vedanta
transforming elements

NURTURING ENVIRONMENT FOR A GREENER TOMORROW

LANJIGARH UNIT
VEDANTA LIMITED, ALUMINIUM & POWER BUSINESS
ENVIRONMENT HIGHLIGHTS

ABOUT US


Alumina Refinery at Lanjigarh, Kalahandi district, Odisha

Vedanta Limited, a subsidiary of Vedanta Resources, is one of the world's leading diversified natural resource companies with business operations in India, South Africa, Namibia and Australia. Vedanta is a leading producer of Aluminium, Oil & Gas, Zinc, Lead, Silver, Copper, Iron Ore, Steel and Commercial Power. Vedanta and its core philosophy revolves around corporate governance and sustainable development, which means economic development without harming natural resources. It has a strong focus on health, safety and environment besides enhancing lives of the local communities.

Vedanta is India's largest producer of aluminium and remains the premier manufacturer of the highest grade of metallurgical grade alumina. It has carved a niche for itself in the aluminium industry with its superior product quality based on state-of-the-art technology. Vedanta Limited operates a 2 MTPA (million tonnes per annum) alumina refinery in Lanjigarh (Kalahandi district), Odisha, since 2007 and an associated 90 MW captive power plant at Lanjigarh, which was commissioned in 2008.

The refinery feeds Vedanta's aluminium smelters at Jharsuguda in Odisha and at BALCO in Korba, Chhattisgarh. Vedanta firmly believes in contributing to the communities it operates around. The company is committed towards improving health, education, livelihood, and infrastructure in the Kalahandi region.

