studies at two of our plants and also plan to replicate the same across all plants in the near future. In our efforts to reduce SOx emissions, we plan to install Flue Gas Desulphurization (FGD) at our plant locations. For reduction of our PM emissions, we are upgrading the rectifiers of Electrostatic Precipitator with High Frequency Transformer Rectifier (HFTR). Currently, we have installed HFTR at two of our power plants and work is under progress for the remaining locations.

The table below give details of SOx, NOx, particulate matter and fluoride emissions during FY 2019-20.

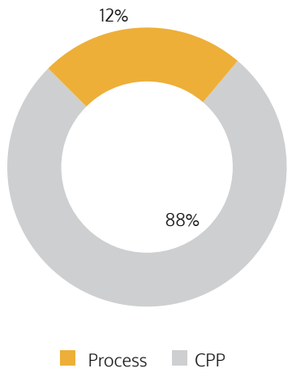
Type of Air Emission (000' MT)	Aluminium Business	Copper Business
SOx	64.22	0.62
NOx	29.55	0.04
Particulate Matter	8.69	0.24
Fluoride	0.12	0.00

The graphical representation indicates emissions for the aluminium business as per source.

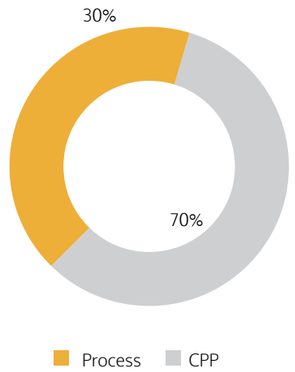
Aluminium Business - SOx Emissions (FY 2019-20)



Aluminium Business - NOx Emissions (FY 2019-20)



Aluminium Business - Particulate Matter (FY 2019-20)



Our ODS emissions in CFC 11-eq were 0.36 MT for the reporting period. The emissions of ozone depleting substances and PFC emissions have been given in a tabular form as under:

ODS Emissions (kg of CFC-11 Eq.)				
Year	**2016-17**	**2017-18**	**2018-19**	**2019-20**
ODS Emissions (kg of CFC-11 Eq.)	0.16	0.23	0.43	0.36

PFC Emissions (kg CO_2e/ metric tonne produced)					
Parameter	**FY 2015-16**	**FY 2016-17**	**FY 2017-18**	**FY 2018-19**	**FY 2019-20**
Direct PFC Emissions	1,122	293	215	310	269

Reduction in PM Stack Emissions by Installation of HFTR & Pulse Power Transformer in Boiler ESPs at Muri

The Muri co-generation power plant has 3 CFBC boilers with a capacity of 140 TPH each. During normal plant operation, two boilers are kept in running condition, whereas the third one is kept on standby mode. These two running boilers are sufficient to fulfil the steam requirements for generation of power as well as the process steam of alumina refinery. Electro-Static Precipitator (ESP) are installed in each of the boiler outlet to collect the dust from flue gas, considering the environmental norms prescribed by the Ministry of Environment, Forest and Climate Change (MoEFCC). Each ESP consists of 4 fields with 2-phase Transformer Rectifier (TR) sets of capacity 56KVA & rating 90KVP/ 600mA. The performance of these ESPs since commissioning was found to be inadequate to meet the stipulated statutory norms.

In FY17 and FY18, the first two fields of each ESP transformer were upgraded with advanced 3-Phase TR set of capacity 107 KVA & 95KVP/ 800mA. After installation of the 3-Phase TR sets, there was an increase of 20-30% in ESP collection efficiency, but that was not adequate to meet the new stringent MoEFCC environmental norms and guidelines that mandated the SPM limit to not exceed 50 mg/Nm3.

Our thorough analysis concluded that our emission requirements could be met by installing High Frequency Transformer Rectifier (HFTR) Pulse Power TR set and upgrading the ESP internals. HFTR helps convert the AC input power into pure DC output and Pulse Power transformer injects high voltage pulse into the field at certain intervals. The injection of pure DC Power and high voltage pulse in ESP results in very few sparks in the field and increases collection efficiency of the ESP. EPS upgradation work was started in February 2019 for the second boiler, whereas installation for the third is under progress.

This initiative resulted in substantial reduction in particulate matter stack emission. The same can be replicated at all units to lower stack emissions, with the help of testing and analysing the performance results in all boilers.

SO_2 Emission Reduction from Boilers at Muri

Muri CGPP has three Circulating Fluidised Bed Combustion (CFBC) boilers. During normal operation, SO_2 emissions exceed the MoEFCC norms. SO_2 emission from the power plants or boilers depends largely upon the percentage of sulphur in the fired coal, which is around 0.5% in the case of Muri power plant. Blending of coal with limestone or pure lime for firing in the boilers is one of the most viable option for Muri and a proven alternative to reduce the SO_2 emissions from the stack.

Trial runs were carried out at Muri, wherein powdered lime (CaO) was dozed manually by mixing with coal in calculated ratio, thereby feeding the boiler bunkers. Powdered pure lime was used instead of limestone powder for manual feeding, as the quantity required for feeding was lesser and the same was readily available. We could successfully achieve SO_2 emission well below 600 mg/nm^3.

In order to meet the prescribed emission norms, lime (CaO) dozing was started in boilers to curb SO_2 emission. Pure lime powder consisting of approximately 70% CaO is being dozed manually by contract labour into the main coal feed grizzly hopper of the coal handling plant. In this method, lime is mixed with coal in a predefined calculated ratio on a shift-wise basis, thereby feeding the boiler bunkers along with coal. This initiative helped us achieve the desired results.

Water Management

Water is one of the most important substances for running our operations. We source water from various sources, including surface water, ground water and supply from municipal authorities, to name a few. In addition to this, we have developed significant capacity to harness rainwater across our operational locations. In order to address water-related risks, we have adopted a strategic approach in our operations. As part of the approach, we have taken a holistic view of our water management to encompass fresh and recycled water consumption, water conservation efforts, and efforts on water reusing and recycling, including moving towards zero liquid discharge.

Considering the evolving water risk globally and in India, we have developed a Water Task Force for each of our units. It comprises of a cross-functional team and works on three key risks related to water-physical risk, regulatory risk and risks related to stakeholders.

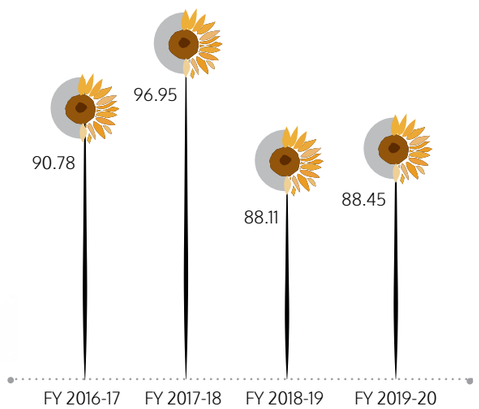
We use water situation assessment tools such as the World Business Council for Sustainable Development's India Water Tool and WRI Aqueduct for assessment of physical water risks across the locations. We have conducted a scenario analysis using the India Water Tool wherein we estimated seasonal variability in availability of water by considering scenarios such as occurrence of floods, draughts, declining ground water table etc. For instance, the risk of seasonal variability was found to be high for most of our operating sites. Based on these findings we have taken mitigation actions to prevent an adverse impact on our operations such as construction of rainwater harvesting ponds, reservoirs, desalination project, reuse of treated effluent, constitution of a monsoon committee and emergency preparedness plans. Action plans and projects are developed for all risks and form part of the water risk mitigation plan. ABG technical standards on water and wastewater management provide the necessary guidance for assessing risks and developing mitigation plans.

Last year, we have witnessed the highest-ever rainfall and heavy downpour for a shorter duration in some of our units, which has impacted our operations and led to temporary shutdowns. Based on these experiences, we have reviewed topography of the plants and the water evacuation capacities of existing storm drains.

Water Withdrawal

Our figure for water withdrawal stood at 88.45 million m³ for the reporting period, with the maximum share of surface water (water sourced through a river) and negligible share of ground water extraction. Following our responsible resource consumption principles in practice, we take care that the water sources are least affected by water withdrawal at our operations. The details of our total water withdrawal, along with the breakup as per the source, is given below:

Total Water Withdrawal (million m³)

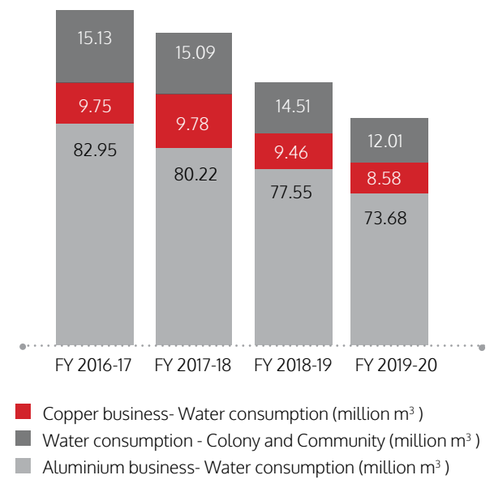


Water Withdrawal from Source (%)

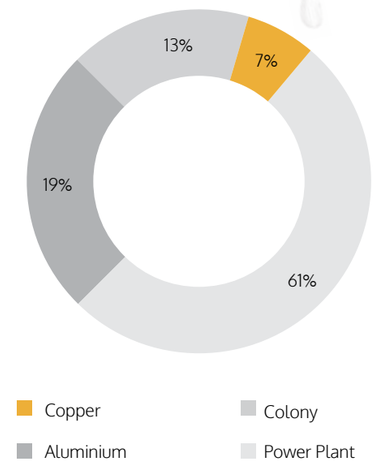
Water Consumption

Extending our efforts towards the well-being and needs of our communities, we supply water to our colonies and nearby communities for drinking and other domestic use. We try to minimise the consumption of freshwater throughout our operational activities by substituting it with recycled water wherever feasible. In case of lack of adequate quantity and required quality of recycled water, we resort to freshwater consumption. Process and power generation are the two major areas of water consumption, with power generation consuming maximum quantity of water. Most of our plants, which account to our major production, consume water which is less than 2% of the total storage capacity of the source. Graphical representation of total water consumption and the water consumption segregated business wise is given below:

Water Consumption - Freshwater and Recycled Water (million m³)



Water Consumption (Freshwater and Recycled water) for FY 2019-20



Our efforts in water conservation are evident through our results due to rainwater harvesting. Our value of rainwater harvesting stood at resulted in 9.4 million m³ during the reporting period. We are also working towards reducing our water consumption; our target for total net water consumption for the year was 53.9 million m³. Our total freshwater consumption from various sources and the quantum of harvested rainwater during the last four years is as provided in the table below (in million m³). This includes water consumption across aluminium operations, copper operations and mines. The data presented in the table does not include water consumed in colonies and communities:

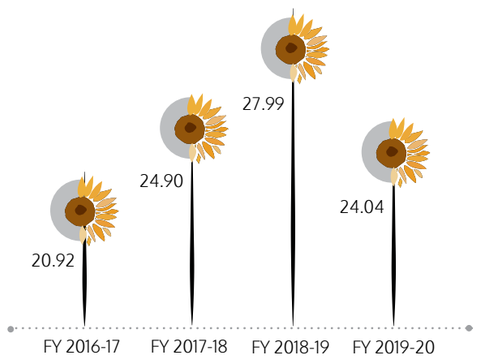
Total Freshwater Consumption (Aluminium operations, Copper operations and Mines)

	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
Surface Water (million m³)	71.28	65.74	60.76	61.11
Ground Water (million m³)	0.09	0.00	0.77	0.07
Rainwater Consumed (million m³)	0.12	3.43	2.14	0.09
Total Municipal Water Supplies (million m³)	0.13	0.11	0.38	5.60
Total Freshwater Consumption (million m³)	71.62	69.27	64.05	66.86

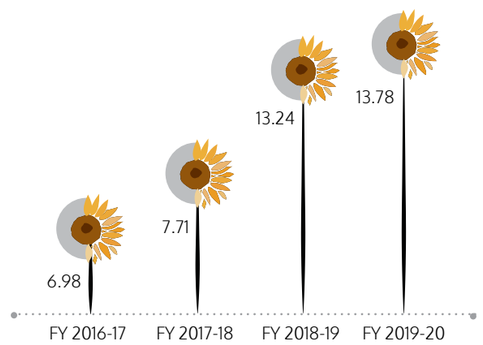
Water Recycling

Recycled water forms a significant portion of water consumed in our aluminium and copper operations. The graphs below illustrate the trends of our water recycling percentage over the years.

Aluminium Business - Water Recycled (%)



Copper Business - Water Recycled (%)

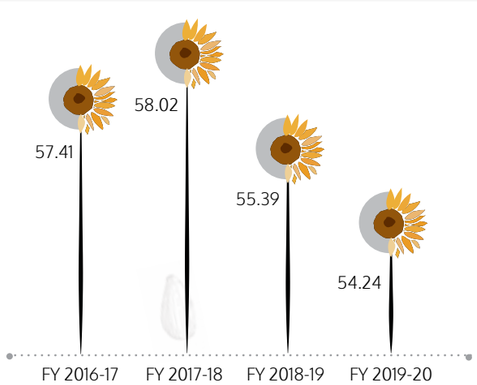


Water Intensity

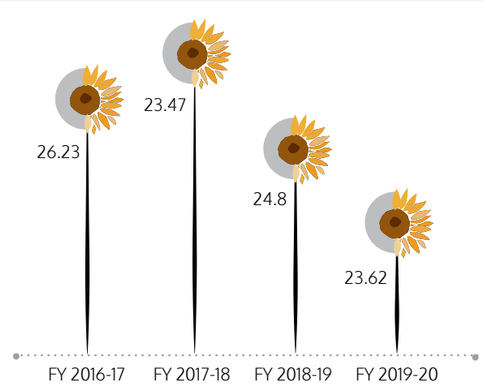
We adopt a process-based approach to arrive at the values for water intensity. We aim to accomplish the target of reducing specific water consumption by 5% year-on-year till 2022. The water intensity for our aluminium operations is combined impact of refining, smelting, rolling and extrusion operations indexed to the production of primary aluminium in MT. During the reporting period, we were able to reduce water intensity of our aluminium operations by about 11%. The water intensity of our aluminium operations during the reporting period was 11.37 m^3/MT. 1.92 MT of alumina is indexed to 1.0 MT of smelted aluminium for refining.

The trends for specific water consumption for aluminium and copper operations (gate to gate including power plants and other utilities) for last four years is presented here. The specific freshwater consumption for aluminium business also includes mines and colonies consumption values.

Aluminium Business -Specific Fresh water consumption - (m^3 /MT)



Copper Business -Specific Fresh water consumption - (m^3 /MT)



Hindalco has always focused on responsible water consumption and has taken various positive initiatives. With the help of these initiatives, we achieved substantial reduction in water consumption through an innovative approach at our plants located in Renukoot, Taloja, Hirakud and Alupuram. The following case studies provide details of some of these initiatives undertaken during the reporting period.

Water Conservation Initiative at Renukoot

We have achieved substantial reduction in freshwater consumption through in-house innovative design, engineering, modification and execution at our Renukoot plant. These are some of the initiatives aimed at reducing consumption:

- Modification in condensate handling system for segregating and utilising good condensate having conductivity (< 100 micro mho) as DM feed water to boiler
- Reuse of freshwater in Hammelmann pump operation
- Reuse of ACF/MGF back wash, conductivity meter testing water and gland seal water as DM feed water in boiler
- Water pressure optimisation in drinking water supply by installation of orifice and local pump in high elevation area
- Replaced drinking water with ETP-treated water for utilisation in toilets as well as in gardening across the Plants 1 and 2
- Replaced all bibcocks in the plants and toilets with push cocks
- Cleaning of toilet floor with ETP-treated water by providing separate tap connection from the same
- Awareness programme on water conservation conducted through quiz, nukkad natak, posters and slogan competitions
- Water tap survey across the plant is conducted on a quarterly basis.
- Daily water consumption record, plant-wise and section-wise, is prepared and shared with the concerned team with remarks for unusual consumption, if any

These measures helped in reduction of water consumption by 6.49%, compared to the base year FY16-17.

Reduction of Freshwater Consumption at Alupuram

Hindalco has always focussed on aspects of resource criticalities. Water, being a scarce resource, Hindalco takes various initiatives to reduce its freshwater consumption. This is evident through the initiatives taken at Alupuram plant, which are described below:

1. Replacement of all underground water lines by:
   - Successfully replacing the underground line to overhead line in labour quarters, as pipeline leakage was a major reason of large water consumption.
2. Increased accountability for individual activities by:
   - Creating a team for daily monitoring of water consumption is assigned and WhatsApp is used for creating groups to report water-related issues.
   - Assigning the mechanical supervisor with the responsibility of monitoring the meter readings, analysing the consumption and taking corrective actions on a daily basis.
3. Implemented engineering solutions such as:
   - Daily checking of meter accuracy
   - Sub-metering
   - Leak detection
   - Modification in plumping practices
   - SOP for water supply
   - Controlling the system pressure
4. End-plugged pipelines outside the plant.
5. Disconnected the water connection in all vacant quarters.

This initiative of freshwater reduction has been recognised under our downstream business units category.

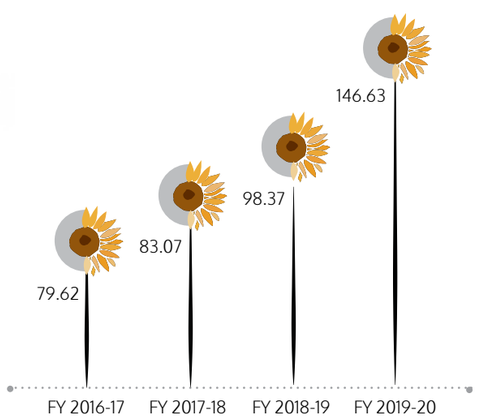
Effluent Management

Furthering our efforts towards environmental stewardship, we have adopted a strategised approach of effluent discharge at our sites. To ensure that water quality parameters such as pH, Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), colour, fluorides and Total Soluble Solids (TSS) are kept within permissible limits, we monitor our waste quality on a regular basis. The figures for our effluent discharge from aluminium operations stood at 146,629.7 m^3 and those from copper manufacturing operations are 223,738 m^3. We have seen a rise in the value of effluent discharge for our aluminium business this year. This can be attributed to improved monitoring, maintenance of zero liquid discharge units and change in water treatment mechanism.

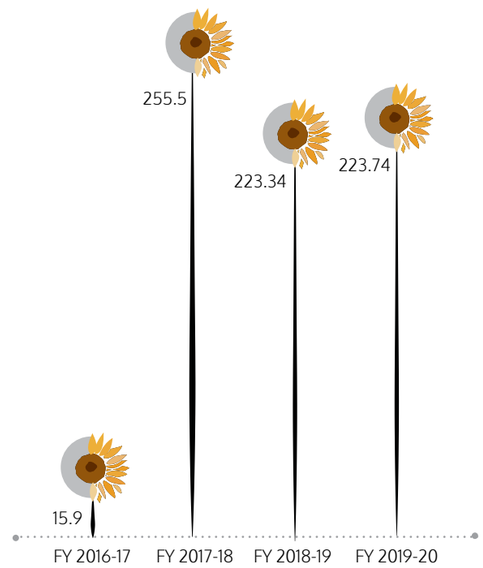
We are nearing our target of achieving the status of Zero Liquid Discharge (ZLD) for all our plants by FY 2020-21, with 11 out of 15 plants having met the target this year. Effluents from the remaining plants are properly treated meeting the requirements specified by Central and/or State Pollution Control Boards. Effluents discharged from our plants do not significantly affect any water bodies in our surroundings.

Trends of effluent discharge from our operations are presented graphically as follows:

Aluminium Business - Effluent Discharged (000'm^3)



Copper Business - Effluent Discharged (000'm^3)



Reduction of Water Consumption at Mahan CPP

Various initiatives have been taken at our plant situated at Mahan CPP for reduction in water consumption. This plant has a reservoir for water storage having capacity of 7.5 million m^3. The makeup water requirement for the project is approximately 0.04 million m^3/day and hence, there is a challenge in the procurement of water for almost three months, between April and June, as the water from Gopad River is not available during this period.

The measures taken to minimise water consumption at our plant at Mahan CPP have been listed here:

- To find the root cause for identification of increasing the silica in drum makeup, water various water sampling and testing from DM plant outlet to DM storage tank till boiler blowdown water were done. It was found that the colloidal silica is increasing in boiler drum and there was turbidity in stored DM Water in DM storage tank. To eliminate the colloidal silica, we controlled the turbidity at DMF within 4 NTU and ACF within 2 NTU, by increasing the dosage of ferric alum in the pre-treatment plant itself. By doing this, we have decreased the turbidity from 3.5 to 0.5 NTU.
- Nanofiltration plant of capacity 294 m^3/hour is provided at the station to treat the cooling tower blow down. This led to a reduction of the cooling tower makeup water by approximately 1500 m^3/day by using nanofiltration to permeate water.
- In order to reuse wastewater i.e. decanted water from ash dyke, the station is equipped with an ash water recovery system (AWRS), which is provided for pumping the water recovered from ash pond to recovery sump to plant ash water sump. There are 2 AWRS pumps in parallel with one standby and two working pumps with capacity of 410 m^3/hr each.
- Condenser debris filter backwash water is being routed to a reservoir through drain trench. This has resulted in reuse of close to 180 m^3/day.
- A water loss of 1.2 TPH DM water i.e. approximately 28 m^3/day was identified due to the opening of ejectors drain to atmosphere, as the steam trap was chocked, an alternate steam trap bypass drain line is provided in unit 2 to prevent the loss of water

These initiatives proved beneficial in many ways such as DM water savings of 25,185 m^3/year is achieved. Also, an estimated reduction in cooling tower makeup water of 5.47 lakhs m^3/year approx. by operating nanofiltration system would be done. Service water consumption would be reduced by 25,915 m^3/year. Conservation of condenser debris drain discharge water figure would be 65,700 m^3/year. The figure for reuse of DMF/ACF/DMFP backwash water is estimated to be at 91,250 m^3/year, and the reuse of High-Rated Solid Contact Clarifier (HRSCC) desludging water would be at 3.65 lakhs m^3/year.

Waste Management

On account of our production activities, a large quantity of mineral, non-mineral and hazardous waste is generated. We have been making consistent efforts to apply the waste management hierarchy to all our waste. It is meant to reduce the quantity of waste produced through our operations, by following techniques to reuse and recycle generated waste in an environmentally friendly manner.

