



National Aluminium Company Limited

4th Sustainable Development Report

2014-15

Fostering Sustainable Growth



GRI G4 'In Accordance' - Core option

यत ते भूमे विश्वनामी क्षिप्रं तदापि रोहतु ।

मा ते मर्म विमृग्वरि मा ते हृदयमर्पिषम ।।



Oh! Mother Earth, when I dig out
trees, roots and other substances
for food and medicines from your body,
let your wounds heal quickly.
Let me never hurt the essence of your vitality,
the source of all creations and turn you barren.

**From the Hindu Scriptures
Atharva Veda (Circa 1000 BC)**



Vision

To be a reputed global Company in the Metals and Energy Sectors

Mission

- ◆ To achieve sustainable growth in business through diversification, innovation and global competitive edge.
- ◆ To continuously develop human resources, create safe working conditions, improve productivity and quality, and reduce cost and waste.
- ◆ To satisfy the customers and shareholders, employees and all other stakeholders.
- ◆ To be a good corporate citizen, protecting and enhancing the environment as well as discharging social responsibility in order to ensure sustainable growth
- ◆ To intensify Research & Development for technology development.





Sustainable Development Policy

Sustainable Development is an integral part of our business with specific focus on economic, social, environmental & energy related issues. We also dedicate ourselves to strive for continual improvements in our systems, processes, procedures and work ethos for enhancing satisfaction of all our stakeholders, guided by the following principles.

Guiding Principles

- Relentless pursuit of holistic advancements in Quality, Productivity, Safety, Occupational Health, Innovation & Technology including adoption of Green Technology with a view to enhancing value creation for all stakeholders.
- Embedding integrity, ethical 'Human Rights' practices, transparency, mutual trust & respect with commitment to social responsibility in all our operations for driving inclusive growth and harmonious socio-economic development of communities.
- Aligning our growth with preservation of natural resources; ecosystems & biodiversity; environmental excellence; waste utilisation; energy efficiency and reduction of Green House Gas emissions.

Commitment

We are committed to continually improve with focus on issues pertaining to economic, social, energy conservation and environmental protection to ensure a better planet for future generations.

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Message from the CMD

"Our commitment to Sustainable Development is embedded in our strategy for economic growth and the focussed initiatives taken for the planet and the people."



Dear Stakeholders,

I am delighted to present the fourth edition of our Sustainable Development Report, for the year 2014-15, prepared in accordance with the latest G4 guidelines of Global Reporting Initiative. This report is a voluntary, transparent and balanced communication of our economic, environmental and social performance. It has been brought out with an objective to communicate key issues and achievements regarding inclusive development to all our esteemed stakeholders. With this report, we reaffirm our strong commitment to Sustainable Development, attuned to our Vision of being a reputed global company.

You will be pleased to know that our performance during the year 2014-15 was significantly excellent, both in physical as well as in financial terms. I take this opportunity to convey my appreciation to the Nalco collective for their unstinted support in achieving this excellent performance.

Global economic growth in 2014-15, was a modest 3.4%, reflecting resurgence in advanced economies as well as

continued slowdown in developing and emerging markets. Complex forces that affected global economic activities in 2014 are still in play, influencing the economic scenario. With India set to emerge as the world's fastest-growing major economy and buoyed by the initiatives of Govt. of India such as 'Make in India', 'Digital India', Skill Building, Reform in Mining and Power Sectors, Infra & Construction Projects, it is expected that India will ride strongly on growth trajectory, in the years to come.

World Aluminium Market is sluggish and global prices are under supply side pressure due to excess production and subdued demand. Prices of aluminium are generally expected to remain low in the near-term due to sluggish global demand for the metal, as well as uncertain macro-economic environment prevailing globally.

Domestically, with increasing investment by the Central Government in power transmission, India has seen improved demand growth from the electrical sector, during 2014-15. Demand growth is likely to be the highest in transport, building and construction sectors, but other sectors are also expected to grow simultaneously. It is estimated that by 2020, India would double its consumption to 5 million tonnes.

Future growth prospects for aluminium in the country are seen in products like beverage cans, alloy wheels, automobile bodies and railway coaches. Growth is also seen in use of aluminium in the housing sector, in the backdrop of growing emphasis on protection of environment and prevention of deforestation.

In terms of production, our Aluminium Smelter achieved cast metal production of 3.27 lakh tonnes in 2014-15. This included 96,070 tonnes of Wire Rod and 39,803 tonnes of T-Ingot, the highest-ever produced since inception. Alumina Hydrate Production of 18.51 lakh tonnes was achieved and the Captive Power Plant of the Company registered net power generation of 5,131 million units (MU).

In the Green Energy front, 181 MU of wind energy was generated, the highest-ever during a year by operation of a 50.4 MW Wind Power Plant at Gandikota in Andhra Pradesh and another 47.6 MW plant at Jaisalmer in Rajasthan. During the year, commissioning of 260 KWp Rooftop Solar Power System at Corporate Office and Township in Bhubaneswar, was also completed.