WE BELIEVE IN

Zero Harm

Zero Waste

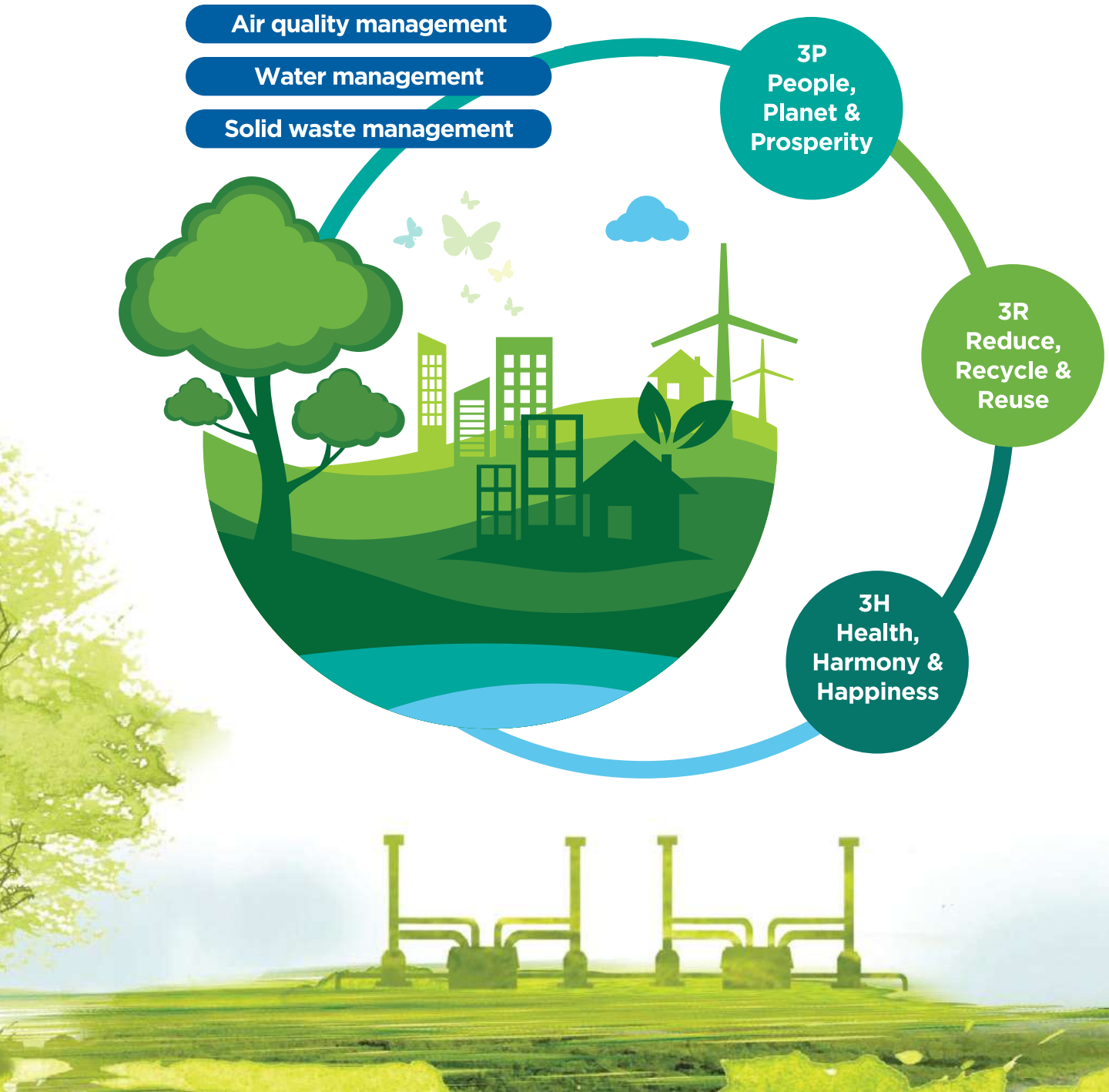
Zero Discharge

Vedanta believes that it is the organisation's duty to:

- Implement world class standards that follow all legal obligations and company policies.
- Manage risk in all forms by applying, monitoring controls and testing their effectiveness.
- Set priorities and commitments, measuring, monitoring and reporting performance.
  Maintain an open dialogue with business partners and stakeholders.
- Put considerable effort into 'waste to wealth' programme to enable effective and meaningful utilization of plant waste.

EFFICIENT AND EFFECTIVE WASTE MANAGEMENT

Vedanta develops innovative methods to reduce and reuse all kinds of operational waste. It is among the top refineries in the world with a technical capability to reduce water and energy needs and undertake an eco-friendly and low carbon footprint approach. Vedanta's sustainability initiatives without harming the environment are one of the best in India, and the company has won many awards for its sustainability practices in the last 10 years. It is also collaborating with some of the best global research institutes, technology partners and other reputed institutions.



KEEPING THE ENVIRONMENT SAFE

An eco-friendly and sustainable approach are at the core of all our operations at Vedanta. We are committed to deliver sustainable and responsible growth, creating value for all our stakeholders. The table below depicts that all operations in our Lanjigarh alumina refinery adhere and follow strict government statutory norms.

Environment Category	**Statutory Requirement**	**Actual performace of plant** (Well within statutory norms)
Ambient Air	PM < 100 Micrograms per NM^3	PM < 80 Micrograms per NM^3
Stack Emissions (Calciner)	<100 MG per NM^3	<40 MG per NM^3
Stack Emissions (Power)	<50 MG per NM^3	<30 MG per NM^3
Surface Water	6.5 - 8.5 (pH)	6.5 - 8.5 (pH)
Ground Water	6.5 - 8.5 (pH)	6.5 - 8.0 (pH)
Green Belt - (% of acquired land)	33%	34%
Fly Ash Utilization	100%	100%
Zero Discharge	No statutory requirement	100%
Greenhouse Gas Emissions	No statutory requirement	0.95 ton of CO_2 per ton of alumina; reduction by 20% in last four years

WE TAKE GOOD CARE OF THE ENVIRONMENT

Approx. 550 crores spent on environment safeguards.

Constant innovation to improve air quality.

Among the top 5 alumina refineries in the world.