Refining our management governance structure to further strengthen our waste management, we have formed Waste Management Task Forces. These task forces serve the purpose of developing a structured approach for prevention and reduction of waste generation. Further, they also take efforts towards creating some value from the generated waste, which is an extension of our 'Value from Waste' initiative that aims at achieving 100% utilisation of key wastes by 2025. These task forces are formed separately for each plant location. The line managers are responsible for strategising waste reduction and waste disposal methods, following the waste management hierarchy for increased recycling and reusing of waste produced. Following a collective approach, tasks such as management of waste inventory (hazardous and other wastes), categorisation, benchmarking and target-setting are carried out by these task forces under the guidance of the line managers.

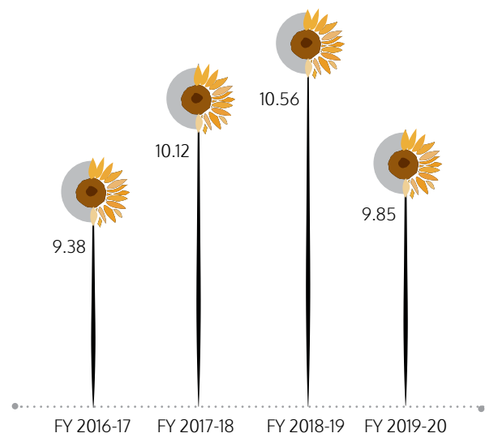
We are focussed on minimizing waste generation and maximizing waste utilisation. To realise our goals of efficient waste management, we set yearly targets for waste disposal. Our target for total waste disposal for this year was 11.15 million MT.

Non-Hazardous Waste

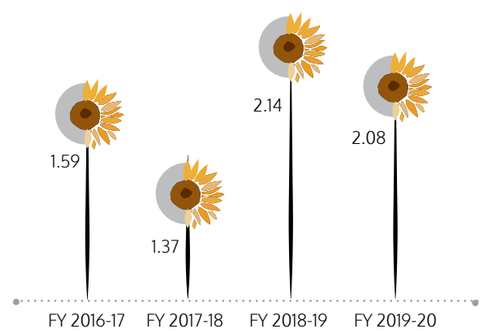
Our total waste generation during the reporting period was 12.29 million MT, which consists of 11.93 million MT of non-hazardous waste. We have achieved a reduction in our waste generation for our aluminium and copper operations, as seen in the following graphs.

43% of the non-hazardous waste from our aluminium operations was disposed off in landfills and ash ponds, 52% was recycled/reused, 5% was sold to an authorised waste recyclers.

Aluminium Business - Non-Hazardous Waste Generated (million MT)

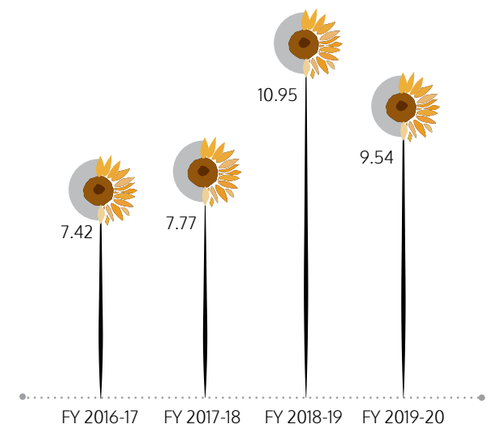


Copper Business - Non-Hazardous Waste Generated (million MT)

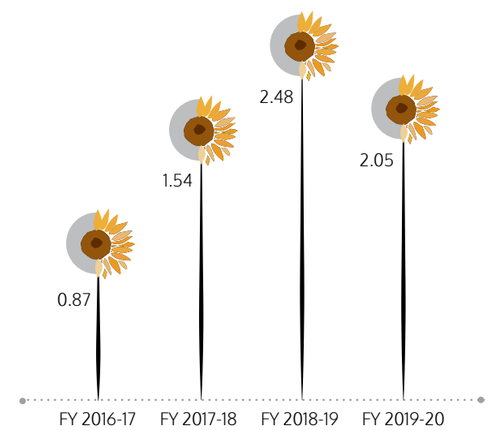


100% of the non-hazardous waste from our copper operations in FY 2019-20 was sold to the recycler. 43% of the non-hazardous waste from our aluminium operations was disposed off in landfills and ash ponds, 52% was recycled/reused, 5% was sold to an authorised waste recycler and no waste material was disposed off in a municipal landfill For aluminium dross utilisation, we have a target of 100% for FY 2024-25; during the reporting period, we have achieved 89% utilisation. Trends of last four years for non-hazardous waste disposal from our aluminium and copper operations are presented here through graphs:

Aluminium Business - Non-Hazardous Waste Disposed (million MT)



Copper Business - Non-Hazardous Waste Disposed (million MT)



Bauxite Residue Utilisation

Driving our efforts for effective waste utilisation, we have undertaken many initiatives for bauxite residue (also known as red mud) utilisation, we are leading among top companies of the aluminium industry in the world by undertaking a large-scale commercial application of red mud. Recognising long-term sustainable solutions for utilisation of red mud, we are making use of the filtration technology. This technology helps reduce the moisture content in it by using pressure filters. Further, we have also conducted a study on red mud utilisation for backfilling of mines in FY 2017-18. This study was instrumental in exploring additional areas for disposal of bauxite residue. Our bauxite residue is sold to cement industries as useful raw material and for manufacturing of paver blocks. At present, we supply red mud to 40 cement plants in India. Our Belagavi refinery is a notable example in this area, as it has utilised maximum bauxite residue generated in cement plants during FY20 and it supplies red mud to more than 14 cement plants. Additionally, three of our plants cumulatively contribute to nearly 66% of bauxite residue utilisation in cement plants. Alternate ways are being explored for bauxite residue utilisation at one of our plants, as use in the cement industry is challenging due to geographical constraints.

We adopt a resilient approach in our operations and take efforts to minimise our impact on our surroundings, which is evident in every step we take. During April 2019, an incident of bauxite residue spillage occurred at a storage facility at the alumina plant situated at Muri, Jharkhand. Restoration work was started at the site with immediate effect. For removal of debris, Hyvas excavators, dozers and pay loaders were deployed at the site within one day of the incident's occurrence. Within a short span of 2.5 months, more than 7.5 lakhs MT of red mud was cleared. Special care was taken to prevent contamination of local water bodies in the vicinity. To ascertain the impact of the incident on the environment and to remediate it at the earliest ERM conducted an environmental risk & vulnerability study. All the areas affected by the incident have been cleared of the spillage, and studies are in progress with agricultural universities to restore the agricultural properties of the land.

Going forward, a special working group has been formed for the proper management of bauxite residue. As part of this task force, separate teams are further formed to take care of the storage, stabilisation and utilisation of bauxite residue. Standard Operating Procedures (SOPs) are in place for effective management of red mud at each of our locations.

Utilisation of Bauxite Residue in Cement Industry

Given the composition of bauxite residue, we recognise its utilisation as a raw material in the cement industry. Owing to its components like iron, alumina and alkali content, it can be successfully used as prime raw material for cement manufacturing. In the cement manufacturing process, clinkers are formed from the raw materials, viz. limestone, clay, laterite & bauxite.

Use of bauxite residue proves beneficial in the process to replace virgin materials like laterite /lithomarge, along with the neutralisation of excess sulphur oxides. The unwashed soda in the bauxite residue reacts with these acidic oxides to form stable sodium sulphate, which is directly fed into the clinker, thereby reducing the recirculation & jamming frequencies. With this unique advantage, bauxite residue proved to be a leap forward raw material for cement industries, with its composition and alkali presence eliminating the difficulties faced by the cement industries, while using pet coke as a fuel. Further, to eliminate the challenges of moisture content in the bauxite residue, we make use of vacuum-based pressure filters that help us reduce the moisture content by 10%. We have cement manufacturing technical experts within our team to gain more insights about the cement industries and serve them in a better way.

We have adopted a cluster-based approach, through which we have mapped all the clinker manufacturing units of all the cement players across India. Our refineries located at diverse locations of India have provided us with a strategic advantage for expansion of our presence. This cluster-based approach proved to be commercially viable for us as well as cement companies in utilization of major quantities with limited spending.

Going forward, we have signed long-term contracts with major cement companies in India. Despite the challenges posed by the COVID-19 pandemic, we have set an ambitious evacuation target of 2.5 million tonnes for FY 20-21

Fly Ash Utilisation

Following the waste mitigation hierarchy, we adopt an on-site management strategy for the fly ash generated during the operations. To streamline our fly ash utilisation process, we have formed five working groups for our plant locations. They are responsible for various processes, such as storage, transportation, utilisation and formulating preparedness plans for emergency situations. Currently, we are in the process of drafting guidelines for fly ash management. Site-specific SOPs are also being strengthened for all of the locations. These are being updated considering international best practices and guidelines to enhance our process of fly ash management.

During the reporting period, 100% of fly ash from our aluminium operations was utilised. Additionally, fly ash from our copper operations has also witnessed 100% utilisation in FY 2019-20.

Hazardous Waste

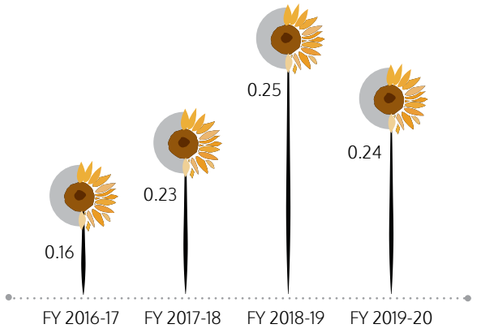
Throughout our operations, we try to reduce the volume of hazardous wastes and take measures to reuse and recycle our hazardous waste. Our total waste generation during the reporting period was 12.29 million MT, out of which 0.37 million MT was hazardous waste.

83% of the hazardous waste from our aluminium operations in FY 2019-20 was recycled or reused, 17% was secured in a landfill/TSDF and 0.2% was disposed of by incineration.

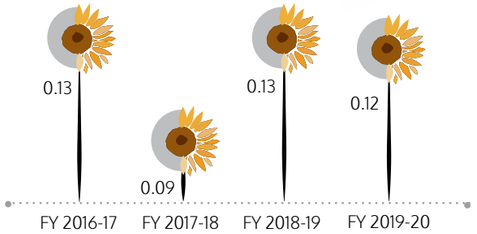
68% of the hazardous waste from our copper operations in FY 2019-20 was disposed of in secured landfill/TSDF, while 32% was sold to the recycler.

In addition to this, we undertake collection, storage and disposal of spent pot lining, aluminium dross, vanadium sludge, copper slag and phospho-gypsum. We have achieved spent pot lining and vanadium sludge utilisation of 99% and 127% against targets of 80% and 100%, respectively. We have achieved 100% utilisation of our copper phospho-gypsum and 73% is achieved from the previous year. We have achieved a reduction in waste generation for our aluminium and copper operations, as can be seen in the following graphs.

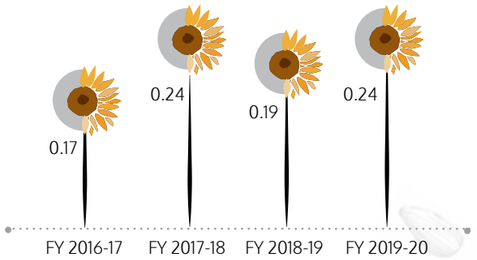
Aluminium Business & Mines -Hazardous Waste Generated (million MT)



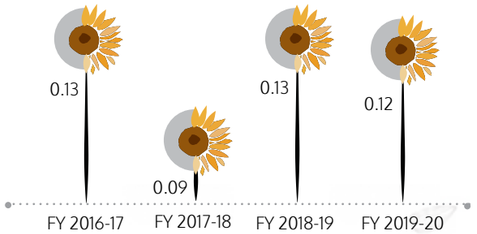
Copper Business - Hazardous Waste Generated (million MT)



Aluminium Business - Hazardous Waste Disposed (million MT)



Copper Business - Hazardous Waste Disposed (million MT)



Reduction of Hazardous Waste Generation (Waste Filter Paper) at Hirakud FRP

For emulsion, 5% oil & 95% DM water is used in hot rolling of aluminium. Filter paper is used at emulsion filtration unit in both HRM & HFM for maintaining the quality of emulsion by removal of sludge through the filtration unit. Due to this filtration process, waste filter paper is generated. This waste filter paper is contaminated oil and categorised as hazardous waste. To reduce our waste filter paper generation, we have taken the following initiatives, in terms of installation of equipment in our filtration system:

- Filter skimmer of the filtration unit has been modified & connected with tramp oil unit for skimming of sludge from filter. Due to this, maximum sludge goes to ETP directly, instead of on the filter paper.
- We started using one-side filtration system instead of both sides, as a result of which all filter pumps of dirty tanks could operate regularly. This prevented further deterioration of the quality of emulsion.
- Installed magnetic rod maintaining for collection of MS particle.
- Installed pipe skimmer at dirty tank for removal of oily sludge & connected to sump pit for ETP.
- Modified the waste filter paper collection box by fixing of grating plate in the box for removal of wastewater from the filter. This wastewater is sent to the ETP.

These initiatives resulted in a 50% reduction in waste filter paper generation, compared to FY 2018-19. These results are presented in a tabular form here.

Year	Waste Filter Paper (MT)	Hot Mill Prod. (MT)	Specific Waste Generation (Kg/MT of Prod.)
FY 2017-18	32.99	97236	0.34
FY 2018-19	50.44	105960	0.48
FY 2019-20	21.58	93484	0.23

Environmental Compliance

We ensure compliance with all relevant legislations and environmental norms, and meet all regulatory requirements in a timely manner. All our operational activities adhere to applicable environmental laws and regulations. However, during the reporting period, we faced two issues of environmental non-compliance that resulted in payment of compensation and penalties to the respective authorities as a corrective measure. A total fine of INR 1.25 crore was paid, which included an interim environmental compensation of INR 1 crore paid to the state government of Jharkhand for the red mud spillage incident at Muri.

As part of our efforts towards reducing the environmental impact of our operations, we take various initiatives towards environment protection. The value for total expenditure on environment protection for the reporting period stood at INR 231.95 crore.

Biodiversity Management

Equitable consumption and resource conservation are fundamental to the Aditya Birla Group. As the metal flagship company of the Group, Hindalco continues to lead with its efforts towards building a sustainable ecosystem. In our endeavour to be a responsible and reliable organisation, we try to integrate the principles of biodiversity management to address ecological concerns. Our efforts for ecosystem and biodiversity management contribute towards the achievement of UN's SDG 15 -"Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss".
We have adopted the Group-wide Biodiversity Policy and Technical Standards on Biodiversity Management since 2018. We strive to achieve "No Net Loss" (NNL) of biodiversity and prevent ourselves from operating in critical habitats. The technical standard, built upon the policy, assists us in carrying out biodiversity risk assessment and integrating ecosystem concerns into the decision-making process. We have partnered with the International Union for Conservation of Nature (IUCN) with the aim of integrating biodiversity concerns into operations, strategic planning and environmental management at identified operational sites.

International Union for Conservation of Nature (IUCN)

IUCN is a global union connecting more than 1,400 organisations worldwide. This democratic union brings together the world's most influential organisations and top experts in a combined effort to conserve nature and accelerate the transition to sustainable development. Hindalco, through its partnership with IUCN, aims at streamlining its biodiversity strategies and planning, along with conducting biodiversity assessments at its operational sites.

Through this partnership, we assess ecosystem services and biodiversity in and around our mining sites. In addition to this, trainings and capacity-building workshops are conducted with concerned stakeholder groups to improve their understanding of biodiversity-related issues. Further, as part of this partnership, we use globally recognised tools such as the Integrated Biodiversity Assessment Tool (IBAT), Ecosystem Services Review (ESR), and Business Ecosystems Training (BET) during the implementation process of our projects. IBAT enables us to prioritise sites. Analyses of the sites are conducted in a structured manner that categorises areas of high biodiversity importance. These points of consideration are the presence of protected areas, key biodiversity areas and threatened species, as per the IUCN Red List.

This engagement helps us streamline these processes at our sites:

- Biodiversity management plans for the identified sites in India
- Capacity-building workshop for Hindalco staff at corporate as well as site level
- Dissemination of project outcomes to the wider community.

Biodiversity Study at our Mines and Units

Our major business operations include bauxite mining, alumina refineries and aluminium smelting processes. Most of our sites are located in the states of Odisha and Chhattisgarh. A Memorandum of Understanding has been signed with the IUCN to conduct biodiversity assessments and develop biodiversity management plans for our operational sites. Selection of the sites is done based on priority. The following operational representative locations were identified for conducting biodiversity study and developing biodiversity management plans:

- Aditya Aluminium (Smelter Plant), Village Lapanga, Tehsil Rengali, District Sambalpur, Odisha;
- Utkal Alumina International Limited, Village Doraguda, Tehsil Kashipur, District Rayagada, Odisha
- Baphlimali Mines, Baphlimali Plateau, District Rayagada/Kalahandi, Odisha
- Gare Palma Coal Mines Block IV/4&5, Tehsil Tamnar, District Raigarh, Chhattisgarh

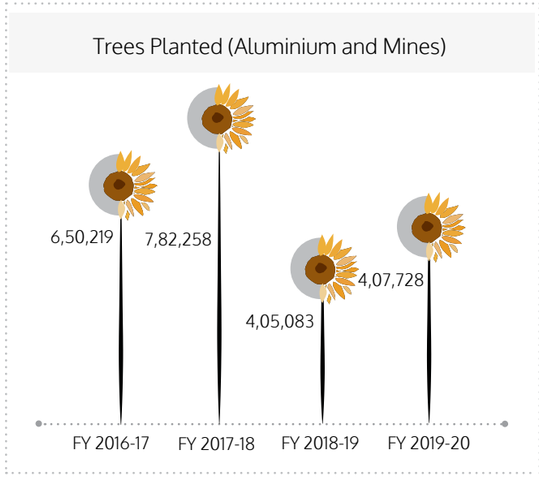
IUCN conducted biodiversity assessments at Gare Palma coal mines, Baphlimali bauxite mines, Utkal Alumina and Aditya Aluminium . All the four seasons - winter, summer, monsoon and post-monsoon - were covered to conduct this study.

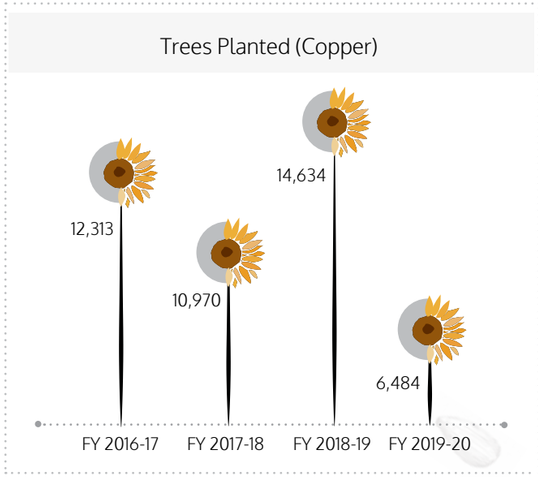
For the purpose of conducting the winter survey at Gare Palma mine, a total of 50 points were sampled for flora and fauna in core and buffer areas. A total of 87 species of birds, 53 species of butterflies, 2 species of frogs, 6 species of reptiles, 11 species of mammals and 147 species of wild plants were recorded within the study area. In addition to this, 27 species of ornamental plants. from gardens and parks, and 35 major and minor crop species from agricultural fields were also recorded.

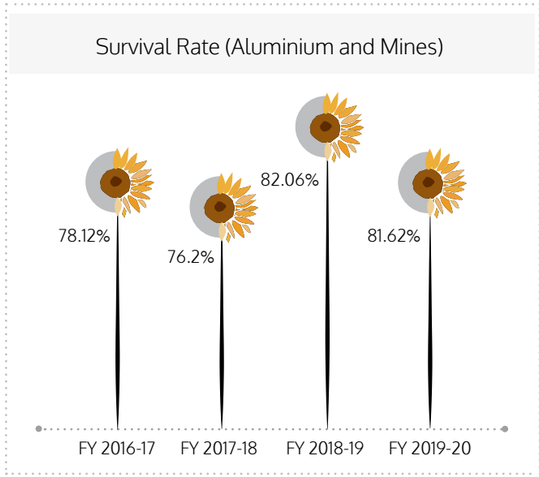
Green Belt Development

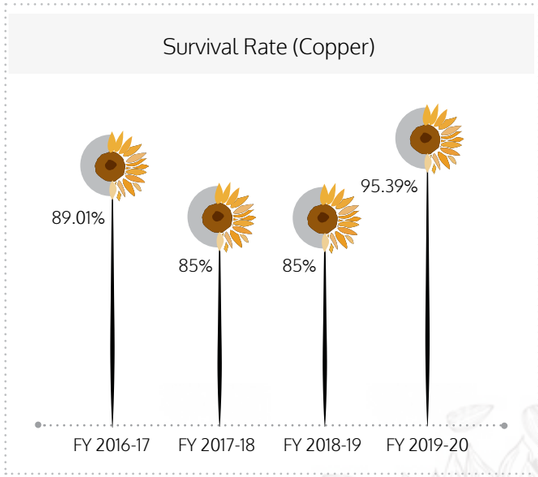
Our environment centric approach throughout our endeavours helps us contribute towards our biodiversity and create a positive impact on the ecosystem in our own ways. Our commitment towards preserving our biodiversity led us to start a green belt development programme. Through this, we plan to increase the green cover across our operating geographies. For this purpose, we prepare detailed plantation plans in consultation with the MoEFCC and IUCN to undertake plantation at our geographies. As part of these plans, native plant species are identified for a particular geography considering the climatic conditions and soil horizon of the location. This results in sustainable plantation at our locations and increases our green cover. At present, we foster nearly 27 lakh trees at our sites. Our efforts have led to us creating a green belt area spanning over 4,372.74 acres.

These graphical illustrations show trend of tree plantation along with survival rates for the past four years.









Health and Safety

We at Hindalco are committed to protecting human health and ensuring a safe working environment for all our employees and contractual workers. The three-pronged approach involving felt leadership for safety, embracing world-class processes and practices, and right organisation for implementation has helped us embed the safety culture with an objective of "Zero Harm". This approach also helps us become a responsible corporate citizen. Our safety efforts also contribute in meeting the UN Sustainable Development Goal (SDG) of Decent Work and Economic Growth.