Top innovator with sustainability as a focus.

Over 55,000 lac litres of water recycled and reused.

Over 5.4 lac trees planted.

OUR INTERVENTIONS TO MAINTAIN AND MANAGE AIR, WATER AND SOIL QUALITY

Air Quality Management

- Dust suppression
- Emission control system
- Real time monitoring system

Water Management

- Effluent management
- Water pollution control
- Water quality monitoring

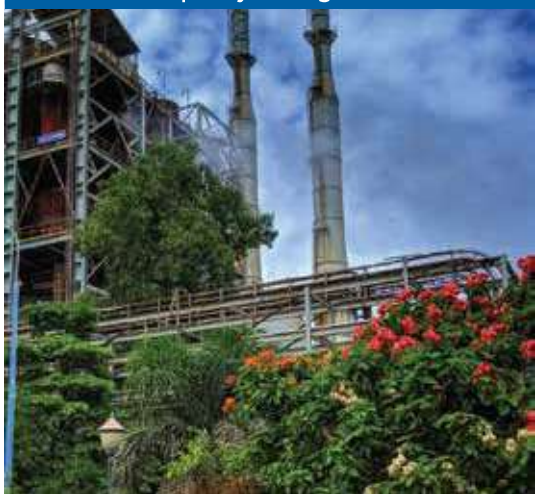
Solid Waste Management

- Red mud filtration
- Dry red mud stacking
- Fly ash utilization

Managing Quality of Air Through Continuous Monitoring

- Ambient or surrounding air quality is maintained within the Pollution Control Board norms.
- Provision of dust suppression systems like Dry Fog system in conveyers.
- Dust pollution suppression by water sprinklers in tailings pond and stock piles, road sprinkling by tankers.
- Wet scrubbers in lime handling plant, bag filters in alumina storage silos and green belt development of over 33% periphery of the site.
- Air sampling and analysis is also being done through third party laboratories.

Latest technology deployed for air quality management



Ambient air quality is monitored inside and outside the refinery through 'Continuous Ambient Air Quality Management Systems' (CAAQMS)

Ambient air quality is being monitored at different locations around the plant site within a radius of 10kms and Suspended Particulate Matter level remains within 75 µg/m3 (Av.) throughout all seasons which is well within the Ministry of Environment and Forest norms (Particulate Matter size less than 10µm : 100 µg/m3). The average result of Jun'19-Aug'19 is 60-70 µg/m3.

Efficient Water Management - Daily and seasonal monitoring of all sources

• Proper water treatment measures have improved water quality.

• Water quality of all surface water streams are within government statutory norms.


Raw Water Reservoir

• Ground water quality is within government stipulated norms.

• Lanjigarh site maintains Zero Liquid Discharge under the Zero Harm motto, and reuses all process and domestic waste water in the system.

• All process ponds like Red Mud Pond, Process Water Lake, Caustic Pond, Storm Water Pond and Ash Pond are used for rain water collection and reuse.


Rain Water Harvesting

• Rain water harvesting system installed in township.

• Domestic effluent is treated in Sewage Treatment Plant.

• No wet disposal of red mud in pond. red mud is handled in dry cake form after filtration through red mud filtration unit.

• Surface water and ground water quality is being continuously monitored at different locations around the plant site within a radius of 10kms and pH level remains within 6.5 – 8.5 throughout all the seasons which complies with the State Pollution Control Board norm. The average result of last three months (Jun-Aug'19) is 6.5-8.

Solid Waste - Innovating to Reduce, Reuse and Recycle

• Adoption of red mud filtration unit has eliminated ground water contamination leading to dry stacking of red mud cakes - A first-in-India innovation by Vedanta.

RMP - Red Mud Stacking

• Supply of red mud to cement manufacturers in clinker preparation instead of their existing intermediary thereby opening up a new avenue of utilization for red mud in primary industries.

Fly Ash Kiln - Ancillary Units

• 100% utilization of Fly Ash in brick making, road construction and dam reinforcement, while creating employement opportunities for ancillary or other supporting industries.

• Recycling of waste such as food waste (converted to biogas), e-waste, vanadium sludge, used oil etc.

Biogas Plant and Biogas Holder

• All tailing dams design and vetting by national and international institutions.

Coal Yard Water Sprinklers

• Water mist canons, sheep rollers, soil blanketing, coir matting are innovations towards pollution control measures in solid waste disposal area.

OUR AWARDS AND ACHIEVEMENTS

Vedanta Limited has focused initiatives in health, education, livelihood and infrastructure amongst several others, in the Kalahandi region. The Lanjigarh unit has been conferred with several awards and recognitions across various critical business functions including:

- Excellent Energy Efficient Unit award 2019 for Technological Advancements in Energy-Efficiency
- India Green Manufacturing Award 2018 for best Green Manufacturing Processes
- Greentech Safety Award 2018 for its best Safety Management and Operations
- Kalinga Safety Award 2017 and 2018 for excellence in Safety Practices in alumina sector.
- 6th CSR Impact Award 2019 for Dhokra art under the 'Aajeevika' Livelihood project
- CSR Health Impact Award 2019 under the Swachhta Project for success of Open Defecation Free (ODF) project in the villages
- Platinum Award by Greentech Safety Award 2019 for Safety Practices
- Gold Award in the metals sector by Frost & Sullivan's India Manufacturing Excellence Awards 2019


Lanjigarh Alumina Refinery

MYTH vs. FACT

Myth: The ambient air in Lanjigarh has become very polluted and is now potentially fatal for all the villages in the region.

Fact: The ambient air quality is constantly monitored by the company and the pollution control board. It remains within permissible limits and in fact has become better due to constant innovations by the company to maintain air quality to the highest standards. Continuous tree plantations every year helps towards this effort.

Myth: The red mud pond is dangerous to my family and my livelihood since my village is near the pond.

Fact: The red mud pond has zero discharge on all sides including the floor built with HDPE (High Density Poly Ethylene) liner. All adjoining villages can safely inhabit around it and the pond itself poses no risk to anyone.

Myth: The red dust is hazardous/toxic, life threatening and a potential danger to my life and family members. It causes rashes and itching to the body when one comes into contact.

Fact: The red dust is not hazardous or toxic in anyway. It is not life threatening at all and causes no danger to anyone. The red dust poses no risk to the safety of anyone inhabiting the areas adjoining the pond. The minimal dust blown by the wind is very similar to normal dust with negligible health impact. The company is working constantly to reduce the dust from being emitted due to abnormal weather conditions. Recently documented cases of rashes and skin ailments were investigated and checked by medical professionals. Sadly, those cases were chronic illnesses and unrelated to the dust.

Myth: The water from the red mud pond has seeped into the groundwater of my village and has polluted all my water sources for living and agriculture.

Fact: All the water bodies in the plant areas are lined with HDPE (High Density Poly Ethylene). This eliminates any possibility of ground water seepage or contamination. There is zero risk or chance of any ground water being polluted by the red mud pond or treated water inside. The company is constantly monitoring and analysing the ground water quality on a weekly basis which removes any risk of contamination. Recent specific sampling of around 40 samples of ground water / tube wells / surface water streams indicated zero contamination.

Myth: The red mud pond which is now as big as a hill will one day break and fall on all of us and we will drown in the slurry stored.

Fact: The red mud pond is dry mud as the company has started dry stacking of red mud with a new and innovative design from a global consultant verified by Indian technical and research institutes. The boundary walls of the red mud pond have been built to create a pre-approved capacity. After the capacity is reached, a plan to close it is in place. At the same time, a new red mud pond is to be constructed and there is no risk of the red mud pond breaching or breaking.

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GET IN TOUCH

We value your feedback and welcome comments on this report or any aspect of our approach to sustainability.
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