Our safety culture is guided by a robust health and safety framework encompassing all activities across the organisation. A definite H&S organisation structure helps in implementing the framework in true spirits. The H&S management system is an integral part of the framework. We are proud that all our operational facilities are certified with OHSAS 18001 and other applicable international occupational health and safety management systems. To strengthen the framework, we introduced unit-level safety boards during the reporting period, in addition to the pre-existing Apex Safety Board. A new safety committee, Contractor Safety Management Committee, has also been introduced, bringing the total to six safety sub-committees at the unit level. Complete details of the H&S framework are provided in our sustainability report for FY 2018-19.

The robust framework, guided by our commitment to ensuring a reliable workplace, equips us to deal with setbacks that we face. During April 2019, we faced a major challenge in terms of bauxite residue spillage incident at our Muri facility in Jharkhand. Immediate action was taken to minimise the impact by removing debris and isolating spillage area using sandbags. We are glad to inform that there were no fatalities due to the incident; however, we understand that it had the potential to cause damage. We enlisted field experts and top-tier institutions to identify the root cause of the incident, so we can take the necessary steps to avoid any such incident at any of our facilities in the future.

We at Hindalco are committed to protecting human health and ensuring a safe working environment for all our employees and contractual workers. The three-pronged approach involving felt leadership for safety, embracing world-class processes and practices, and right organisation for implementation has helped us embed the safety culture with an objective of "Zero Harm"

In order to equip ourselves to deal with such incidents in future, a crisis management programme was developed in association with the National Disaster Response Force (NDRF). This comprehensive crisis management programme has been implemented at each of our operational locations. As part of the crisis management programme, expert agencies are working on all sites to avoid any fatal incidents.

While approaching the start of year 2020, the world was exposed to a challenging situation in the form of the COVID-19 global pandemic. We, at Hindalco, were not immune to its impact and consequences. The nature of our operations and application of our products provided us with the opportunity to serve the nation by supplying our products to key industry segments such as defence, pharmaceuticals, food packaging and transportation. These critical operations were running with minimum manpower, and our staff ensured adherence to required safety norms like social distancing. All our plants, facilities, colonies and offices were being sanitised on a regular basis. Further, the option to work from home was provided to a majority of our employees, minimising exposure to the infection. All our employees, including contractual workers, and families living in the colonies had access to trainings and awareness sessions related to COVID-19.

With a resilient approach towards future proofing, we are proactive in adopting to the dynamic business environment. One such important step was the development of Standard Implementation Task Forces at each of the units. These task forces include about 9 to 17 task persons, representing line officials from different disciplines. The key objective of these task forces is to support safety sub-committees and ensure safety in all types of operations. This arrangement is in addition to the health and safety committees in each unit, providing equal participation from workmen and management.

With contract employees forming about 56% of our total workforce, we have introduced a Contractor Safety Management System (CSMS) during the reporting period. This system is managed by the Contractor Safety Management Committee, which is responsible for carrying out regular safety checks and monitoring performance of the contractors. As part of the implementation strategy, all the contactors at each unit are classified as major and minor contractors. It is mandatory for major contractors to score more than the minimum threshold during the assessment to continue working with Hindalco. The threshold has been decided as 60% for the first year, and will gradually be increased to 85% in the years to come. Additionally, the contractors are mandatorily required to sign and abide by the safety policies at respective locations.

As part of the framework, we continuously track the safety performance against industry standard indicators. Safety performance during the reporting period can be summarised as follows:

Year	Aluminium & Mines 2019-20		Copper 2019-20	
	Employees	Contractor	Employees	Contractor
Total no. of lost time accidents (Reportable Accidents)	24	23	1	4
Total no. of fatal accidents	1	3	0	2
Total no. of man-days lost	13,361	22,328	62	12,063
Lost Time Injury Frequency Rate (LTIFR)	0.51	0.29	0.34	0.45
Lost Time Injury Severity Rate (LTISR)	285.47	284.47	20.85	1347.1
Total no. of Minor Injuries (Non-reportable Accidents)	267	365	20	80
Total Man-hours worked (in Million)	46,804,117	78,490,201	2,973,712	8,954,822

We are determined towards an ambitious but attainable goal of zero fatalities and life-threatening occupational diseases. Most of the safety professionals in each plant have undergone a NEBOSH certification to enhance competency and skills. We continue working towards our target of reducing LTIFR to be less than 0.25 and LTISR below 100 by FY 2021-22. Various initiatives and programmes implemented had a positive impact on our injury rates; however, the severity of these injuries was higher, leading to an increase in the severity rate. Unfortunately, there have been 6 fatalities in the reporting period. The investigations revealed that most of the fatalities occurred at peripheral activities. There was only one fatality recorded in a core activity of our operations.

With commitment to reduce fatal incidents, we have developed a fatality prevention plan. The plan stresses the need to identify any blind spots in operational activities and take corrective actions to remove them by improved monitoring. In order to remove the blind spots, observation rounds are conducted, encompassing the complete operational premises. As an additional measure towards robust data management, we have started maintaining a digital database for safety information and incidents.

In addition to the fatality management plan, provisions are made in the health and safety policy for disciplinary actions against people responsible for fatal accidents. Involvement of any employee with any fatal accidents and/or reportable accidents now results in de-rating of their performance rating by one grade.

Parameter	FY 2016-17	FY 2017-18	FY 2018-19	FY 2019-20
LTISR	157.00	138.00	253.73	348.44
Fatalities	3	2	4	6
LTIFR	0.29	0.36	0.48	0.38
Lost Time Accidents	37	46	63	52
Number of Mandays Lost	20,061	17,460	32,728	47,814

Adopting the safety monitoring systems in synchronisation with international standards, we started measuring the Total Recordable Injury Frequency Rate (TRIFR) from FY 2018-19. The TRIFR for employees and contractors is measured per million hours worked. The TRIFR for the reporting period can be seen in the table below:

Total Recordable Injury Frequency Rate (per Million hours worked)		
	Employees	Contractors
FY 2018-19	0.13	0.10
FY 2019-20	0.13	0.06

Safety Trainings

Being aware of the safety-related risks associated with our operations, capacity-building of our employees is one of the key priorities for us. Trainings, being a key factor of these controls, are provided to all our employees and contractual staff in order to increase the competency in identifying and preventing the H&S risks . Key training topics during the reporting period included job safety, home safety and fire prevention, and road and driving safety.

Our supply chain partners including transporters and warehouse operators are also part of the safety training schedule.

	UOM	Aluminium & Mines 2019-20	Copper 2019-20
Training on Safety - Management Staff	Numbers	5,957.00	435.00
	Manhours	193,903.61	11,598.00
Training on Safety - Permanent Workmen	Numbers	12,961.00	1,051.00
	Manhours	382,125.06	25,494.00
Training on Safety - Contract Employees	Numbers	23,049.00	2,414.00
	Manhours	781,578.97	80,513.00

Safety Training Sessions at Renusagar

Occupational Health

We have adopted Group Occupational Health technical standards which are in line with the International Finance Corporation (IFC) General Environment, Health and Safety (EHS) and International Labour Organization (ILO) guidelines and recommendations from the World Health Organisation. The standards set expectations on occupational health risk assessments in terms of qualitative and quantitative exposure risk management incorporating a hierarchy of controls, health surveillance including return to work and specific management of areas such as ergonomics, ventilation, respiratory protection and stress. The technical standards are also adopted for first aid and emergency medical care as well as the management of HIV, TB and Malaria in the workplace.

Qualitative Exposure Assessments (QLEA) have been completed at all our mining and plant locations. Based on input from QLEA, Quantitative Exposure Assessment (QNEA) have been conducted to measure occupational health hazards in the workplace through application of established sampling and monitoring protocols. QNEA have been completed at all our mining and plant locations, except for couple of them for which surveys are lined up and will be conducted after lockdown restrictions are eased. The QNEA has helped to establish baseline for exposure levels and satisfy statutory requirement. Based on the QNEA reports, action plans have been developed and are in place to implement control measures and appropriate respiratory protection is provided. Implementation of recommendations arising out of assessment are being monitored in apex safety meet and presented at safety summit annually.

We have taken initiative towards standardization of practices and processes in the field of Occupational Health. In this regards, standardized process on occupational health monitoring and first-aid and emergency medical care have been released for all sites to adopt with site specific customization, as required. Regular trainings on first aid and occupational health have been conducted while focusing on the occupational health standards at all our locations. Thirty-three personnel including occupational health physicians, safety and human resource professionals have undergone specialized three days training workshop, "H.Amplifier" organized by group to enable them in implementing world class occupational health management systems at respective sites. Moreover, awareness programmes on health issues such as TB, HIV and malaria are also conducted at these locations.

Message from Mrs. Rajashree Birla

Progressing with our vision of inclusive development, the Aditya Birla Group is transforming towards a sustainable way of life for the communities it operates in. The notion of giving back to our society is embedded in the community engagement of our Group. To realise our vision of a sustainable world, we also continue to align our community engagement agenda with the universally adopted UN SDGs. Our work for upliftment of the communities from the remotest regions of the country is presented as part of our community stewardship engagements. These initiatives are a positive step we take towards building a Resilient, Responsible and Reliable future.

Focussing on the areas of education, healthcare, sustainable livelihood, infrastructure development and social reform, we have linked our initiatives to the first 9 SDGs. Working towards SDG-1, which focuses on poverty alleviation, we collaborate with the government to lift the burden of poverty from the shoulders of people living in our nearby villages. Aligning our efforts with SDG-2, emphasising on achieving zero hunger and improving nutrition, we have set a target to lower malnutrition rate in the villages where we work. Our engagements in line with SDG-3, which talks about promoting good health and well-being, has benefitted more than 9 lakh people across our units. Our facilities such as mobile medical vans, and health check-up camps ensure healthcare services are more accessible and affordable for our people living in the remote areas. With our proactive initiatives aligned with SDG-4, focussed on promoting quality education, we launched enrolment campaigns and conducted literacy programmes in rural areas.

Our objective of women's empowerment aligns with SDG-5 - Gender Equality, and we contribute towards this goal by imparting vocational training, skill-building and agriculture-related programmes to create livelihood opportunities. Synchronising our efforts collectively with SDG-6, SDG-7 and SDG-8 – which are related to water and sanitation, sustainable energy and economic growth, respectively – we have taken several measures in these areas. Realising the goal of providing better infrastructure in line with SDG-9, we engaged in various projects by constructing community halls, rest places as well as water tanks. Reiterating our resilience through these critical times of the COVID-19 pandemic, our Group has been reaching out to many afflicted people. We contributed significantly to COVID relief measures by way of our contributions to the PM Care Fund and FICCI Aditya Birla CSR Centre Excellence. Sanitising villages and urban slums and assigning bed facilities for COVID-19 patients were some of the other measures undertaken during this period. We also extended support to our local communities, by providing them with livelihood opportunities through our production activities undertaken to produce masks and coverall garments.

Our CSR endeavours, in line with the SDGs, reaffirm our beliefs of achieving socioeconomic growth of our communities. Our commitment towards creating shared value through our engagements has set us on this transformational path of sustainable development.

Rajashree Birla
Chairperson
Aditya Birla Centre for Community Initiatives and Rural Development

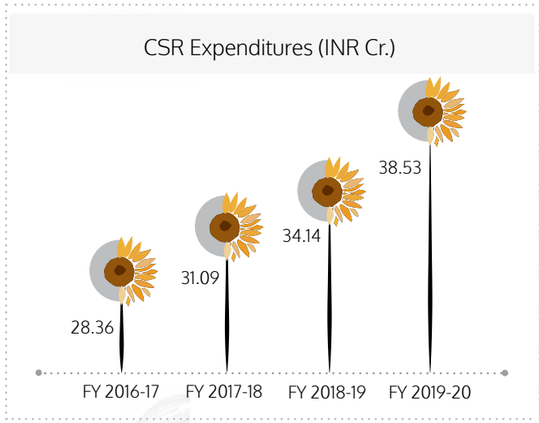
Community Stewardship

The Aditya Birla Group is known for its legacy of more than 50 years of serving the underserved and underprivileged communities. Being part of the Group, empathy towards people and responsibility towards the well-being of local communities is engraved in our value system at Hindalco. As a resource-intensive industry, we understand the inherent impacts that our operations have on communities. Some of our operations are in remote areas of Chhattisgarh and Jharkhand, where overall socioeconomic development is not at par with other regions in the country. We recognise that impacts of our operations are significant and long-lasting in such areas. Our developmental programmes in these regions have been instrumental in mitigating these impacts, helping in transformation towards a socially responsible future.

We adopt a strategic approach while designing the community development programmes that are part of our Corporate Social Responsibility (CSR) approach. These programmes are designed to achieve long-term goals while contributing towards the achievement of UN Sustainable Development Goals. The programmes are developed to cater to five strategic focus areas, such as education, healthcare, social reforms, sustainable livelihoods and infrastructure. These focus areas are carefully chosen to address the core developmental gaps in the society.

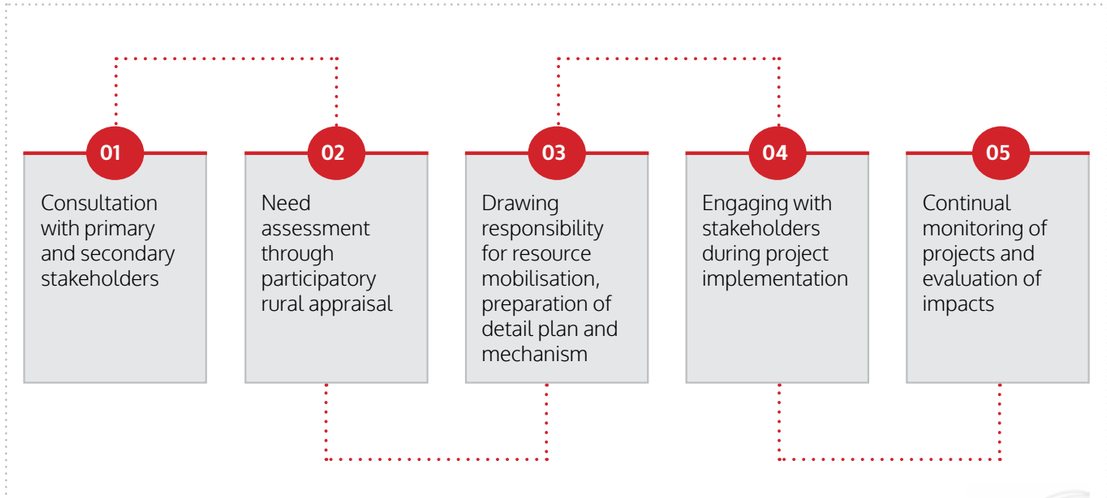
We continue to strengthen our CSR governance structure to bring our ideas of community stewardship into practice. The governance structure involves a CSR committee at the apex level. This is followed by business verticals that are headed by the respective CSR Heads and Cluster Heads for various geographical cluster within the purview of our operations. The structure also includes separate teams catering to each focus area to channel efforts in a focused manner. The CSR committee conducts meetings periodically to understand the progress and decide the way forward.

We contribute significantly towards community development through our CSR initiatives. The CSR expenditure exceeds the regulatory requirement of a minimum of 2% of the average net profit for the preceding three years. Our CSR spending for the reporting period stands at INR 38.53 crore, which is equivalent to 2.05% of our net profit. Further, as part of our Enterprise Social Commitment (Hirakud, Aditya and Utkal), we have spent INR 11.70 crore. Expenditure on community initiatives by our subsidiaries stands at INR 10.12 crore. Extending our support to various governmental schemes and initiatives, we contributed INR 15 crore towards the Odisha Flood Relief Fund set up by the Honourable Chief Minister of Odisha. The following table shows a four-year trend of our CSR spending.



We have a well-formulated CSR Policy, which forms the backbone of our community stewardship approach. The policy acts as a guiding principle to engage with our communities regularly. We conduct baseline studies to assess the needs of our communities. These encompass various parameters, such as health indicators, literacy levels, sustainable livelihood processes, population data - below and above the poverty line, and the state of infrastructure, among others. We design and implement various development programmes/projects based on the results of this study. In order to make these projects self-sustaining, we conduct capacity-building sessions for the communities and associated stakeholders. Further, 1-year and a 3-year rolling plans are developed to ensure integrated development of the communities. These plans are assessed and monitored every quarter against the set targets and budget. These are also presented to the CSR Committee at the CSR Annual Planning and Budgeting Meet. Apart from this, we also have specialised frameworks in place to carry out monitoring and evaluation periodically for each of our focus areas. Inputs and feedbacks drawn through these evaluations are incorporated into the implementation plan of each focus area to better our community development process. Additionally, social audits and impact assessments are carried out at various operational locations to gauge our impact and identify areas of improvement.

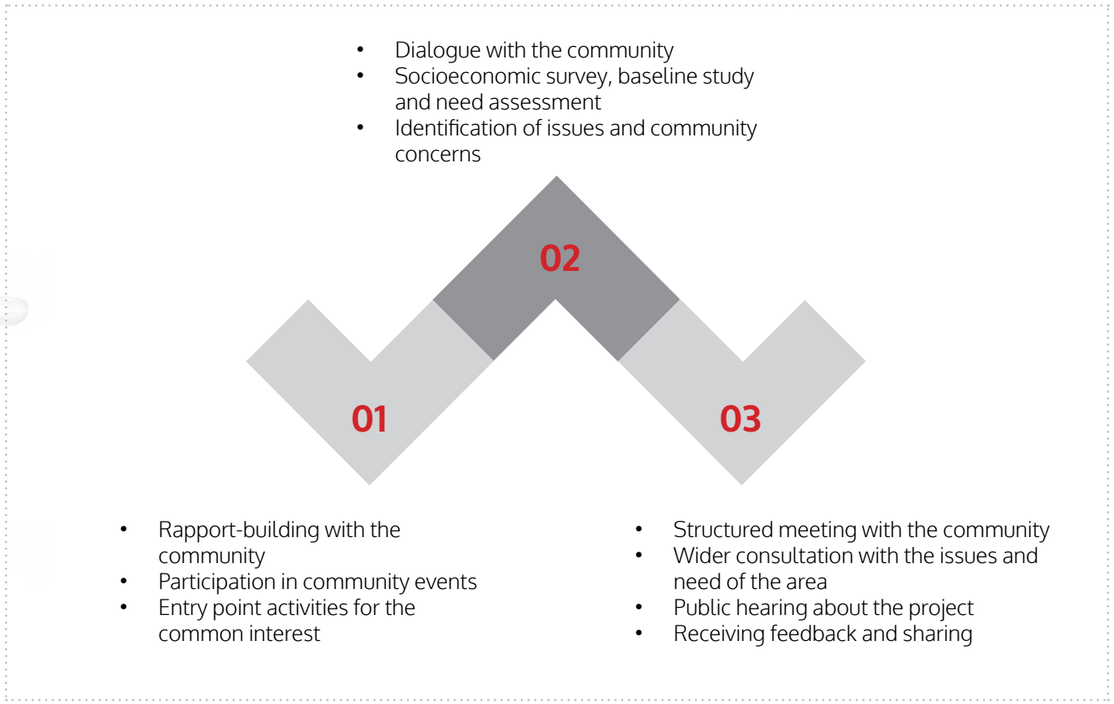
The following diagram illustrates the steps of our community engagement process in detail.



We also undertake community consultation for our development projects and production assets. Through our effective community consultation process, we engage in continuous dialogue with the communities surrounding our plant and mines. With the aim to design and implement our development projects catering to the needs of our communities, we keep our communities informed about the progress of business operations and work closely in collaboration with them throughout the lifecycle of our projects. This includes initial planning, operations and site closure after completion of the project. Currently, 44 production assets across 21 locations in India are under consultation, along with 105 of our development activities for 24 projects based on our five focus areas.

We have a comprehensive community consultation framework in place for UAIL. This framework comprises of the following four segments:

- **Community Consultation:** A step-by-step approach is undertaken as part of our community consultation process as illustrated by the following diagram.



- **Communicating Information:** Relevant information is communicated through various channels. To bring transparency in the operations, gain trust of the community and ensure hassle free operations, effective ways of communication are utilised.

- **Stakeholder Management:** We follow a proactive way of engaging with our stakeholders; our mechanism is guided by our group-level policy. Informing our stakeholders about the project, periodically listening to their views and suggestions, and responding to their concerns are integral parts of the stakeholder engagement plan.

- **Grievance Management:** An effective grievance redressal mechanism (GRM) has been adopted at Utkal. This mechanism is backed by an SOP that defines the procedures for managing the concerns, issues, complaints, demands and grievances of the external stakeholders in a systematic and a transparent manner.

We are in the process of developing a consultation framework for all our locations to ensure the smooth functioning of our business operations and maintain a trustworthy relationship with our communities.

We have always strived to contribute towards the development of our communities, despite the challenges we encounter throughout the process. Dealing with such vast geographical diversity, we must grapple with increased expectations of locals, lack of youth engagement and time constraints. To overcome these, we take several measures to improve our community experience. To cater to the livelihood needs of the local communities, we provide them with employment opportunities at our organisation. Due consideration is given to project affected families and families losing land. This has resulted in recruitment of many individuals from the local communities at our organisation. We also impart these individuals with training on skill building in order to enhance their employability and provide them with more livelihood opportunities. Further, we also adhere to the laws and regulations pertaining to employment of local people prescribed by the respective local government.

Geographic Spread of Our Initiatives

We not only aim at a positive community impact throughout our operational activities but also work towards responsible resource consumption. Our vast geographical spread makes it important for us to take adaptable community efforts; for this, we act on our focus areas to bridge existing developmental gaps.

We follow a village adoption model, wherein we support a village through our development projects. The adoption of villages is done as per the allocated CSR budget decided by our CSR committee. These projects are designed as per the needs of the villagers. Also, initiatives are taken to make the villages sustainable by providing them with the requisite training and education. Focus groups, which are formed within the villages, set priorities and work in accordance with them. The ownership of these village-level projects is passed on to the village development committee, which leads them at a later stage.

Presently, we selected 108 villages, out of a total of 714 villages, for a transformative process that raises them to become model villages. In the past seven years, we have been able to transform 55 villages into model villages. Impact assessment studies by external agencies have commended the transformation of these villages.

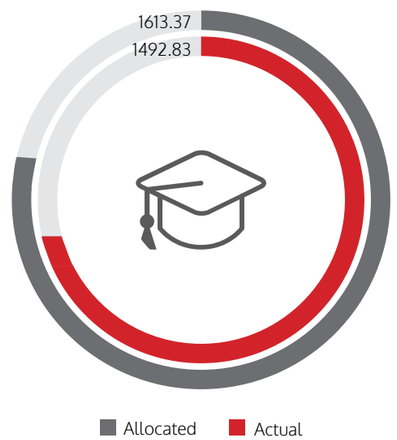
Spanning a vast geographical horizon, we strive to meet needs of our communities with the help of these developmental programmes. We touched the lives of 1.13 million people by extending our support to 714 villages across 11 states within India.

Our Initiatives and their Impact

Education

With our initiatives, we aim to drive a change by empowering our society. Our belief in the power of knowledge is showcased through our efforts in the area of education. We see education as a means to socioeconomic development, and therefore, promote a learning environment for all through our initiatives. Pre-school education, educational support program, vocational and technical education training and infrastructure of the school are some of the key areas that we focus on as part of our education initiatives. Our Shala Pravesh Utsav help us improve the retention rate at government schools. Our project at Dahej has been successful in achieving 100% enrolment of students in government schools. We have seen participation of more than 513 students in our digital education programme. We have partnered with the Department of Education and NIIT Foundation to conduct capacity-building of rural youth through computer education. Through our initiatives, 60% of our youth participants received employment opportunities during the year.

Expenditure on Education (INR Lakhs)



Impact of Initiatives - Educational Sector		
Initiatives	**Unit**	**FY 2019-20**
Anganwadis and Balwadis	No. of Centres	191
Students in Anganwadis and Balwadis	No.	7,628
Rehabilitation of Malnutrition children (number)	No.	537
Adult Literacy Program	No. of Adults	139
Schools (Aditya Birla Public and Aditya Birla Vidya Mandirs)	No.	19
Students	No.	6,869
Distribution of Educational materials and uniforms	No. of Students	14,562
Construction, repair and maintenance of schools and Fixtures	No. of Schools	37
Scholarships	No. of Students	402
Teacher support to schools	No. of teachers	65
Mid-day meal Program (infrastructure set up at Lohardaga)	No. of Students	40,000

An impact assessment study of CSR activities of Utkal Alumina International Ltd. carried out by NABARD Consultancy Services during FY 2018-19 for our education sector initiatives indicated the following impact:

Data from Impact Assessment			
Key Performance Indicator	**Unit**	**Baseline (FY 2010-11)**	**Impact (FY 2018-20)**
Total literacy rate	%	37.74*	51.56**
Women literacy rate	%	22.51*	36.51**
School enrolment	%	92.06***	97.85**
School attendance	%	65%	100%#
School dropouts	%	4.75%	2.65%#

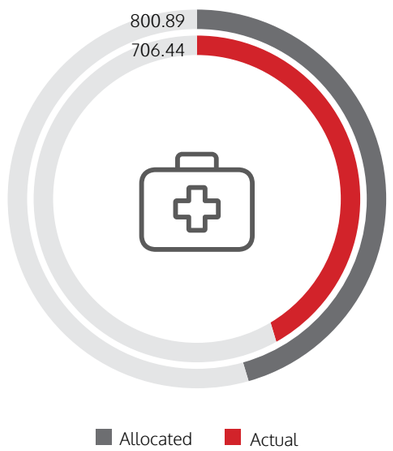
** Indicates 2011 census data.*
*** Indicates NABCONs study data, 2018*
**** Indicates Child Tracking System Data of the operational Gram Panchayats, Odisha Primary Education Programme Authority, Government of Odisha, Bhubaneswar, 2009-10.*
 # Impact assessment study conducted by Xavier Institute of Social services Ranchi at Dahej in 2016-17

Healthcare

Living through these challenging times, we recognise the relevance of healthcare facilities for sustainable and healthy living. Through our initiatives, we strive to provide best-in-class healthcare services to the people of our local communities. Through these initiatives, we aim to cover a range of services, viz. preventive health care programmes, curative healthcare, mother and childcare, quality/support programmes and development of healthcare infrastructure. Our ambulance services were availed by 5,271 patients during the reporting period and our Jeevan Mitra Seva Yojana has helped us provide 21 ambulance facilities including Muri.

Taking positive steps towards improving safe and drinking water accessibility across our communities, we collaborate with gram panchayats to work at the grassroots level. During the reporting period, 9 RO plants and 63 new handpumps were installed, and 446 handpumps and wells were repaired. In our efforts to improve water accessibility, we also supplied fresh drinking water with the help of water tankers and by laying of water pipelines, to ensure constant water supply. This year, we supplied water to 14 villages through pipelines and 58 villages using water tankers. Our programmes aimed at healthcare facilities for adolescent girls benefitted 1,004 girls. During this period, we conducted 21 adolescent health check-up camps aimed at spreading awareness about importance of health and hygiene. Through our site-specific initiatives, we also installed sanitary napkin-vending machines at 4 schools in Dahej and 1 school in Taloja.

Expenditure on Healthcare (INR Lakhs)



Impact of our Initiatives in Healthcare

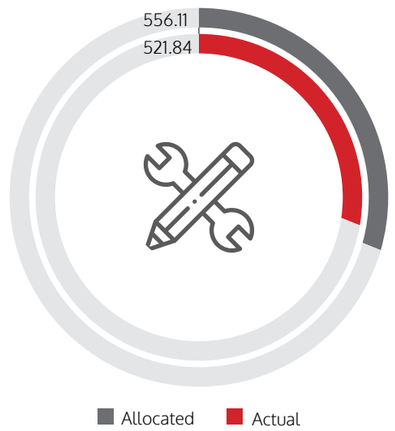
Initiatives	Unit	FY 2019-20
Hospitals	No.	4
Dispensaries/Clinics	No.	17
Patients benefitted from hospitals/ Dispensaries/Clinics	No.	1,62,251
Medical Camps Organised	No. of camps	1,312
	No. of beneficiaries	82,932
Children Immunised	No. of children	26,210
Adolescence Health care	No. of girls registered	1,004
19 Family welfare centres to provide safe motherhood and child survival services	No. of mothers	50,054
Mothers Registered for Antenatal / Postnatal Care (ANC / PNC)	No.	5,935
TB Cases Released from Treatment	No.	125
Eye Camps	No. of camps	12
	No. of cases (IOL) operated	327
	No. of beneficiaries	1301
Child immunisation (Base line: 79% in FY 2014-15)	%	100%
Institutional delivery (Base line: 43% in FY 2014-15)	%	79.8%
Villages free from Tuberculosis	No.	20

Sustainable Livelihood

We work with a sense of responsibility towards our local communities and thrive to make them self-reliant through our efforts. The livelihoods of our communities mainly depend on farming and agricultural activities. To assist and enhance their means of sustenance, we provide our support through capacity-building sessions on agriculture and allied activities. Through these, we make them aware about modern techniques and use of pesticides and fertilizers on the crops. We foster collective growth of these farmer groups by conducting farmer camps, where they share their knowledge on procurement of inputs and economies of scale.

During the reporting period, we successfully conducted vocational and technical skill development training, benefitting 2,583 and 637 people respectively. We cover a diverse range of categories as part of our training sessions, viz. motor-repairing, shoemaking, carpentry, poultry training, bag-making, repair of electronic goods and sanitary napkin-making. These trainings impart knowledge amongst the community members and provide them with a source of livelihood. During the reporting period, we trained 626 aspirants and conducted capacity-building programmes for 993 people. Our initiative at Aditya Birla Rural Technology Park helped us organise trainings for more than 32 batches.

Expenditure on Sustainable Livelihood Projects (INR Lakhs)

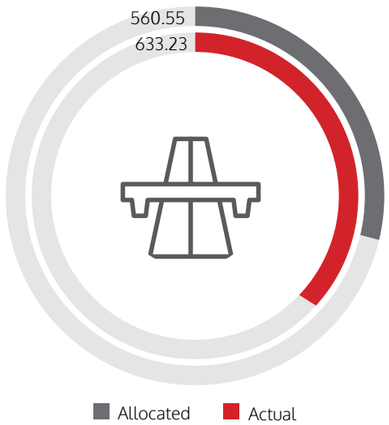


Impact of Initiatives - Educational Sector		
Initiatives	**Unit**	**FY 2019-20**
Vocational Job-Oriented Skill Training Programme	No. of Beneficiaries	5,498
Technical Skill Training	No. of Beneficiaries	637
Farmers meeting / Melas	No. of Farmers	20,913
Distribution of Agriculture Tools, seeds, fertilisers and insecticides	No. of Farmers	5,216
Animal Immunisation	No. of Cattles	50,676
Self-Help Groups Formed	No. of Groups	82

Infrastructure Development

With an aim to contribute towards raising the standard of living of our people, we focus on infrastructure development. Lack of proper road connectivity and infrastructural amenities have been perennial concerns for the rural population. To improve on these areas, we assist in development and construction of village approach roads, culvert, panchayat bhawan, ponds, bathrooms, protection walls, channels, rural houses, check dams and bus stops, among much more.

Expenditure on Infrastructure Development Projects (INR Lakhs)

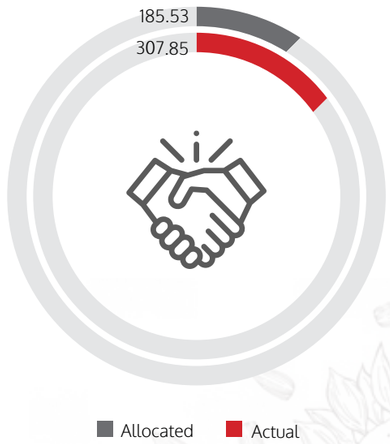


Supporting Social Causes

Our 50 years of working for the underprivileged is a testament of our efforts. We believe social reforms are the instruments of change for our society. With this thought, we focus on bringing a behavioural change through our efforts. We work towards eradicating child labour, child marriage, women abuse, dowry and illiteracy. We also take steps to curb alcoholism and eliminate poor hygienic practices. To bring in positive change, we extend our support by conducting and participating in cultural programmes and sporting events.

We successfully conducted 286 social awareness camps, thereby benefitting 51,306 people. We also conducted seven dowry-less mass marriages and solemnised 1,338 marriages during the reporting year. We also distribute blankets to the needy people; during the reporting period, we distributed 8,951 blankets. We also render support to orphanages and old-age homes; this year, we supported seven orphanages/old age homes, having 289 residents.

Expenditure on Supporting Social Causes Projects (INR Lakhs)



Impact Assessment and Review Process

We conducted a social audit to measure the impact on communities after establishing UAIL in the state of Odisha. This was done via a framework for impact assessment and a review process.

For this purpose, we collaborated with Xavier Institute of Management, Bhubaneshwar. The study evidenced a significant impact of the establishment of UAIL on the development of the community. One of the major positive impacts was the generation of opportunities for local people, in the areas of agriculture, infrastructure, economic status, education, accessibility and healthcare.

The impacts as a result of the establishment are given as follows:

01

Average annual household income has gone up from Rs. 24,520/- in 2005 to Rs. 68,200/- in 2018.

02

Average annual household expenditure has gone up from Rs. 25,110/- in 2005 to Rs 64,325/- in 2018.

03

Percentage of pucca houses in the area has gone up to 35.16% in 2018 as compared to 4.39% in 2005.

04

Percentage of electrified households has gone up to 91.56% in 2018 as compared to 17.08% in 2005.

05

There has been a significant increase in the standard of living, literacy rate, education and quality of life.

06

Accessibility to basic amenities, such as medical assistance, housing, safe drinking water and transportation, has increased.

07

Due to the establishment of UAIL, migration of people has significantly decreased.

08

The results obtained revealed the development in five focus areas through our initiatives and helped communities become more resilient.

Empowering Women Through Skill-Building and Gainful Employment in Garment Manufacturing at Tikiri

Lack of education and requisite skills render the female population in the remote areas of India unemployed. Due to this, opportunities for engagement with them are limited, and they find it difficult to supplement their income to make a decent living. In order to address these concerns of unemployment and skill development, setting up of an advanced garment manufacturing unit at Tikiri was proposed. This initiative took shape in collaboration with Tikiri agro-craft producer company, Shakti Social Cultural and Sporting Organisation and Utkal Alumina International Ltd.

The following steps were taken as part of this initiative:

- A garment manufacturing unit was set up with 30 advanced JUKI machines, cutting machines, buttonhole and button stitch machines, feed-up of the arm machine and fusing machine, to name a few.
- The selection of women was done based on case work and group work. Through this process of filtering in and out, a list of 42 women members from 14 villages were finalised.
- Prior to inducting the beneficiaries into the Garment Production Centre, a number of meetings, interactive sessions and one-to-one discussions were held with them explaining the objectives of the programme and the way forward.
- Training and capacity-building sessions were conducted on basic sewing and stitching techniques, product development, and soft skills trainings, followed by monthly monitoring and evaluation of their performances aimed at identifying improvement areas.
- During the course of this initiative, some challenges were also encountered with respect to the repair and maintenance of machines, hiring of quality of professional trainers due to remote locations, and ensuring quality of production. These were overcome through timely interventions by the CSR team.
- Till date, 62 women have been trained and 30 women are earning their livelihoods from this unit. Their monthly earnings range between INR 6,000 and 7,000.

Going forward, there are plans to replicate the same project in the peripheral area of Utkal Alumina. After successful completion of few business cycles, Utkal Alumina plans to set up another garment manufacturing unit of this kind in mines periphery.

Encouraging Commercial Vegetable Farming under Project Samriddhi at Utkal

Agriculture is the primary source of income for farmers residing in the villages of Bilamal, Tikiri, and Rayagada. They cultivate traditional crops like maize, ragi, millets and arhar once every three years on a rotational basis. Through these agriculture activities, they managed to earn approximately INR 7000 to 8000 from an acre of land. Aiming to improve the agricultural income of the farmers, a few initiatives were taken, as described here:

- Selection of 0.25 acre of up or medium land
- Ensuring irrigation throughout the year and planning crop rotation
- Capacity-building of the beneficiary
- Growing of off-season crops and short-duration greens and coriander crops
- Providing expert services for crop production and water distribution management
- Providing market for produce in the nearby areas

These steps led to cultivation of different varieties of vegetables including tomato, brinjal, cauliflower, cabbage, bean, chili, greens and coriander round the year in the three seasons. Through this initiative, a rise in income was observed with the annual earning at INR 40,000.

Project Samriddhi (Commercial Vegetable Farming) was awarded at the 7th Asia Best CSR Practices Awards 2017 on World CSR Day on 2nd August 2017 in the category of Community Development Project of the Year.

Project Samriddhi: Commercial Vegetable Farming Initiative

Rainwater Conservation Through Repairing/Desilting of Earthen Check Dam at Renusagar

Check dams are the primary source of irrigation in the villages of Ranhore, Lojhra & Makra. They play a crucial role in multiple cropping, which increases the village economy. These check dams were developed to help the villagers carry out double cropping and conserve water, especially during the months of February and March. This water was also helpful for the cattle & other domestic uses.

But due to decade-old construction and lack of maintenance, a large amount of silt had accumulated in these dams and a leakage had occurred, thereby resulting in reduced rainwater conservation in those areas. The agriculture pattern of those villages was rain-fed & the farmers were only able to cultivate mono-cropping during the monsoon.
To deal with this issue, desilting and repair work was carried out at the check dams. A participatory approach was adopted, involving the local people and under the supervision of Gram Panchayat, to carry out work in the catchment area. This initiative led to an improvement in water availability and enables farmers in the village to carry out multiple cropping.

Further, HIL-Renusagar conducted a CSR survey of its adopted working villages through the Xavier Institute of Social Service (XISS), Ranchi. The XISS team visited these villages and found that local residents find check dams prepared by the Renusagar Power Division fruitful for their livelihood and livestock.

Reliable

95 Employee Stewardship
116 Product Stewardship
123 Customer Centricity
125 Supply Chain Management

Employee Stewardship

We believe that our employees are the key to our accelerated long-term success in being a market leader in the metals and mining sector. The diverse, skilled, experienced and highly committed workforce has always been a constant source of our business strength. As a reliable employer, our focus is to attract talented individuals by offering them challenging opportunities and developing an employee-friendly workplace. Moreover, ensuring equal opportunities while facilitating growth with integrated learning and development programmes enhances their leadership capabilities. We continue to follow our HR Management Framework, to focus upon aligning human capital with our overall business goal.

In addition to the HR Management Framework, we have introduced the Hindalco People Framework 1.0. The framework is based on the three pillars of Culture, Communication and Engagement, which define the professional life cycle of our employees. Built on openness, transparency and collaboration, our culture is reinforced through regular two-way communication and capacity-building, among other initiatives. These facilitate us to adapt a more holistic approach around our values of integrity, commitment, passion, speed and seamlessness.

Our aim is to become a greener, stronger and smarter business. Keeping this in view, multidisciplinary teams of technical experts, scientists and engineers assist us in developing our behavioural, functional and technical competencies. The interventions provide opportunities to all our employees through job exposure, projects, coaching, mentoring and classroom trainings. Our human rights policies and procedures are internally available and regularly reviewed by our management at both the plant and corporate levels. Our HR strategy encompasses manpower productivity, talent development, employee retention and best-in-class learning opportunities.

Built on openness, transparency and collaboration, our culture is reinforced through regular two-way communication and capacity-building, among other initiatives. These facilitate us to adapt a more holistic approach around our values of integrity, commitment, passion, speed and seamlessness.

Key Highlights of FY 2019-20

3.1%

Employee attrition rate

6.81%

Females in management positions

85%

Employee engagement score (Vibes 2019)

667

New hires (total)

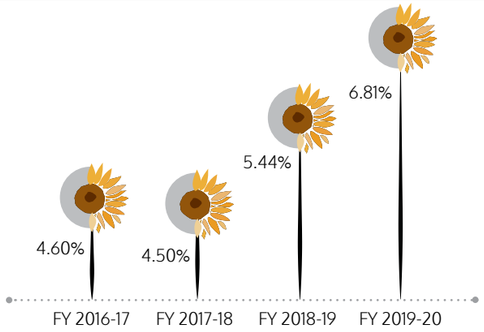
Introduction of Hindalco People Management Framework.

Diversity and Inclusion

We provide equal opportunity to all our employees, irrespective of culture, nationality, religion, caste, creed, race or sexual orientation. This has encouraged a culture of diversity and inclusion at our organisation. As part of the Hindalco People Framework, we have channelled our efforts towards increasing the gender sensitivity and have incorporated gender intelligence sessions for various grades of employees. Additionally, we support our women employees through self-motivation programs, assist them in developing financial acumen, and ensure their safety through our stringent Prevention of Sexual Harassment (POSH) Policy. We also support them through a robust maternity policy to ensure their healthy well-being.

We seek to develop a safe and trustworthy workplace and have a zero-tolerance policy against any form of workplace harassment. Our Internal Complaint (IC) Committee is institutionalised across all our units and office locations, ensuring compliance with the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013. All circulars released by the IC are communicated to all our employees. All our employees have access to portals and helplines to report any violations. Furthermore, we provide relevant insights with respect to the Act and POSH policy to all our employees through a mandatory e-learning course. This course is available on the 'Gyanodaya' portal and a course completion certificate is provided post completion. During the reporting period, 100% of our employees have completed the e-learning course on POSH.

Women in Management Positions (%)



40%

female recruitment at Graduate Engineer Trainee (GET) level

In our observations, we found an increase in the number of innovative ideas across our operations due to the increase in diversity. During the reporting period, we started a second phase of training of second layer leadership. This training was focused on developing gender intelligence and generation intelligence in our managers.

Organisation Effectiveness

Organisation effectiveness facilitates value addition to enrich our human capital. We have developed organisation integrators that align our employees with the organisation's values and purpose. Various initiatives like value month celebration and value café are taken to integrate the values in our employees. Change agents develop the organisation's capacity to reshape our culture and facilitate change management. Additionally, the initiatives and processes for effectiveness are managed by key enablers and leadership team.

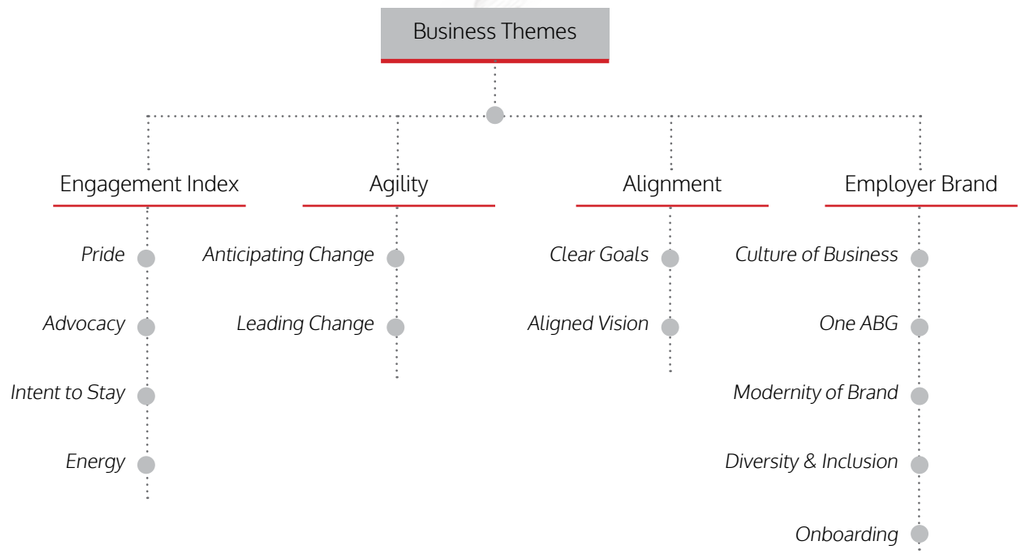
Key Enablers and Leadership - Main Tasks

Implement initiatives such as

ABG Awards, Pratibha scholarship programme, AWOO campaign, wellness programmes for employees and their families.

Operationalise Value Standards committee at business and unit levels. Train committee members to carry out enquiries in a systematic way.

Operationalise POSH Committee and train Internal Complaints (IC) Committee to carry out communication and processes as per regulatory requirements.



We conduct the employee engagement survey 'Vibes' through a third-party agency. This survey is conducted periodically throughout our business units. In FY 2019-20, we achieved 96% employee participation. The ABG survey model facilitates in understanding employees' perspectives on various parameters, such as agility and alignment, employer brand, performance culture in the organisation, development & career opportunities, and manager effectiveness.

The survey is conducted with the following objectives:

- To understand what energises employees to deliver their best and seek their opinion on work culture and environment, values and performance enablers
- To measure key workforce capabilities that support the desired organisational culture
- To continue tracking performance on work culture and environment, and key performance enablers

The results are than compared with group-wide, country-wide, and globally high-performing (GHP) organisations' scores to better understand the key improvement areas. Results of the survey conducted during the reporting period found that there has been an increase in talent attraction, improvement in resourcing, and strong manager performance throughout the organisation. Additionally, our team is focussed on the parameters identified as having room for improvement. Our total employee count in India reached 23,751 in FY 2019-20. On-roll workmen form the bulk of our operations, at about 66.9%. We observed a decrease in our attrition rate from 4.10% in FY 2018-19 to 3.10% in FY 2019-20. Additionally, there were 667 new hires, 69.71% of which fall under the category of less than 30 years of age.

Key Highlights of Vibes 2019

02

Alignment is strong, performing above high-performance norm

04

Almost all parameters were observed to be above the GHP norms

01

Hindalco tends to outperform high-performance norms

03

Agility tends to perform above the GHP norm

05

Longer-tenure employees show higher scores than those with lower tenure

Business-wise details of our workforce are provided in the table below:

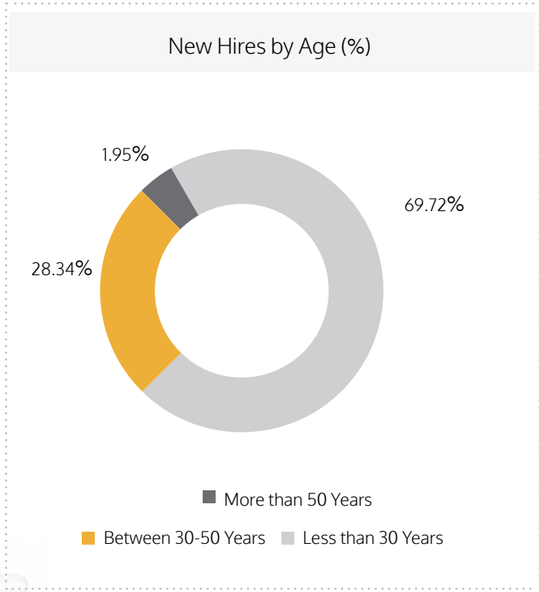
	FY 2019-20		
	Aluminium and Mines	Copper	Total
Total Manpower Strength (Management Staff and Workmen)	22,206	1,545	23,751
Number of Management & Staff	7,335	502	7,837
Number of Management & Staff (Male)	6,867	470	7,337
Number of Management & Staff (Female)	468	32	500
Number of on-roll workmen	14,871	1,042	15,913
Number of on-roll workmen (Male)	14,776	1,038	15,814
Number of on-roll workmen (Female)	95	4	99
Number of contract workmen	27,339	3,272	30,611
Number of contract workmen (Male)	26,056	3,110	29,166
Number of contract workmen (Female)	1,283	162	1,445

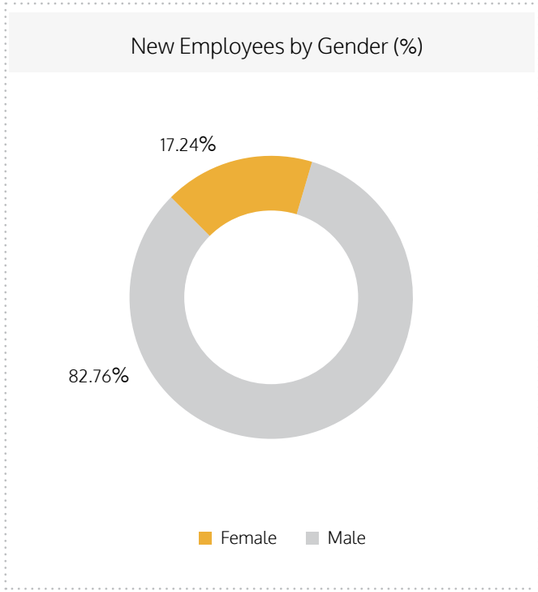
	FY 2019-20		
	Aluminium and Mines	Copper	Total
Total employees hired	626	41	667
Employees hired – Male	512	40	552
Employees hired – Female	114	1	115
Employees hired (> 50 years old)	13	0	13
Employees hired (30-50 years old)	160	29	189
Employees hired (< 30 years old)	453	12	465

Management Employees (Age - wise)			
Year	>50 Years	30 to 50 Years	<30 Years
FY 2016-17	1,070	2,287	605
FY 2017-18	1,140	2,380	508
FY 2018-19	1,188	2,395	473
FY 2019-20	1,232	2,436	598

Staff Employees (Age -wise)			
Year	>50 Years	30 to 50 Years	<30 Years
FY 2016-17	526	2,021	925
FY 2017-18	573	2,086	949
FY 2018-19	606	2,053	945
FY 2019-20	648	2,019	913

We have focussed on improving the diversity in our industry. Consequently, we have increased the number of new female hires from 13% in FY 2018-19 to 17.24% in FY 2019-20.





Our employee-friendly policies and career growth prospects have resulted in a turnover rate of 7%, which is a considerably good employee turnover rate for the industry. Details of the employee turnover for FY 2019-20 are provided in the table below:

Category	FY 2019-20			
	Aluminium and Mines	Copper	Total	Rate (%)
Total employee turnover	522	33	555	7
Employee turnover -Male	492	29	521	7.1
Employee turnover -Female	30	4	34	6.9
Employee turnover (> 50 years old)	182	7	189	10
Employee turnover (30-50 years old)	176	14	190	4.2
Employee turnover (< 30 years old)	164	12	176	11.8

Employee Care and Human Rights

We believe that our values act as a foundation of a reliable and responsible organisation. They help us conduct business operations, whilst respecting the human rights and the dignity of our people. We believe in providing equal opportunity employment and propagating a work environment free of any forms of discrimination. Our employee portfolio consists of two expats from the United States of America, apart from our Indian employees.

We support our workers' right to collective bargaining, and have observed worker unions at all our operating locations. We have recognised about 65.87% of our total workforce covered under the provision of collective bargaining. This helps us ensure transparency with and trust of our entire workforce. We have developed long-term relationships with unions and follow prevailing labour legislation at the national and state levels for all settlements. Health and safety topics for operations at all respective locations are covered in our agreements with the trade unions. No significant risk of violation of right to collective bargaining was identified throughout our operations during the reporting period.

We are committed to respecting and upholding the human rights of all our stakeholders. Our Human Rights Policy reinforces our commitment and guides our consequent actions. Our defined due diligence process enables us to identify potential risks related to human rights, covering both our employees as well as the communities surrounding our locations.

We conduct this process annually, with the support of the risk management team, through a company-wide risk register. We also have a labour and human rights due diligence checklist in place, which is used in identification and assessment of human rights related risks. These assessments cover all major groups associated with the organisation, such as employees, local communities and indigenous people surrounding the units, migrant labour and contractual labour. Detailed monitoring is conducted at all our sites to identify any risks, with respect to various human rights-related requirements such as no child labour, working conditions, minimum compensation, equal opportunity and freedom of association, among others. Additionally, we have developed a Human Rights Assessment Framework for all our facilities in the reporting period. Assessment of human rights-related risks is also a part of our supplier evaluation process. The legal team audits compliance to the Factories Act and labour laws, and presents its findings to the senior management.

To ensure compliance to labour rights, SOPs (Standard Operating Procedures) are in place at all our business units. Additionally, a grievance mechanism system is in place at all locations for our employees. In accordance with the Industrial Dispute Act, 1947, a Works Committee is formed for our workmen. The Works Committee is responsible for handling any kind of issue with relation to man, machine or material. It also focuses on areas such as health, hygiene, and sanitation of our workforce

Risk mitigation plans are developed to address the identified risks through corrective actions. Risk prevention may include awareness sessions and precautionary measures, and risk reduction is done through building capacity and safeguards, while risk elimination is achieved through modifications in the business processes.

A robust mechanism is in place against any cases of human rights violations in the organisation. Any violation may result in warnings, counselling, penalties and even terminations of employment, depending upon the severity of the case. To assist our mechanism, we have developed a Code of Conduct along with our policies which are applicable to all our employees, contractual employees and other partners across our value chain. The Code and our policies stress upon human rights issues, including child labour , forced or compulsory labour , sexual harassment and discrimination. All our employees have access to portals and helplines to report any case of human rights violations. All our contractors are issued ID cards to declare their personal information. We prohibit any form of child labour across our locations. Moreover, we have started conducting contract labour engagement surveys to take feedback from our contractual workforce. This allows us to avoid any form of human rights violations. In addition to this, trainings are provided to all our security personnel on basic human rights and organisational policies and procedures. During FY 2019-20, we did not report any incidents related to human rights violation or discrimination at any unit.

We seek to provide the best benefits to our permanent employees as per defined plan obligations. Medical insurance, residential accommodation at plants, group personal accident insurance as well as parental leaves are provided to all our employees as part of our benefit plan . All of our management and staff employees are entitled for parental leaves. All employees who availed parental leave during the previous reporting period are currently employed with us after 12 months of return to work. The following table provides details on parental leaves:

Parameters	Total
Total employees that took parental leave during FY 2019-20	346
Total number of employees that returned to work in the reporting period after parental leave ended (Male)	329
Total number of employees that returned to work in the reporting period after parental leave ended (Female)	11
Total number of employees that returned to work after parental leave ended that were still employed 12 months after their return to work (Male)	365
Total number of employees that returned to work after parental leave ended that were still employed 12 months after their return to work (Female)	6

We treat all our employees without any discrimination and provide equal benefits to all. Ratio of basic salary and remuneration for women to men during the reporting period was 0.82:1 for management grade employees and 0.92:1 for non-management grade employees. Industry-wide benchmarking is carried out periodically, while also considering the job roles to develop a remuneration structure. Views of all the relevant stakeholders are considered while revising the remuneration structure.

We believe that transparency is key to develop a responsible and reliable organisation. We take care to notify all our management staff at least 3 months in advance about any significant changes in our operations. We also notify all our workmen about these changes, as per the requirements of local regulations. Additionally, trainings are provided on aspects related to skills, business objectives and values for better effectiveness and contributions. We ensure that all our units are 100% compliant in terms of local and national laws, minimum wages, payment of wages and the Factories Act and all other prevailing regulatory requirements

Review Framework

We have developed a robust 3C + 2S review framework based on the 3Cs -Customer, Cost and Cash. These form the pillars of the framework. Across these pillars, Safety and Sustainability and Systems and Processes (2S) are ingrained by our determined efforts. We focus on improving employee productivity across multiple areas of our business, such as operations, cost efficiencies, safety, sustainability and systems and processes with the help of this framework. We ensure that every member of the workforce is aligned with the organisational goals of driving cost efficiencies.

Performance Evaluation

Our performance evaluation and review system enables us to optimise productivity of our employees, whilst reducing complexity and making us more agile and reliable. This system involves a goal-setting process and performance review for each financial year. The goal-setting process helps the employees to align their goals with that of the organisation. A system and technology are built to ensure 100% coverage through managerial conversations on career and development. The employee feedback surveys indicate that almost all our managers have a conversation with employees to provide regular performance and career development review. We have also introduced a tool called 'PingME 18-19'. This tool helps us capture real-time and continuous feedback from multiple stakeholders. During the reporting period, the usage increased from 35% to 65%. Our focus is to achieve complete penetration of this tool throughout the organisation in terms of usage.

We have developed a potential assessment framework during the reporting period, for our JB 10 & 11 employees to determine their personality and competency characteristics. This facilitates us to identify and develop talent at the junior management level and maintain a healthy succession pipeline.

Additionally, we have modified our systems to treat all our employees in an equal manner and without any categorisation. This helps us ensure higher transparency and fairness in the performance evaluation systems.

Learning and Development

We emphasise on the all-round development of our employees. We focus on providing various state-of-the-art training programmes to develop technical, functional as well as behavioural competencies of our employees. We impart technical trainings to employees involved in our core operations, whereas functional trainings are provided to various departments focussing on their respective functions. Our behavioural trainings focus on developing communication, leadership and soft skills of our employees.

Our Training Needs Identification (TNI) process forms an integral part of our annual performance management system, and is supplemented by a training planner at the business level after seeking requisite inputs. The TNI process factors in review of organisation-wide

learning priorities in consultation with top management, analysis of "My Development Plan" for individual employees, and discussions with business and unit heads based on their requirements. Further inputs from unit HR teams on specific competency focus, performance management, potential assessments and DACs are also taken into consideration while assessing the training needs. In addition to this, we have a competency dictionary in place, which assists in defining competencies for respective job roles. This dictionary is available for technical job roles, especially considering the engineers enrolled at the management level.

We are committed to providing high-quality learning and leadership solutions to our senior leadership. ABG's exclusive leadership centre, Gyanodaya, is used to deliver learning interventions for our senior leadership, in line with our strategic vision and leadership solutions. Additionally, we also have initiatives focusing on our culture, and life-enhancing and technical learnings, such as:

- Behavioural competency programmes (Vision & Strategy, Business Acumen, Teamwork & Collaboration, Develop Oneself & Others, Innovate & Improve, Customer Focus, Get Results, Communicate to Influence & Engage)
- Life enhancement programmes (Turning a New Leaf - a week-long special intervention for retiring employees with spouse, Gender Intelligence - to educate employees about gender sensitisation)
- Wellness programmes (Live Well Series I - awareness program for physical well-being, Live Well Series II - awareness program for emotional well-being)
- Competency development programmes for senior and middle management through Hindalco Technical University

Turning a New Leaf is a week-long special intervention by Gyanodaya for our retiring employees. The individual and their spouse jointly participate in this unique intervention, due to the spouse's importance in the individual's life. This endeavour helps to prepare for the new phase of life post-retirement. It focusses on preparing a transition plan and helping the individuals make the most of the new phase. This includes using questionnaires, spousal feedback, experience-sharing and interaction with peers and experts. Additionally, it aims to raise awareness on topics concerning health, wealth, legislation and networking.

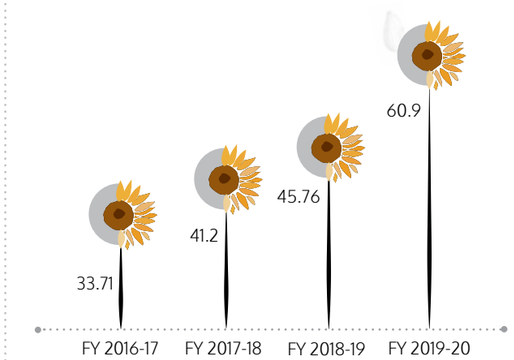
We have introduced customised training interventions for various levels across the organization. Some of these segmented programs are FLY - FUTURE LEADERS IN YOU for Junior management aimed at building a development journey to make them successful in their current role and prepare them for future role. The other program called General Management program " Lead from Middle " has been designed to strengthen the leadership pipeline for mid-level managers who already are leading teams in their respective functional areas. We also launched a second batch of " Executive Presence" as part of Chairman Series in partnership with Gyanodaya for Senior Leadership team. This program focuses on Hindalco Leaders who are best in class functional Experts in a ever changing global Environment that calls for these leaders to display executive presence.

Being a technical industry, developing the technical skills of our employees is of the utmost importance. Keeping this in mind, we formed the Hindalco Technical University in November 2017. The university provides access to various training programmes to develop technical as well as analytical competencies of our employees. These programmes assist them in developing thorough knowledge of the industry processes and operations related to their respective departments.

We measure the impact and effectiveness of the training programs as received part of the feedback process from our enterprise learning management system and other forms of pre and post assessments built into the program design. A third party is engaged to asses the talent capability of our Senior Leadership Team.

We have been exceeding our target of achieving an average of 40 hours of training per employee by FY 2019-20 for the past 3 years. To achieve this feat, we had planned more than 60 hours of trainings per employee during the reporting period. We now aim to continue minimum 60 hour of training per employee every year, including FY 2020-21 The four-year trend of the average hours of trainings per employee can be seen below.

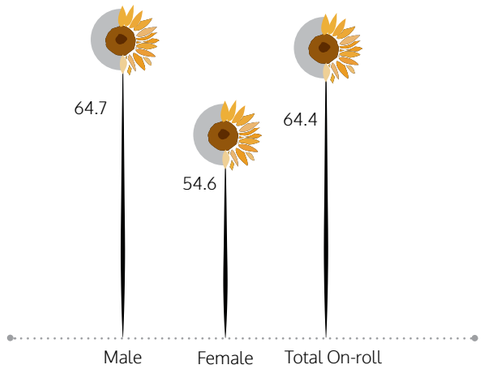
Average Hours of Training Per Year Per Employee



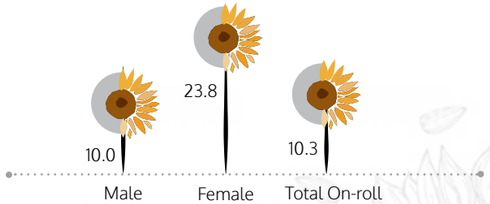
Details of trainings provided to our employees during the reporting period can be seen below

Category	Aluminium and Mines	Copper	Total
Total training man-days	180,924	3,261	184,185
Training man-days (Management & Staff)	53,070	1,584	54,653
Training man-days (On-roll workmen)	127,854	1,677	129,531

Average Training Man-Hours - Aluminium & Mines



Average Training Man-Hours - Copper



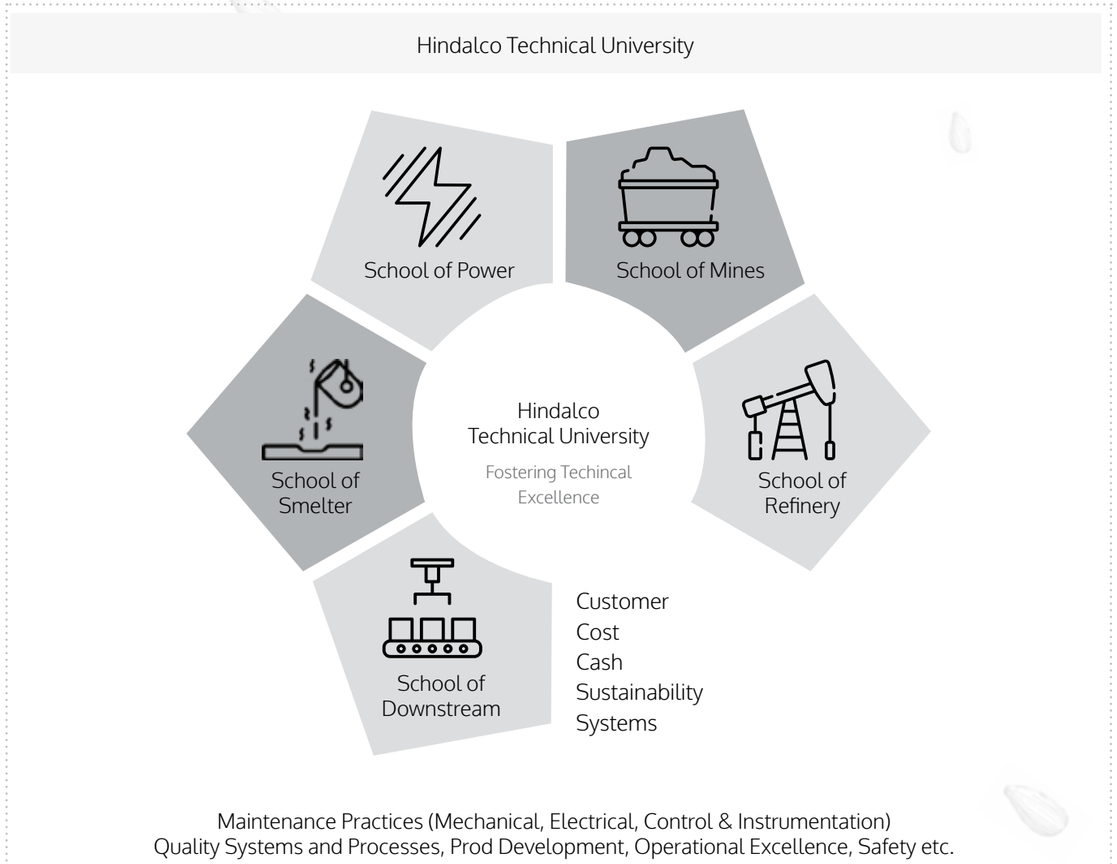
In addition to the classroom training programmes, we have developed e-learning modules for all our employees. These have been developed based on various basic functional and technical skills as well as business morals and values. Specific modules have also been designed on topics like human rights policies and procedures followed within the organisation. The number of e-learning hours recorded throughout the reporting period can be seen below:

Total e-Learning Hours			
	Aluminium and Mines	**Copper**	**Total**
Management & Staff Employees	12,587.65	501.18	13,088.83

Hindalco Technical University

Out of the total 8,013 employees at our managerial and supervisor levels, 80% fall under the technical category. Enhancing their technical expertise and contributing towards their skill development form the basis of our business sustainability. Taking a step further in this direction, we inaugurated the Hindalco Technical University in November 2017, in partnership with global think tanks and different organisations. HTU aims for rapid adoption to industry levels, expansion by setup of 3 mega-greenfield projects, and addressing issues of lack of uniform product standards, quality and technical parameters. With a vision of becoming the "One-Stop Technical Solution Provider for Aditya Birla's Metal Business by 2025", the university aims to become a hub for all technical solutions and develop a pool of technical expertise in-house with the help of best-in-class institutes and consultants. The university was developed to foster technical abilities in our employees through company-specific as well as general training programmes. The main objectives of the university are:

- To be a pillar in Hindalco's strategy to achieve higher productivity
- To be a central platform for standardised technical training
- To prepare Hindalco for future technical challenges

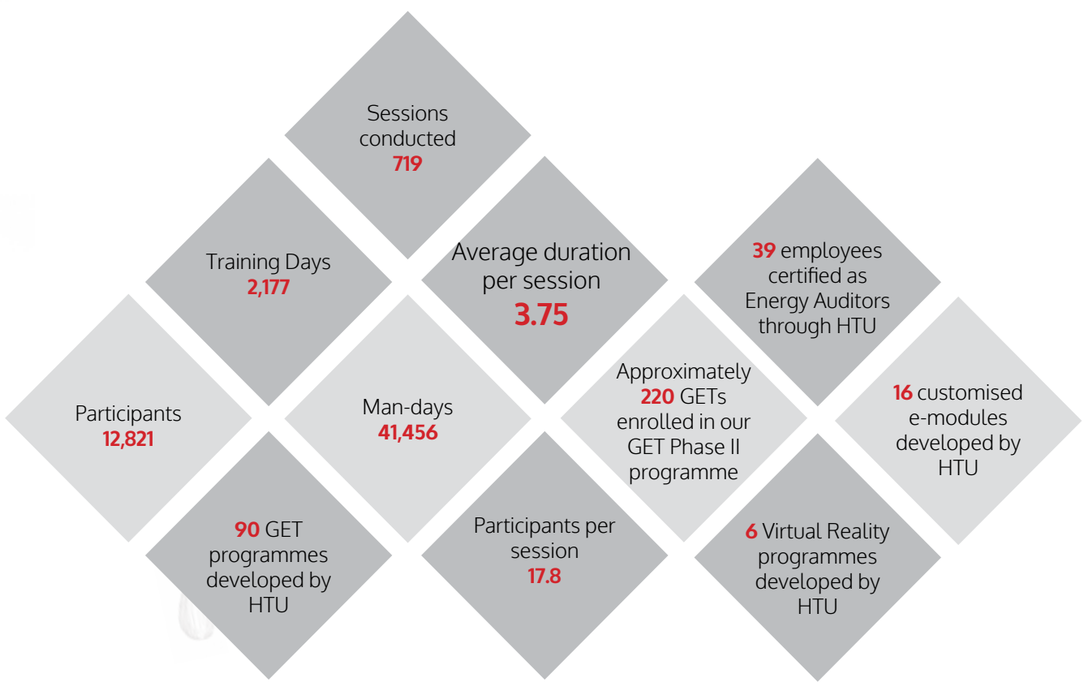


As part of the Hindalco Technical University, all our employees have access to technical programmes that are developed through various industry-specific requirements. The training requirements are understood based on stakeholder consultations, study of global companies, survey of MCE and inputs from the Heads of Departments.

Our mainstream engineers are eligible for corporate-level technical programmes, general technical programmes and various certification programmes. The corporate-level technical programmes include training in Lean Six Sigma, Theory of Inventive Problem Solving (TIPS), Reliability Engineering and Project Management. Meanwhile, general technical programmes increase knowledge of industry-related processes. These include trainings based on refinery, rolling, extrusion and power plant processes. Additionally, function-specific programmes such as aluminium-specific programmes, and mechanical, electrical and instrumentation Engineering programmes are also available. The certification programmes consist of certifications in Plant Engineering, Energy Auditor, Maintenance & Reliability, Six Sigma and Innovation. It also includes providing graduate degrees to our diploma-level professionals and post-graduate degrees to our graduate professionals. Moreover, all employees joining Hindalco with up to 3 years of work experience are enrolled into the Jumpstart programme, which includes technical and analytical programmes.

We plan to focus on workmen skill development in the future. This phase of development will be called HTU 2.0, and aim to develop training programmes, e-modules, video nuggets, HTU Skill Development Centres, certification programmes and knowledge-sharing programmes, based on skill requirement for all our workmen. Additionally, it aims to introduce B. Tech courses on Aluminium Engineering in collaboration with UGC for our diploma engineers. This would be a specialised course for people working in the aluminium manufacturing industry.

HTU's Journey So Far



Young Professional Development Programme – Jumpstart

The young generation is the future for Hindalco. We have introduced the Jumpstart development programme for all our GETs recruited in the organisation as part of the Hindalco Technical University. This programme is designed to develop business as well as technical knowledge for a period of three years. The three-year development plan aims to develop technical and analytical skills along with systematic problem-solving skills through various technical courses and Six Sigma courses (Green Belt & Black Belt). In the first year, the participants undergo four months of technical trainings, followed by six months of on-the-job training. The second year provides basic industry specific courses, along with department-specific courses. The Six Sigma Green Belt course is parallelly conducted in two phases. The final year provides function as well as department-specific advanced courses, along with the Six Sigma Black Belt programme. Such a comprehensive plan helps develop an overall technical expertise in a phased manner across all three years, imparting knowledge of all processes and operations. Additionally, the participants are required to develop technical as well as business development projects related to their function during the second year of the course, under the mentorship of their senior managers. These projects, which are part of their assessment, are pre-identified through discussion with the senior managers and HODs of the functions. The focus is on finding solutions for existing problems within the functions. After the completion of the programme, the participants are provided with Lean Six Sigma Green Belt as well as Black Belt certifications. We have implemented the innovative ideas emerged due to these courses in our operations.

Hindalco Coaching Programme – Building and Enabling Organisation

The Hindalco Coaching Programme was developed in FY 2018-19 in partnership with Gyanodaya and internationally recognised coaching and leadership development institutions. The focus of this program is to enhance and promote a coaching culture and coaching style of leadership in our future leaders.

Technical Career Path (TCP)

Being a large manufacturing organisation, technical and technological expertise are vital to gaining a competitive advantage in the marketplace. This requires specialised capabilities in key technical areas by designing specialist jobs, building a specialist ecosystem and actively nurturing specialists. Specialist jobs are highly knowledge-centric and specific to the core of the organisation. Due to the small number of such specialists, we focus on developing home-grown technical specialists in a few areas. With business and external market conditions getting more complex, the need to develop, nurture and retain officials with specialised skills is crucial for business growth. Hindalco has come up with a Technical Career Path to cater to such needs, instead of the managerial career path.

Technical Career Path

JB 1,2 — Fellow

- Pan-India/Global/Industry
- Experience- 25+ years
- Contribution - Society + Industry + Mentoring

JB 3,4 — Distuinguished Engineer

- Pan-India/Global/Industry
- Experience- 20+ years
- Contribution - Society + Industry

JB 5,6 — Sr. Principal

- Cluster/Pan-India/Global
- Experience- 15-20 years
- Contribution - Society + Industry

JB 7 — Principal Engineer

- Unit/Cluster/Pan-India
- Experience- 10-15 years

JB 8 — Lead Engineer

- Unit/Cluster
- Experience- 7-10 years

Entry for Engineers at Higher Band in Specialist Roles

JB 9 — Sr. Engineer

- Unit
- Experience- 5-7 years

TCP Entry Point for JB 9, 10 Engg.

JB 10 — Engineer

- Unit
- Experience- 3 Years

Lean Six Sigma Training Programme

All the employees joining our organisation are exposed to various technical-cum-functional capacity-building programmes, including Lean Six Sigma courses, function-specific courses, project management and others. These are developed by the Hindalco Technical University, and are aimed at:

- Developing industry-specific skills focussing on innovation, problem-solving and strategy development
- Preparing our employees for current and future challenges of the business

The Lean Six Sigma programme is designed to provide on-the-job implementation of the skills gained during this course. The projects developed by the participants are based on current challenges in the business. They are identified after consultation with the managers and HODs, while trainings are conducted parallelly with project development. The projects developed during the course were implemented and provided financial as well as business advantages. A project charter is developed for each of these projects. The project charter outlines the goal and objective of the project whilst defining the problem statement. It also outlines the scope & boundaries of the project and delineates the roles and responsibilities of the stakeholders. The timelines and the stakeholders involved in the project are also clearly defined as part of the charter. The charter acts as a contract between the organisation, project team and other key stakeholders involved with the project. The template of our project charter can be seen below.

GET Six Sigma Training Session

GET Six Sigma Training Batch

Template of Project Charter

Project Charter

Business Gap

The Business Gap is defined in the project charter. This defines the major reason, and need of the project to be implemented and how is it useful to the organization.

Customer

The customers associated with the project (external/internal are defined in this section

Defects & Metrics

The defects, and issues related to the defect/ problems is defined in this section.

Consequential: The consequences the organization may face due to ignorance of the proble

Problem Statment

General problem statement is defined surrounding which the project is developed

Objective Statement

The objective to be achieved post completion of the project is defined in this section

Financial Impact

Estimated Positive financial impact of the project to the organisation (if any) is described in this section

Milestones/Timeline:	Scheduled	Actual
Start of the project	xx/xx/xx	xx/xx/xx
Multiple Reviews	xx/xx/xx	xx/xx/xx
Closure	xx/xx/xx	xx/xx/xx

Project Scope/Boundaries

Scope and boundary is clearly defined in this section
Out of Scope: Any activities not part of the scope is defined in this section.

Team Members

Names of the members of the team is specified in this section with the name of the Champion.

Building Resilience During COVID-19 Pandemic

Towards the end of the reporting period, the country entered into a lockdown to contain the spread of coronavirus. We were faced with many challenges, such as hindrance to operational continuity, high risk of exposure due to large volumes of employees and lack of awareness among external stakeholders. To ensure smooth functioning of our operations during these critical times, different teams were formed for different purposes, viz. COVID Task Force, Township Management Team, Quarantine Team, Sanitisation Team, Audit Team and Surveillance Team. Further, showcasing our ability to adapt and innovative, we undertook several initiatives to overcome these challenges.

- Organised online sessions related to stress management, counselling sessions, and recreational sessions for employees.
- Allotted separate timings for work and domestic chores to assist employees maintain work-life balance during the period of lockdown.
- Daily health monitoring of employees and their family members through the 'My Doctors Appointment' App.
- Supporting employees to fulfil their daily essential needs through centralised online vendor ordering.
- Arrangements for mass education through various avenues like broadcast messages, WhatsApp groups, unit-specific apps and visuals.
- A dedicated family buddy was allotted for quarantined families to support them in all their requirements and engage with them on regular basis.
- Among other initiatives, a barber shop was set up in the backyard for the employees while maintaining social distancing.

With these resilient measures, we adapted to the new normal in no time and continued to serve our customers through our efforts.

Water, Sanitation and Hygiene (WASH) Pledge

We reiterate our commitment of providing safe drinking water, sanitation and hygiene at the workplace by being a part of World Business Council for Sustainable Development (WBCSD) Water, Sanitation and Hygiene (WASH) Pledge aligning our sustainability goals to the United Nation's Sustainable Development Goals (SDG) 6.1 and 6.2 aim to achieve universal access to water, sanitation and hygiene (WASH) by 2050. With this aim, phase I of WASH Pledge was launched in January 2015 at 15 major units of Hindalco. WASH self-assessment questionnaire was filled in information technology programme, Enablon and the progress was monitored regularly across all sites. In December 2017, Hindalco's overall score was 1.88 which is the benchmark score more than Group target of 1.8. Phase II of WASH Pledge was launched in January 2018 and included additional sites taking the total sites to 42. Regular trainings are being arranged and we are on track to achieve group target compliance score by December 2020.

Product Stewardship

Product innovation and responsible business practices are integral to our operations at Hindalco. To develop and nurture a sustainable business, we constantly focus on innovation, excellence and quality in all the products that we develop. As part of the aluminium industry, we are among the top five aluminium producers, based on shipments, globally. We are an integrated producer with a strong base across the value chain. Our diverse downstream offerings, such as extrusions, flat rolled products, foils, wire rods and billets find application across various industries, ranging from automobiles, packaging, pharmaceutical, transportation, building and construction, to name a few.

We also have the largest custom copper smelter in the world. In our copper operations, we produce copper cathodes and continuous cast copper rods of various sizes. The copper rods find their application in wire, cable and transformer industries. Our products are also contributing towards the fight against the COVID-19 pandemic. Copper is emerging as a preferred metal when it comes to building components such as doorknobs and handles. This copperisation of the industry at large is due to the fact that the COVID-19 virus does not last on copper surfaces for more than four hours.

Keeping long-term reliability in mind, our R&D team designs and develops our products considering the inherent characteristics of the metals we produce. Properties of aluminium such as high recycling potential, light weight and high malleability make it suitable for varied applications. Some of the examples, such as development of aluminium bulker and aluminium wagon, represent our approach towards developing products with low emissions intensity during their lifecycle.

To develop and nurture a sustainable business, we constantly focus on innovation, excellence and quality in all the products that we develop. As part of the aluminium industry, we are among the top five aluminium producers, based on shipments, globally.

We continuously collaborate with industry experts to develop products that are greener, smarter and stronger. Some of our major collaborators include institutions and think tanks like different Indian Institutes of Technology (IITs), NITI Aayog, Jawaharlal Nehru Aluminium Research Development and Design Centre (JNARDDC) and the Institute of Minerals and Materials Technology (IMMT). These collaborations help us develop solutions for realising our vision of future-proofing our business operations.

Packaging is one of the major consumers of aluminium in India. Aluminium, by virtue of its properties, is considered a better substitute for conventional packaging materials such as glass, tinplate and paper. Our high-quality aluminium is considered superior due to its superior alloy composition and metallurgical properties.

Aluminium's excellent material properties such as formability, high strength-to-weight ratio, corrosion resistance, and ease of recycling, make it the ideal material for a wide range of building and construction applications. It, thus, provides the basis for intricate, stable and lightweight structures, while also allowing a high degree of pre-fabrication, with a variety of finishes. Our aluminium is made of virgin aluminium with a superior surface finish with exact dimensions, and meets all stringent quality standards. It is widely used in the construction of windows, doors and facades, and roofing and cladding. Eternia Aluminium Windows and Everlast Aluminium Roofing Sheets are some of our products. Due to their rust-free properties, they are suitable for all weather conditions and thus, require no maintenance.

Aluminium is also used extensively in the transport industry, accounting to an average use of 140kg of aluminium per vehicle in western countries, whereas it stands at 40kg per vehicle in India. This can be attributed to its high strength-to-weight ratio and excellent impact absorption qualities. Due to the superior alloy composition and metallurgical properties, our aluminium helps us meet the stringent performance parameters required for this industry.

Aluminium is widely used in industrial machinery for its non-pyrophoric properties, and its resistance to corrosion and high strength-to-weight ratio. Superior quality aluminium from Hindalco is used extensively in the automobile and rubber industries because of its resistance to corrosion. Aluminium alloys are also widely used in the manufacture of explosives and in the nuclear energy industry. Due to the high quality of our product, they are used in making the most precise industrial machinery equipment.

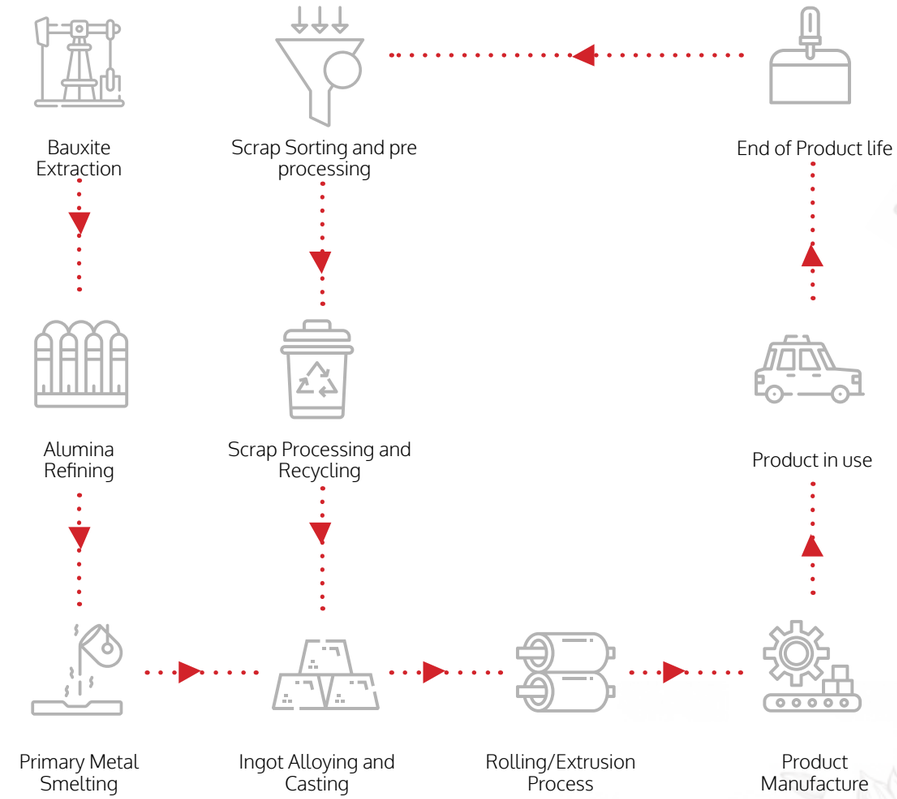
We consider the requirements of our wide customer base and focus on improving and modifying our processes to meet these needs. For example, in our aluminium business, we had revised our rolling practices by modifying the thermal treatments and pass schedule to increase the tensile strength of our LG foils, to meet our export customer requirements. Similarly, our naval customers require hard alloys of various thickness and temper. Due to the limitations of the cold rolling mill, meeting customer requirements was a challenge. The R&D team came up with the solution to manufacture this material from the hot mill itself, followed by sheet-cutting at Taloja. Weldability assessment of the material was carried out and after fine-tuning of the process, weld coupons were prepared. These coupons were tested for radiography and tensile properties. This led us to meet the requirements of our customers. Owing to our diverse portfolio of product offerings and wide customer base spanning sectors from pharmaceuticals and packaging to automotive and transport, it is essential that all our products comply with local and international product regulations, including codes, service information and labelling. All our products meet the compliance requirements of the markets, including those related to Environment, Health & Safety (EHS). During FY 2019-20, there was no incident of non-compliance concerning marketing communications , product and service information or labelling. All our products comply with local and international regulations concerning product and service information and labelling.

Life Cycle Assessment (LCA)

Responsible product stewardship is a key area of focus in our business sustainability strategy. We have taken cognizance of the fact that there are emerging environmental performance implications across geographies we operate in and thus our management has adopted sustainability measures as a new imperative for business growth. As a leading player in the Indian aluminium sector, the company has undertaken life cycle assessment (LCA) of multiple products to capture reliable scientific information for communicating the environmental performance of products to customers or retailers and more generally those requiring such information for environmental labelling purposes. This assessment was carried out as per ISO 14040/44 standards for one tonne of primary aluminium ingot and one tonne of aluminium cold rolled strips manufactured across Renukoot, Hirakud and Taloja units. The assessment was cradle to grave covering bauxite captive mines, transportation of bauxite, alumina refining, production of pre-baked anodes, aluminium smelting, aluminium casting, scalping, hot rolling, cold rolling, cogeneration plant, ETPs/STPs, and electricity generation at captive power plant covering all the upstream units of the company Environmental impacts were assessed in terms of global warming potential (GWP), acidification potential (AP), primary energy demand (PED), photochemical ozone creation potential (POCP), abiotic resource depletion (ADP) and ozone depletion potential (ODP).
The alumina refining and aluminium smelting processes were identified as major hotspots of the product's environmental impacts. The total global warming potential for one tonne of cold rolled strip was 25.25 tCO_2e. Various scenarios were developed for the identified hotspots to develop a roadmap leading to reduced impacts in the areas of electricity mix decarbonization, bauxite ore quality, energy efficiency, waste utilization and avoidable to landfill etc. With more than 65% electricity produced from coal power in India, the aluminium industry has reasonable impacts on global warming potential and a scenario was developed to substitute Indian electricity mix with European average mix and environmental impacts were compared with the published European Aluminium Association LCA.

The assessment helped us to prioritize our environmental initiatives. We plan to take up more such studies covering wider range of products across all our units. As a next step, we are also evaluating on publishing Environmental Product Declaration (EPD) of our construction/ structural application related products.

Aluminium Lifecycle



Our state-of-the-art Research and Development centres continuously innovate and develop our products. Our product development is based on the regular feedback received from our growing customer base. We have two R&D centres located at Belagavi and Taloja, both of which have received accreditation from Department of Science and Industrial Research and ISO 9001:2000. The Taloja centre is accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL), in accordance with the ISO/IEC 17025:2005 standard. Both these R&D centres are also associated with the Aditya Birla Science and Technology Company, as well as with external research institutions.

Given below are a few examples of our efforts in the research and development space:

Launch of Aluminium Freight Trailer

Hindalco launched India's' first all-aluminium freight trailer on December 2019. The trailer is one of our big initiatives for India's logistics and freight industry. At the heart of the initiative was Hindalco's intent to design sustainable, engineered transport solutions for the logistics industry.

The aluminium trailer is 34 feet long, 50% lighter and weighs over 2.5 tonnes less than an equivalent steel trailer. It can ferry a wide range of materials such as cement, alumina, fly ash, grains, flour, steel coils and cylinders. The high-strength aluminium alloy ensures that the vehicle is safe, strong, durable, efficient and environmental-friendly, in addition to being cost-effective. Each trailer saves over 15,000 litres of fuel and emits 25 tons less GHGs and helps in achieving BS-VI emission targets. It also has 70% higher scrap value.

We hope to continue empowering and creating value for our customers and nurture our environment through our aluminisation mission

Aluminium Freight Trailer

Development of Aluminium LPG Cylinder

Hindalco, in collaboration with the IOCL's cryogenic division (Fabrication) and LERC (Testing and Certification), is developing an aluminium LPG cylinder that meets the standards set by ISO 20703 and international benchmarks. The key challenge in this development is achieving consistent weld quality and optimising of heat treatment of fabricated cylinders. A batch of ten cylinders was tested at LERC in February 2020. The results indicated that the cylinders meet the requirements of the standard. Efforts are currently underway to develop Indian standards for this product and commercialise it in the domestic market.

Aluminium LPG Cylinder

Launch of Aluminium Foil-Laminated Jute Bags at Tirumala Venkateswara Temple, Andhra Pradesh

We are proud to be associated with Tirumala Tirupati Devasthanams in their effort to reduce usage of plastic during distribution of laddoo prasadam to devotees. On an average, about 3.5-4 lakh laddoos are sold at the temple premises per day, which translates into a requirement of around 70,000 plastic covers on a daily basis, as per estimates.

Tirumala Tirupati Devasthanams (TTD), the trust that manages the temple, has joined hands with us and the Jute Corporation of India (JCI) to roll out a pilot project on distributing prasadam in 100% recyclable aluminium foil-laminated jute bags. Hindalco and JCI have already applied for a patent for the process of aluminium foil lamination of jute.

As part of the pilot, JCI has opened an exclusive prasadam distribution counter for the sale of jute foil-laminated bags at TTD, and over 1 lakh metres of the laminated fabric or around 3 lakh bags were sold within two months of the initiative's launch.
The jute and aluminium bags for Tirupati laddoos are an alternative to plastic bags. They are an Indian innovation and an eco-friendly option for devotees. With the high demand for prasadam, the bags are a good way to reduce plastic pollution. As such, the green initiative is not only good for the environment but also it is providing employment to thousands of artisans in and around Tirupati, Telangana and Kolkata.

Currently, there are around 500 people making these bags. Hindalco's partnership with relevant stakeholders has been an innovative journey to find a unique and sustainable solution to plastic pollution. To further grow the initiative, we have already set up a capacity to process up to 50 lakh metres per annum of the material, which translates to around 1.5-2 crore bags annually, at our Mouda foil plant near Nagpur.

Re-Establishment of 19.6 mm Copper Rod Production for Manufacturing of 'Contact Wire'

Continuing with our efforts of serving our customer base with a wide range of value-added products, we began the process of re-establishing production of 19.6mm copper rod, which is used in railways for manufacturing hard drawn grooved conductor for OHE (Over Head Electrification), known as 'contact wire'. Stringent specifications are set by the Research Designs and Standards Organisation (RDSO) for the quality of this product, specifying the elongation requirement to be minimum 46% against the ISO requirement of 40%. Further, RDSO has partnered with RITES for third-party inspections. A very stringent inspection method is followed to arrive at the elongation results, wherein a 1mm gap cannot be accounted in the elongation test. In addition, various other challenges were also encountered. Establishment of 19.6mm copper rods with the existing set up, increased frequency of cobbles, decreased uptime for production, and increased frequency of cropping for mill inspection were some of the challenges faced during this course of time.
The following solutions were implemented to overcome these challenges:

- To modify the setup for production of 19.6mm, the gap between the Stand 2V to Stand 6V was increased. The exit guide gap was modified to meet the requirement, which led to a setup suitable for production of rods with a maximum diameter of 20.2mm.
- Maintained cast bar temperature at 860°C consistently to get the desired results.
- Increased rod coolant (NAPS) temperature from 45-55°C to 60-70°C by adjusting NAPS heat exchanger temperature.
- To avoid yellow/red patches on the rod, NAPS line individual stand flow and pressure were adjusted.
- To maintain lubrication of rod during coiling operation, wax return valve was modified during production of 19.6mm copper rod.
- Modified guide pipe to avoid physical touch with the rod to minimise line marking.
- Through precise control of CO, RDSO requirement of oxygen of 200-350 ppm is met.

Through these measures, we successfully re-established 19.6mm of copper rod production in the market, while meeting the RDSO's stringent specifications. It is the highest premium-earning product in our portfolio.

Redefined Plastering Solution 'TECHPLAST' by Renusagar Power Division

Renusagar Power Division (RPD) developed a plastering solution known as 'TECHPLAST' to provide an alternative to the conventional mortar (made of cement and sand). TECHPLAST is a "Ready Dry Mix Plaster" that contains ordinary Portland cement (OPC) and other high-quality ingredients. On account of its composition, it finds its application as an additive for inner and outer surface of masonry and concrete structure, as joint for bricks and as fillers for manual work. Users are only required to mix it with water in the prescribed ratio prior to its use.

This product has been manufactured in an eco-friendly manner using 60% of input waste material. It is a "GreenPro IGBC Certified" product and complies with requirements of IS 2250-1965, IS 1661-1972 and IS 2402-1963.

Customer Centricity

Throughout our journey at Hindalco, we strive to meet the expectations of our customers in each business area. Our efforts are backed by clear policies, rules and well-structured mechanisms. On our path of transformation towards a reliable organisation, we streamline our customer-centric processes to build long-term relationship with our customers. Our customer centricity initiatives and projects thrive to meet the requirements of our customers. Involving our top management team in our reviewing these initiatives and projects ensures long-term value creation for our stakeholders.

We focus on the following key dimensions of customer centricity at Hindalco:

Customer Centricity in the Aluminium Business

Our dedicated customer-centric approach led us to adopt the model of Net Promoter Score (NPS) over our previous Customer Satisfaction Model. To gain the overall understanding customer perceptions, we have employed a mix of both Bottom-Up and Top-Down NPS. NPS Top-Down for aluminium products is conducted across the entire spectrum of the product mix - from primary aluminium to value-added products (FRP, extrusion and foil). Here is a look at the most recent NPS Top-Down scores and the plan for the next round of Top-Down NPS surveys. These surveys are conducted at a gap of one year, as implementation of many action plans requires capex decisions.

SBU	NPS results received in FY	Top-Down NPS Score	Next survey planned in FY
Primary – wire rods	FY 2019-20	64%	FY 2021-22
Primary - ingots	FY 2019-20	59%	FY 2021-22
FRP	FY 2019-20	29%	FY 2021-22
Extrusion	FY 2018-19	24%	FY 2020 (ongoing)
Foil	FY 2020-21	46%	FY 2022-23

Apart from the NPS Top-Down surveys, Hindalco is also working on strengthening its NPS Bottom-Up mechanism. In FY 2019-20, customers of primary exports (which comprise of ~46% of sales by volume) were surveyed through the NPS Bottom-Up mechanism and a score of 32% was recorded. Hindalco is revamping its customer satisfaction module on CRM to adopt an NPS-based questionnaire. This will allow Hindalco to conduct Bottom-Up NPS surveys of customers of all SBUs.

Apart from the satisfaction/advocacy measurements, there is immense focus on driving Key Account Management as a customer-centric best practice. 12 customers of strategic importance, which also comprise of 16% of Hindalco's domestic sale, are chosen as key accounts and a cross-functional team has been appointed to ensure best possible servicing of these accounts. In FY 2019-20, sales to these accounts (by volumes) grew by around 3%, whereas overall domestic sales did not witness growth.

Customer Centricity in the Copper Business

In order to improve customer experience, our copper business has adopted an active listening and observing approach to customers during their interactions with the company. We ensure that feedback received from customers is analyzed and relevant actions are taken. We have a structured approach on customer engagement through proactive visit of cross functional team to customer locations and regular interactions with customers. As part of these meetings, our senior management officials visit customer premises and interact with shop floor employees. Events like cluster meets, dealer meets and new product launches are also organised to improve customer interactions.

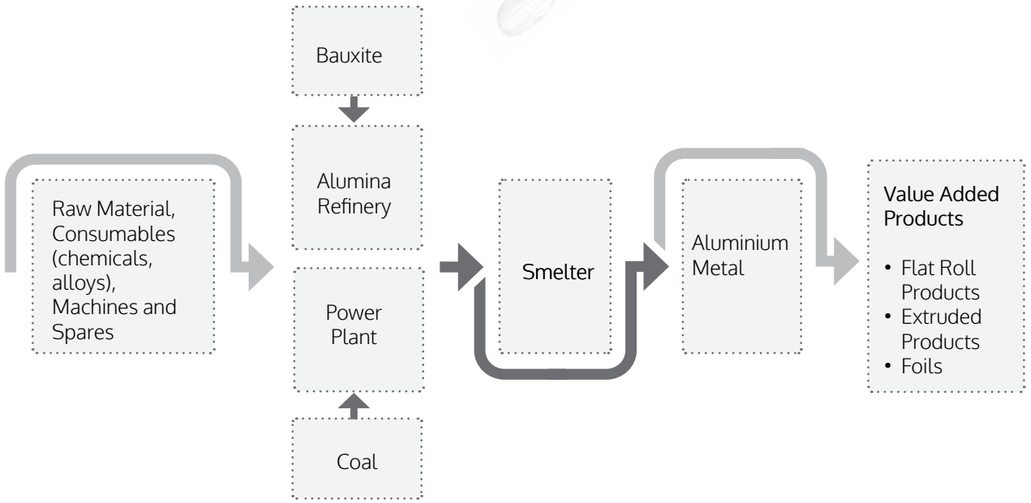
Copper Business has adopted both bottom up & Top down NPS practice. Through Bottom up practice, the regular feedback and NPS rating is received from customers through our dedicated call Centre and captured in a system driven Mission Happiness platform. Feedback received from the customers is analysed and inputs are incorporated into our processes by involving cross-functional team at plant and zone levels. Action plans are prepared with time line, are implemented, reviewed and monitored on a timely basis. Following this, we communicate the same to our respective customers accordingly to close the loop. Similarly, the feedback is gathered annually by double-blind survey through a third agency and workshops are conducted with all stake holders for corrective actions which are further implemented and reviewed as per time lines.

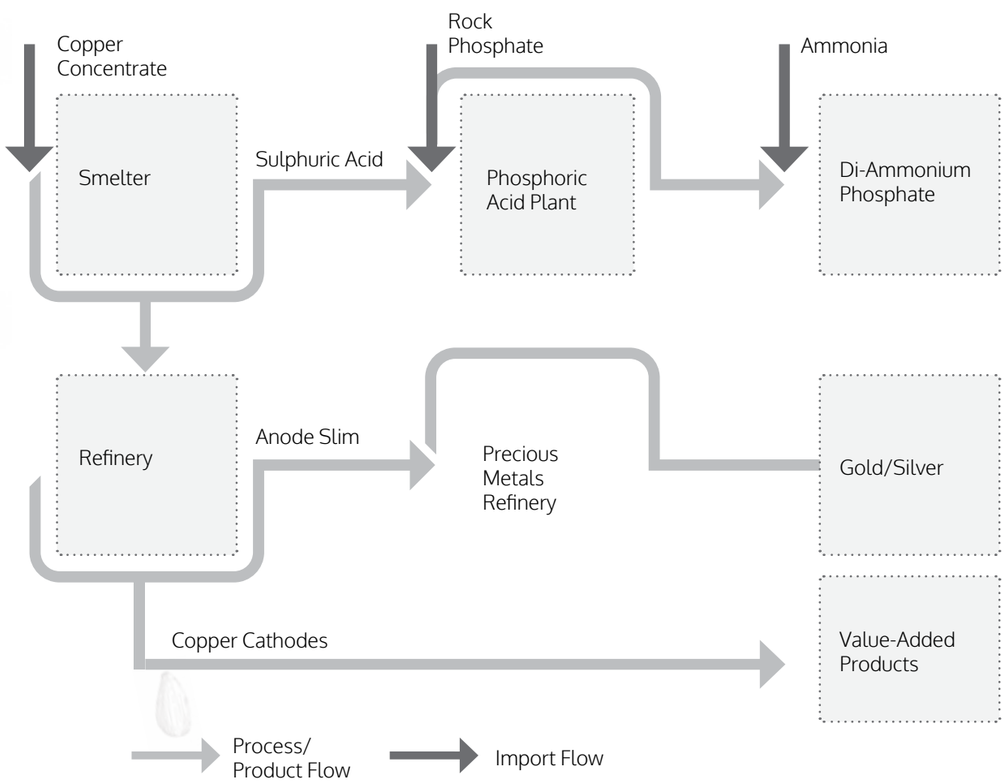
We use the NPS methodology to capture the satisfaction levels of the customer as well as understand their overall perception about the Company. We witness the NPS score for our copper business increased from 44 to 64, whereas the industry score saw an increase from 49 to 53.

Supply chain forms one of the most important aspect of our operations. With considerably large operations and large logistics management systems, ensuring reliability in the supply chain is a challenge. The inclusion of sustainability aspects in the supply chain risk assessment as well as vendor evaluation framework has resulted in reduced risks in our supply chain operations. While constantly improving on our efforts towards responsible and reliable business practices, we encourage our suppliers to conduct their business in a sustainable and ethical manner. This enables effective resource management and overall reduction in the environmental footprint across the supply chain.

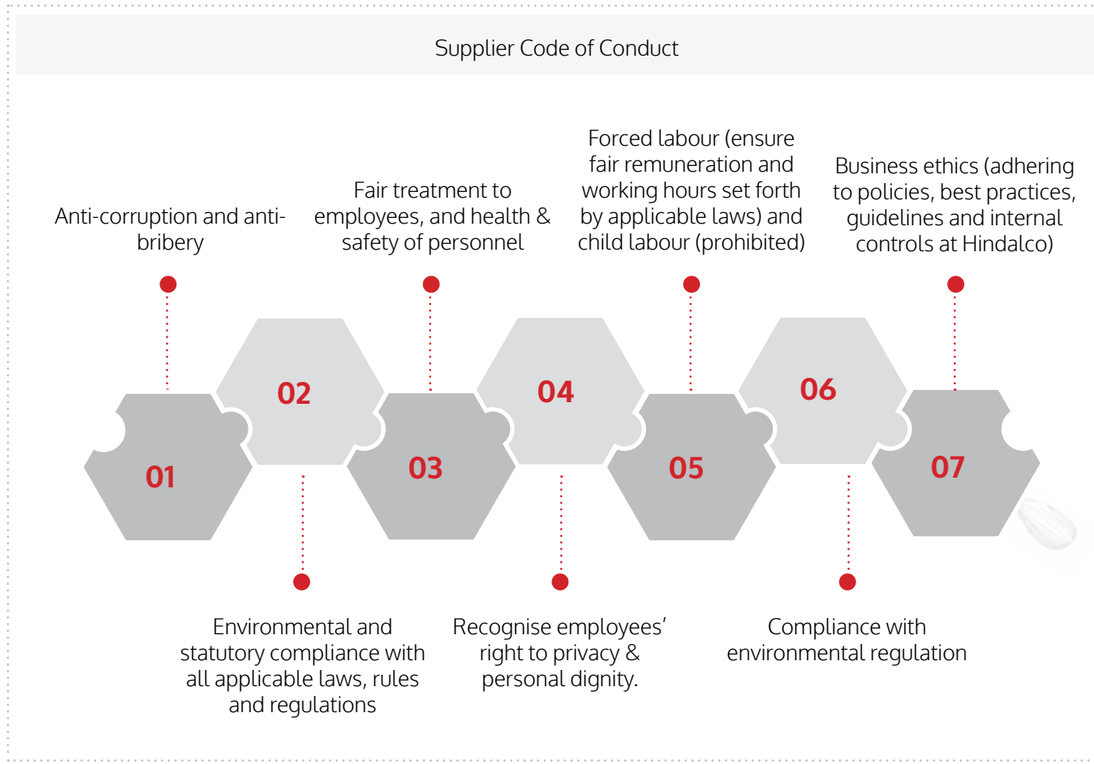
Supply Chain Management

While constantly improving on our efforts towards responsible and reliable business practices, we encourage our suppliers to conduct their business in a sustainable and ethical manner. This enables effective resource management and overall reduction in the environmental footprint across the supply chain.





Our Supply Chain and Procurement Policy is aimed at creating value for our suppliers. In order to ensure a sustainable value chain, we work very closely with our supply chain partners. The Supply Chain Code of Conduct serves as a guiding document for our supply chain partners. It encompasses various social and environmental aspects such as human rights, fair and transparent business practices, and environmental standards for suppliers' processes, products and services. All our supply chain partners are expected to abide by the Supply Chain Code of Conduct. All suppliers and vendors undergo a periodic assessment with respect to the Code of Conduct. We also encourage our suppliers to develop their environment and social management systems. Due to our policies and regular engagements, we have been able to strengthen our supply chain over the years. We observed that, during the reporting period, none of our suppliers were penalised or terminated for violation of labour practices or any negative impact on environment or society.



During the reporting period, we were associated with 9,221 supply chain partners, out of which 9,200 form a part of aluminium and copper business. Moreover, to ensure effective environment footprint management, we are trying to incorporate Environment Management Systems at our suppliers' business. 35% of suppliers are ISO 14000 certified, and we aspire to increase this percentage of suppliers by 10% by FY 2020-21 from the FY 2018-19 baseline.

With a view of contributing towards UN SDG 12- Responsible Consumption and Production, we focus on the strengthening of local economy. Our transportation and logistics segment greatly contributes to the same. Thus, the majority of our suppliers are from India, while we also have suppliers from countries like China, US, Mexico, Italy, Singapore, Japan, Togo, Chile, Peru, Brazil, Canada, Australia, Indonesia and South Africa. In the current reporting year, we had a total expenditure of INR 17,420.31 crore on strategic procurement for aluminium, copper and coal, cumulatively. This has aided in providing indirect local employment and income to our suppliers.

Supplier Evaluation and Assessment

We classify our suppliers based on the products they supply. Every single supplier is screened to ensure their financial stability, price competitiveness and ability to deliver on timelines. The screening process also considers a substantial weightage of 25% for the ESG performance of the supplier, which includes the supplier's compliance to international standards of health, safety and environmental, and alignment with national and international human rights standards, among other criteria. A database for periodic screening and assessment of our suppliers for our copper business is under development. Moreover, during the reporting period, 100% of our new suppliers for the Strategic Procurement Function were put through our screening process.

Additionally, a vendor registration is conducted every two years to assess the existing and newly developed vendors on various parameters. A final vendor rating is developed based on the score achieved on these parameters. Based on the scores received after the evaluation, the suppliers are categorised into one of the following categories:

- Identified Vendors: Vendors who have indicated their willingness to enter into business with Hindalco
- Empanelled vendors: Vendors who are eligible for undertaking trial orders
- Approved Vendors: Vendors who are finally selected and approved post-performance evaluation and trial orders

Aspects such as energy conservation and GHG emission reduction are also included in this framework in our supplier evaluation criteria. Other ESG aspects covered under the evaluation parameters are given below:

- Working standard for labourers/workers
- Waste management system
- Financial assessment done, based on Altman-Z method for bankruptcy prediction based on the vendor's financial information
- Health and safety standard compliance, as per statutory requirement
- Compliance to quality management system and quality control
- Compliance of work permits
- Risk identification standard implemented

Suppliers are assessed on a rating scale of 0 to 5.

Any supplier with a score less than 2.5 is prohibited to associate with any business opportunities with us. During FY 2018-19, 38% of our critical suppliers scored below 2.5; our target is to reduce such suppliers by 3% to 5% by FY 2020-21. In line with the target, we aim to support our suppliers in improving their ESG performance through various initiatives. To sustain our business, we identify suppliers who are critical to our operations by virtue of the goods or services that they provide, which aids in gaining competitive advantage and market success. A spend analysis is done to identify such critical suppliers. We engaged with 9,209 Tier-1 suppliers, 1,800 of whom were identified as being critical. These critical suppliers accounted for 98% of the total procurement spend.

We have been assessing an increasing number of suppliers with the ESG criteria and ensure compliance. Additionally, we have also developed detailed questionnaires to assess the compliance of the supplier to the ESG criteria. The most recent vendor assessment conducted in FY 2018-19 showed an increase in the percentage of supplier compliance from 40% in FY 2016-17 to 67%, as seen below

	Supplier Base	% supplier compliance
FY 2016-17	298	40%
FY 2017-18	298	40%
FY 2018-19	335	67%
FY 2019-20	335	67%

Supply Chain Risk Assessment

In a move to achieve sustainable supply chain operations, we undertake supply chain risk assessment as part of our vendor evaluation process to assess and manage supplier risk across the areas of health & safety, environment, labour & social aspects, financial aspects, and market dependency.

All our suppliers are assessed based on their risk scores calculated from their performance on the aforementioned parameters. The risk scores give an understanding to the Company on the risks each supplier may be exposed to. Based on these, the suppliers are classified as high, medium or low risk. This enables us in building strategy for sourcing to reduce the risk of exposure. The new vendors onboarded are screened on the sustainability criteria of environmental awareness, human rights and social aspects. The assessments also involve site visits to assess the suppliers' performance as and when required. For the current reporting year, we have screened 100% of our raw material suppliers for our aluminium business, using the sustainability risk assessment criteria, and aim to achieve 100% screening by FY 2020-21. We plan to screen our copper business suppliers in FY 2020-21.

Sustainability is included in our vendor evaluation framework through the integration of risk scores for our suppliers in categories with substantial business exposure. We also track our Tier-2 suppliers to understand the risks associated with our supply chain in some categories. Additionally, we take up suitable vendor mix and vendor development decisions to reduce the commodity-wise risk score and make our supply chain more sustainable.

Supplier Risk Assessment Tool

During the reporting period, we have started conducting risk assessment audits for our suppliers. These assessments facilitate an understanding of the overall risk management capability of the supplier. The assessment tool is developed internally and has a holistic approach towards the business management as well as sustainability of the supplier. Aspects covered under this assessment are as follows:

- Management
- Environment, health and safety
- Quality
- Operations
- Capacity
- Development engineering
- Labour
- Supplier management

We have developed a comprehensive questionnaire that enables us to effectively identify risks under each aspect. Every aspect is given a weightage and a risk rating is developed after the audit. The risk rating is as follows:

Risk Rating	Category
Less than 2.5	High Risk Supplier - Development needed
2.5 to 3.24	Moderate Risk Supplier - (Acceptable – Action may still be required)
3.25 to 5.00	Low Risk Supplier

Supplier Risk Assessment Evaluation Process

- Self-Assessment by the Supplier
- Hindalco Rating
- Summary Section by Audit Team
- Mitigation Plan

Assessment of Supplier at Vizag with our Supplier Risk Assessment Tool

During the reporting period, we visited one of our suppliers based in Vizag, to test the supplier risk assessment template developed. This assessment was conducted based on the new model, which included a self-assessment followed by audit visits and scoring based on the defined focus areas. Based on the findings, the supplier was suggested certain improvement points. Some of the major mitigation plans suggested to the suppliers are as follows:

- Biodiversity assessment to be conducted
- Systems to track safety systems to be developed
- Increase in recycling of by-products
- Increase in focus on sanitation and water conservation inside the plant
- Increase in safety prevention measures
- Increase in safety and environmental trainings

A mitigation plan was developed along with the supplier based on the findings. These suggestions and the plans were conversed with the suppliers. The suggestions were well-received, and the suppliers are underway to incorporate our suggestions in their systems.

Our Contribution to the Sustainable Development Goals

Page 89

- Job-oriented training skills
- Sustainable livelihood and infrastructure development projects

Page 89

- Training and educating the farmers for increasing the harvest and reap
- Supporting activities in agriculture and horticulture

Page 87

- Providing healthcare to rural patients through hospitals and dispensaries
- Mother, child care and adolescent girls' healthcare initiatives
- Specialised health camps and eye camps
- Infrastructure development for hospitals and the community

Page 85

- Aditya Birla Schools and Hindalco Technical University
- School support programmes
- Pre-schools, balwadis, anganwadis and play schools
- gyanodaya E-portal learning
- Infrastructure development, new school building construction
- Enrolment awareness, events and focus on technical training

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- Diversity and inclusion at workplace
- Women at Hindalco
- HR management framework business objectives

Page 64, 61, 86, 115

- Implementation of ZLD at 11 sites
- Rainwater harvesting
- Renovation of health centres and issues related to water and sanitation
- Implementation of WASH
- Access to safe and clean drinking water

Page 49

- Transforming towards renewable energy
- Training employees to become Energy Auditors and Energy Managers
- Investing in Energy Efficiency

Page 77,115

- Decent work environment
- Training on health and safety
- Implementation of online data management tool "Enablon"

Page 116, 118, 89

- Collaboration with think tanks and government institutions
- Development of aluminium bulker and oxygen-free copper
- Accredited R&D centres at Belagavi and Taloja
- Infrastructure development initiatives for communities

Page 89

- Reducing inequalities by supporting social reform
- Training programmes for unemployed youth
- Support programme for the BPL, old age and needy
- Support to differently abled

Page 74, 118, 46, 39

- Health & safety impact assessment of products
- Conducted LCA of our products
- Reducing the consumption of virgin material
- Transfer from road to rail, wherever possible

Page 31,39, 42, 58, 59

- Risk and sensitivity analysis
- Mineral conservation
- Restoring the ecosystems
- Installed 30 MW of solar plants

Page 79, 54, 59, 73

- Green belt development programme
- Initiatives for reducing the dust pollution
- Effective water management for preserving the topsoil
- Preserving the seed bank by local plantation

Page 89

- Organised a dowry-less mass marriage and other activities related to social reforms.

Page 71, 43

- Initiated a biodiversity study in collaboration with IUCN at three of our operational locations.
- Through Xynteo India2022, we are partnering with various industry leaders to develop solutions for a sustainable environment as well as healthcare.

Assurance Statement

Ernst & Young Associates LLP
5th Floor, Block B-2
Nirlon Knowledge Park
Off. Western Express Highway
Goregaon (E), Mumbai - 400063, India

Tel: +91 22 6192 0000
Fax: +91 22 6192 3000
ey.com

Building a better working world

Independent Assurance Statement

The Board of Directors and Management
Hindalco Industries Limited
Mumbai, India

Ernst & Young Associates LLP (EY) was engaged by Hindalco Industries Limited (the 'Company') to provide independent assurance on its annual Sustainability Report (the 'Report') for the Financial Year 2019-20.

The development of the Report is based on the Global Reporting Initiative (GRI) Sustainability Reporting Standards ('GRI Standards'); its content and presentation is the sole responsibility of the management of the Company. EY's responsibility, as agreed with the management of the Company, is to provide independent assurance on the report content as described in the scope of assurance. Our responsibility in performing our assurance activities is to the management of the Company only and in accordance with the terms of reference agreed with the Company. We do not therefore accept or assume any responsibility for any other purpose or to any other person or organization. Any dependence that any such third party may place on the Report is entirely at its own risk. The assurance report should not be taken as a basis for interpreting the Company's overall performance, except for the aspects mentioned in the scope below.

Scope of assurance
The scope of assurance covers the following aspects of the Report:

- Data and information related to the Company's sustainability performance of its Indian operations pertaining to the GRI Standards listed below, for the period 1st April 2019 to 31st March 2020;
- The Company's internal protocols, processes, and controls related to the collection and collation of specified sustainability performance data;
- Verification of sample data and related information through consultations with the Company's representatives at the Company's Head Office in Mumbai and the following locations of operations:
  - Physical visits:
    1) Utkal Alumina International Limited, Doraguda, Odisha
    2) Aditya Aluminium, Lapanga, Odisha
    3) Hirakud FRP, Sambalpur, Odisha
  - Desk review:
    4) Birla Copper, Dahej, Gujarat;
- The environmental and social performance data that was subject to above assurance is as follows:
  - General Disclosures (102-1 to 102-56)
  - Environmental Topics:
    - Materials (301-1, 301-2), Energy (302-1, 302-3, 302-4), Water and Effluents (303-1, 303-2, 303-3, 303-4, 303-5), Biodiversity (304-1, 304-2, 304-3, 304-4), Emissions (305-1, 305-2, 305-4, 305-5, 305-6, 305-7), Effluents and Waste (306-1, 306-2, 306-3, 306-5), Supplier Environmental Assessment (308-1, 308-2), Sector Disclosures – Metals and Mining (MM1, MM2, MM3);
  - Social Topics:
    - Employment (401-1, 401-2, 401-3), Labor/Management Relations (402-1), Occupational Health and Safety (403-1, 403-2, 403-3, 403-4, 403-5, 403-6, 403-7, 403-8, 403-9, 403-10), Training and Education (404-1, 404-2, 404-3), Diversity and Equal Opportunity (405-1, 405-2), Non-discrimination (406-1), Freedom of Association and Collective Bargaining (407-1), Child Labor (408-1), Forced or Compulsory Labor (409-1), Security Practices (410-1), Human Rights Assessment (412-1, 412-2), Local Communities (413-1), Supplier Social Assessment (414-1, 414-2), Customer Health and Safety (416-1), Marketing and Labeling (417-1), Sector Disclosures – Metals and Mining (MM8).

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Limitations of our review
The assurance scope excludes:

- Operations of the Company other than those mentioned in the 'Scope of Assurance';
- Aspects of the Report and data/information other than those mentioned above;
- Data and information outside the defined reporting period *i.e.* 1st April 2019 to 31st March 2020;
- The Company's statements that describe expression of opinion, belief, aspiration, expectation, aim or future intention provided by the Company;
- Review of the Company's compliance with regulations, acts, guidelines with respect to various regulatory agencies and other legal matters;
- Data and information on economic and financial performance of the Company.

Assurance criteria
The assurance engagement was planned and performed in accordance with the International Federation of Accountants' International Standard for Assurance Engagements Other than Audits or Reviews of Historical Financial Information (ISAE 3000) and the second edition of AccountAbility's AA1000 Assurance Standard 2008 (AA1000 AS). Our evidence-gathering procedures were designed to obtain a 'Limited' level of assurance (as set out in ISAE 3000) on reporting principles and a 'Type 1, Moderate' level of assurance (as per AA1000 AS), as well as conformance of sustainability performance disclosures as per GRI Standards.

What we did to form our conclusions
In order to form our conclusions we undertook the following key steps:

- Interviews with select key personnel and the core team responsible for the preparation of the Report to understand the Company's sustainability vision, mechanism for management of sustainability issues and engagement with key stakeholders;
- Interactions with the key personnel at the Company's locations of operations to understand and review the current processes in place for capturing sustainability performance data;
- Verification of data on a sample basis at the Company's corporate office and locations of operations as mentioned in the 'Scope of Assurance' above;
- Review of relevant documents and systems for gathering, analyzing and aggregating sustainability performance data in the reporting period;
- Review of selected qualitative statements in various sections of the Report.

Our observations
The Company has developed the Report as per the GRI Standards. The Report includes a description of the Company's stakeholder engagement process, materiality assessment and relevant performance disclosures on the identified material topics.

Our conclusion
On the basis of our review scope and methodology, our conclusions are as follows:

- **Inclusiveness**
  The Company has described its stakeholder engagement approach and activities in the Sustainability Report. We are not aware of any matter that would lead us to conclude that the Company has not applied the principle of inclusivity in engaging with the key stakeholder groups identified in the Report.

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- **Materiality**
  The Company has identified key issues material to its sustainability performance and described the process for materiality analysis in the Sustainability Report. Nothing has come to our attention that causes us to believe that material issues so identified have been excluded from the Report by the Company.

- **Responsiveness**
  We are not aware of any matter that would lead us to believe that the Company has not applied the responsiveness principle in its engagement with stakeholders identified in the Report on material aspects covering its sustainability performance.

- **Conclusion as per ISAE 3000 standard**
  Nothing has come to our attention that causes us not to believe that the data has been presented fairly, in material respects, in keeping with the GRI Standards and the Company's reporting principles and criteria. Some data pertaining to key performance disclosures underwent change as part of our assurance process. There is scope to further strengthen internal controls to ensure uniform and accurate reporting.

Our assurance team and independence
Our assurance team, comprising of multidisciplinary professionals, has been drawn from our climate change and sustainability network and undertakes similar engagements with a number of significant Indian and international businesses. As an assurance provider, EY is required to comply with the independence requirements set out in International Federation of Accountants (IFAC) Code of Ethics for Professional Accountants[1]. EY's independence policies and procedures ensure compliance with the Code.

for Ernst & Young Associates LLP,

Chaitanya Kalia
Partner
11 August 2020
Mumbai

AA1000
Licensed Assurance Provider
000-43

[1] International Federation of Accountants (IFAC) Code of Ethics for Professional Accountants. This *Code* establishes ethical requirements for professional accountants.

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MM8	Number (and percentage) of company operating sites where artisanal and small-scale mining (asm) takes place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks	42

Alignment with Business Responsibility Report

Principle	Description of the Principle	Report Reference	Page Number
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Principle 2	Businesses should provide goods and services that are safe and contribute to sustainability throughout their life cycle.	Customer Centricity	123
		Product Stewardship	116
Principle 3	Businesses should promote the wellbeing of all employees.	Employee Stewardship	95
Principle 4	Businesses should respect the interests of, and be responsive towards all stakeholders, especially those who are disadvantaged, vulnerable and marginalized.	Stakeholder Engagement & Materiality Assessment	19
Principle 5	Businesses should respect and promote human rights.	Corporate Governance	25
		Employee Stewardship	116
Principle 6	Business should respect, protect, and make efforts to restore the environment.	Environmental Stewardship	44
Principle 7	Businesses, when engaged in influencing public and regulatory policy, should do so in a responsible manner.	Corporate Governance	25
Principle 8	Businesses should support inclusive growth and equitable development	Economic Stewardship	34
		Responsible Mining	39
		Community Stewardship	80
Principle 9	Businesses should engage with and provide value to their customers and consumers in a responsible manner.	Customer Centricity	123

Alignment with UNGC Principles

Sr. No.	UNGC Principle	Report Section/s	Page no.
	Human Rights		
1	Businesses should support and respect the protection of internationally proclaimed human rights	Supply Chain Management Corporate Governance Employee Stewardship	125, 25, 103
2	Make sure that they are not complicit in human right abuses	Employee Stewardship	103
	Labour		
3	Business should uphold the freedom of association and the effective recognition of the right to collective bargaining	Employee Stewardship	103
4	The elimination of all forms of forced and compulsory labour	Employee Stewardship Supply Chain Management	125, 103
5	The effective abolition of child labour.	Community Stewardship Employee Stewardship Supply Chain Management	08, 01, 03, 125
6	The elimination of discrimination in respect of employment and occupation	Corporate Governance Employee Stewardship	25, 103
	Environment		
7	Business should support a precautionary approach to environmental challenges.	Economic Stewardship	34
8	Undertake initiatives to promote greater environmental responsibility.	Product Stewardship Environmental Stewardship Responsible Mining Supply Chain Management	116, 44, 39, 125
9	Encourage the development and diffusion of environmentally friendly technologies	Stakeholder engagement and Materiality analysis Product Stewardship Environmental Stewardship Employee Stewardship	19, 116, 44, 95
	Anti-Corruption		
10	Business should work against corruption in all its forms, including extortion and bribery.	Supply Chain Management Corporate Governance	125, 25

Annexure I - Glossary

2S - Safety, Sustainability and systems and processes

3C - Customer, Cost and Cash

ABG - Aditya Birla Group

ABSTCPL - Aditya Birla Science and Technology Company Private Limited

ACF - Activated Carbon Filters

ADP - Abiotic Resource Potential

Al - Aluminium

ANC - Antenatal Care

AP - Acidification Potential

ARAI - Automobile Research Association of India

ASB - Apex Safety Board

ASEAN - Association of South East Asian Nations

ASM - Artisanal and Small-Scale Mining

AWOO - A World of Opportunities

AWRS - Ash Water Recovery System

BBS - Behaviour Based Safety

BEE - Bureau of Energy Efficiency

BET - Business Ecosystems Training

BIS - Bureau of Indian Standards

BOD - Biological Oxygen Demand

BPC - Belt Pipe Conveyor

BR - Bauxite Residue

BRR - Business Responsibility Report

C.T. - Cooling Tank

CALM - Community Awareness and Local Marketing

CCR - Continuous Cast Copper Rod

CEMS - Continuous Emissions Monitoring System

CFBC - Circulating Fluidised Bed Combustion

CHW TSDF - Common Hazardous Waste Treatment Storage & Disposal Facility

CII - Confederation of Indian Industry

CO2 - Carbon-dioxide

CoC - Code of Conduct

COC - Cycles of Concentration

COD - Chemical Oxygen Demand

CPCB - Central Pollution Control Board

CPP - Captive Power Plant

CSM - Contractor Safety Management

CSR - Corporate Social Responsibility

Cu - Copper

CuCB - Copper insert Collector Bar

DAP - Di-Ammonium Phosphate

DHIL - Dahej Harbour Infrastructure Limited.

DM feed - Demineralized feed

DSIR - Department of Scientific and Industrial Research

EBIDTA - Earnings Before Interest, Tax, Depreciation and Amortization

EHS - Environment Health Safety

EPD - Environmental Product Declaration

ERM - Enterprise Risk Management

ESG - Environment, Social Governance

ESP - Electro-static Precipitator

ESR - Ecosystem Services Review

ETP - Effluent Treatment Plant

FAME - Foundation for Accelerated Mass Empowerment

FGD - Flue Gas Desulphurization

FICCI - Federation of Indian Chambers of Commerce and Industry

FIMI - Federation of Indian Mineral Industries

FRP - Flat Rolled Products

FTA - Free Trade Agreement

GET - Graduate Engineer Trainee

GHG - Greenhouse Gases

GHP - Globally High Performing

GJ - Giga Joules

GoI - Government of India

GRM - Grievance Redressal Mechanism

GWP - Global Warming Potential

H&S - Health & Safety

Ha - Area in Hectare

HFTR - High Frequency Transformer Rectifier

HIV - Human Immunodeficiency Virus

HMF - Hindalco Management Framework

HRSCC - High-Rated Solid Contact Clarifier

IBAT - Integrated Boiodiversity Assessment Tool

ICC- Internal Complaint Committee

IFC- International Finance Corporation

IIT - Indian Institute of Technology

ILO _ International Labour Organizarion

IMMT - Institute of Minerals and Materials Technology

IOL - Intraocular lens

IPCC - Intergovernmental Panel on Climate Change

ISAE- International Standard on Assurance Engagement

ISO/IEC - International Organization for Standardization/ International Electrotechnical Commission

ISRO - Indian Space Research Organization

IUCN - international Union for Conservation of Nature

JCI - Jute Corporation of India

JNARDDC - Jawaharlal Nehru Aluminium Research Development and Design Centre

LCA - Life Cycle Assessment

LED - Light Emitting Diode

LME - London Metal Exchange

LTIFR - Lost Time Injury Frequency Rate

LTISR - Lost Time Injury Severity Rate

MGF - Multigrade Sand Filter

MoEFCC - Ministry of Environment, Forest and Climate Change

MT - Million Tonne

NAAQS -National Ambient Air Quality Standards

NABL - National Accreditation Board for Testing and Calibration Laboratories

NAMC - National Award for Manufacturing Competitiveness

NDRF - National Disaster Response Force

NEBOSH - National Examination Board in Occupational Safety and Health

NIIT - National Institute of Information Technology

NNL - No Net Loss

NPS - Net Promoter Score

NSE - National Stock Exchange of India Limited

NVG - National Voluntary Guidelines

ODP - Ozone Depleting Potential
ODS- Ozone Depleting Substance
OHE - Over Head Electrification
OHS - Occupational Health & Safety
OPC - Ordinary Portland Cement
OSHAS - Occupational Health and Safety Assessment Series
PAT - Perform, Achieve and Trade
PAT - Profit After Tax
PED - Primary Energy Demand
PHE - Plate Heat Exchanger
PM - Particulate Matter
PNC - Postnatal Care
POCP - Photochemical Ozone Creation Potential
POSH - Prevention of Sexual Harassment
QLEA - Qualitative Exposure Assessments
QnEA - Quantitative Exposure Assessment
R&D - Research & Development
RDSO - Research Design and Standards Organization
REC - Renewable Energy Certificate
RO - Reverse Osmosis
RPD - Renusagar Power Division
SCADA - Supervisory Control and Data Acquisition
SDG - Sustainable Development Goals
SEBI - Securities and Exchange Board of India
SMEs - Subject Matter Experts
SOP - Standard Operating Procedure

SPCB - State Pollution Control Board
SPL - Spent Pot Lining
STP - Sewage Treatment Plant
TB - Tuberculosis
TCP - Technical Career Path
TDS - Total Dissolved Solids
TERI - The Energy and Resources Institute
TIPS - Theory of Inventive Problem Solving
TNI - Training Needs Identification
TR - Transformer Rectifier
TRIFR - Total Recordable Injury Frequency Rate
TSS - Total Soluble Solids
TTD- Tirumala Tirupati Devasthanam
UAIL- Utkal Aluminium International Limited
UN - United Nations
UNGC - United Nations Global Compact
VAM - Vesicular-Arbuscular Mycorrhiza
VSC - Value Standard Committee
WAH - Women at Hindalco
WaMTF - Waste Management Task Force
WASH - Water, Sanitation and Hygiene
WBSCD - World Business Council for Sustainable Development
WHO - World Health Organization
WRI - World Resource Institute
XISS - Xavier Institute of Social Sciences
ZLD- Zero Liquid Discharge

Annexure II
Awards and Accreditation

Corporate

- Silver Shield for Excellence in Financial Reporting for FY2018-19 awarded by The Institute of Chartered Accountants of India (ICAI)
- Hindalco entered the Dow Jones Sustainability Indices (DJSI) Emerging Markets Index 2019 edition by ranking 3rd rank among Materials Sector - Aluminium industry peers
- Commendation for Significant Achievement award in CII ITC Sustainability Awards 2019 under Corporate Excellence category.

Aditya Aluminium

- Presented the 7th FICCI Quality Excellence Award (Platinum Prize 1st) for Industry by the Federation of Indian Chambers of Commerce & Industry, Delhi for excellence in Quality process in April 2019
- Gold award for "Chapter Convention on Quality Concepts" by Quality Circle Forum of India on September 2019
- Platinum Award presented by Frost & Sullivan for Future Ready Factory of the Year presented in December 2019
- The CII Eastern Regional Productivity Award presented by the Chairman CII Eastern region for contribution in the areas of Productivity in January 2020.

Mahan Aluminium

- India Manufacturing Excellence Award 2019 presented by Frost & Sullivan for being selected as the Future Ready Factory of the year.
- Best Performance Award 2019 presented by the Indian Institute of Metals
- Certificate of Merit 2019 earned from Frost & Sullivan for Project Evaluation & Recognition Programme.
- CII Award for Customer Obsession in 'Active Customer engagement' category
- CSR Impact Award presented by Dalmia Bharat CSRBOX for imparting quality education for the community.
- CSR Times Award presented at National CSR Summit 2019 for CSR work in the field of livelihood programmes.
- Safety System Excellence Award (Certificate of Appreciation) received from FICCI
- Certified by CII as Energy Efficient Unit 2019
- Platinum Award for HR Excellence 2019 presented by Apex India Foundation
- Numerous prizes won during CII TPM Club competitions for Kaizen, Human Mistake Proofing and Energy Efficiency Circle competition
- India CSR Gold Award 2019
- FAME Excellence Platinum Award 2019 for
- People First HR Excellence Platinum Award
- Platinum Award for Employee Engagement 2019 presented by HR Association of India

Renukoot

- First National CSR Award presented by the Ministry of Corporate Affairs, the highest recognition in the domain of CSR by the Government of India. The award recognizes Hindalco's contribution to India's national priority areas - skill development and livelihoods
- CSR Health Impact Award-2019 presented by the I.S.W Council, New Delhi,
- CII Excellent Energy Efficient Award -2019.
- CII National Award for Excellence in Water Management 2019
- Seem National Energy Management Award 2019 for excellent efforts towards energy conservation by Society of Energy Engineers and Managers.
- Four Quality Circle teams bagged "Par Excellence" & "Excellence" awards during 33rd National Convention on Quality Concepts-NCQC 2019 held at IIT BHU Varanasi by QCFI.
- Four Quality Circle teams bagged "Gold Award" during Varanasi Centre Convention on Quality Concepts-VRCCQC 2019 held at Varanasi by QCFI.

Renusagar

- Greentech Award-2019 for Tech-Plast as certified Green Product.
- Two Quality Circle team's bagged "Par Excellence" award during 33rd NCQC 2019 held at IIT BHU Varanasi.
- UPNEDA Award for excellence in Energy conservation under PAT cycle 1.
- 8th FICCI Safety System Excellence Awards for Industry-2019 from FICCI New Delhi.

Jharkhand mines - lohardaga

- FAME Platinum Award 2019 for Best CSR for Lohardaga Mines, for the outstanding Project on Community Development.
- NMDC Award for Social Awareness 2018-19 for Bhusar Bauxite Mines, presented by the Federation of Indian Mineral Industries (FIMI), New Delhi} for significant contribution to socio-economic development of the host community.
- "National Safety Award (Mining)" for the Year 2015 & 2016 presented in December 2019 to to Jalim & Sanai Bauxite Mines at Lohardaga and Samri Bauxite Mines in the category of "Longest Accident Free Period " .

Jharkhand mines - kathautia

- Awards during the Annual Safety Week Celebrations by Director General of Mines Safety (DGMS) for Overall Performance, Safety Management Plan, Compliance of recommendations of 10th and 11th Safety Conference; Runners up Trophy in Storage & Transportation of Explosives Award,
- CII Award for Excellence in Safety Health & Environment (SHE) and 2nd Runners Up in Safety, Health, Environment & Mining.

Gare Palma mines

- India CSR award for Sanitation in four Gram Panchayats and safe drinking water supply to one entire Gram Panchayat

Hirakud SMELTER & POWER

- Grow Care India CSR award-2019 in Gold category for Best innovative CSR Project by Grow care India foundation, New Delhi
- Quality Circle team won awards in Excellence and Par Excellence category of NCQC (National Convention On Quality Concept) 2019 - Varanasi chapter.

Alupuram

Runners Up award for "Excellence in safety management" from National safety council, Kerala chapter

Dahej

FAME (Foundation for Accelerated Mass Empowerment) CSR Excellence Platinum award 2019 for excellence in Social Development Projects .

Utkal alumina international limited

- Kalinga Safety Award for best Safety, Health & Environment Management
- *M/s Frost & Sullivan and TERI Sustainability 4.0 Awards: In 2020 Utkal Alumina awarded in Challenger Category for the 'Certificate of Merit' in Sustainability and won the Safety Excellence - Certificate of Merit
- Conferred the prestigious Mahatma Award for excellence in Corporate Social Responsibility by Liveweek.
- Quality Circle team won Gold award of CCQC (Chapter Convention On Quality Concept -NCQC) 2019, Koraput chapter
- Quality Circle team won awards in Excellence and Par Excellence category of NCQC (National Convention On Quality Concept -NCQC) 2019, Varanasi chapter

Please contact: Head Sustainability
hindalco.sustainability@adityabirla.com

Hindalco Industries Limited
Registered Office
Ahura Centre, 1st Floor, B Wing, Mahakali Caves
Road, Andheri (East), Mumbai 400 093
Ph: +91 22 6691 7000
Fax: +91 22 6691 7001

Hindalco Industries Limited
Corporate Office
7th Floor, Birla Centurion
Pandurang Budhkar Marg
Worli, Mumbai 400 030,India

T : +91 22 6662 6666 / 6261 0555
6266 0666 / 6266 0555
www.adityabirla.com
www.hindalco.com