It is a matter of pride that during the year, a Net Profit of Rs.1322 crore was realised, reflecting a hefty rise of 106%, compared to Rs.642 crore achieved during the previous fiscal. The export turnover of the Company for the fiscal was Rs.3307 crore. The Company achieved the highest-ever gross turnover of Rs.7771 crore against Rs.7024 crore achieved last year, with the previous best being Rs.7247 crore achieved in FY 2012-13.

We are targeting to be a global player in the mining, metal and energy sectors and it is planned to increase the existing bauxite, alumina and metal productions and to start coal mining. The much-awaited and much-needed allocation of Utkal D & E Coal blocks is expected to give a boost to this effort. Our action plan includes increasing the volume of production, go for expansion & modernization of our plants and diversification of products. We have already diversified into renewable energy with process underway for putting up additional windmills and solar plants. These apart, our plan is to become a model independent power producer.

In the domain of Energy Management, initiatives launched at units have enabled us to achieve the Perform, Achieve & Trade (PAT) cycle 1 targets, set for our Alumina Refinery and S&P Complex. This achievement is also duly certified by accredited Energy Auditors in the panel of Bureau of Energy Efficiency, Govt of India. Our Smelter Plant also got certified to ISO 50001 International Standard on Energy Management System during the year. With this, all the three units of Nalco covered in the PAT scheme i.e. CPP, Alumina Refinery and Smelter, are now certified to ISO 50001.

R&D initiatives are taken up for achieving technological excellence and process improvements. We are in the advance stage of setting up a state-of-the-art research centre at Bhubaneswar. We are amongst the few companies, which consistently spend more than 1% of Profit After Tax, towards R&D as mandated by Govt. of India.

In the field of safety and occupational health, all production units are certified to International Standards under OHSAS 18001. All employees and contract labourers are provided with personal protective equipment (PPE) and imparted safety training regularly. This year has also been free from any fatal accident.

Our CSR activities are focused on development of villages located in the periphery of Mines & Refinery Complex at Damanjodi, Smelter & Power Complex at Angul and also the proposed mining areas in Odisha and Andhra Pradesh. Through initiatives such as Swachh Vidyalaya Abhiyan, we have actively participated in the campaign initiated by Hon'ble Prime Minister on Swachh Bharat and has earned profuse appreciation from the Ministry of HRD, Govt of India for our achievement, which exceeds the target set by the Ministry for constructing toilets in schools of Odisha and Andhra Pradesh. Nalco has also launched 'Nalco ki Ladli' Scheme, under the 'Beti Bachao, Beti Padhao' programme, initiated by Govt. of India recently, to promote meritorious girl-students from BPL families, studying in the periphery schools of our production units.

We are also successfully operating 4 Mobile Health Units (MHUs) in Damanjodi sector covering 142 villages and 3 MHUs & 1 OPD in Angul sector covering 43 villages, benefiting 1,06,272 patients from periphery villages during 2014-15. We have continued the unique scheme of sponsoring children, predominantly belonging to SC/ST community, from peripheral villages of Damanjodi, to three residential schools bearing the entire cost of education. So far, we have sponsored 655 students in this scheme.

We are firmly committed to maintain our position as a vital cog in the growth engine of the national economy and play a proactive role in ensuring inclusive development for all. I once again congratulate all our valuable stakeholders for being a part of this journey of growth and corporate excellence and also seek their consistent support for achieving the goal of sustainable growth while keeping our flag high as a responsible corporate citizen.

With Best Compliments

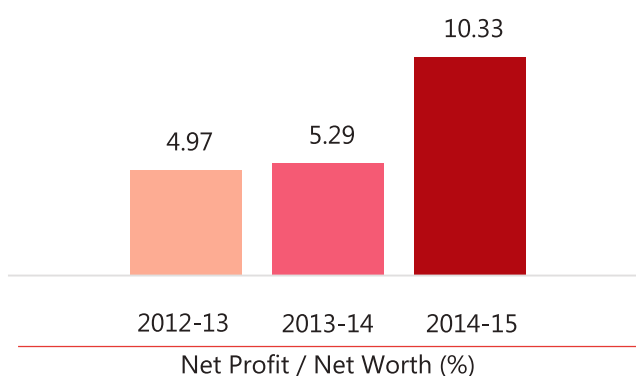
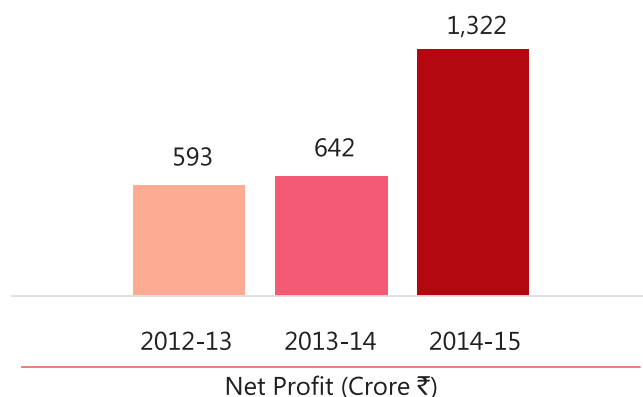
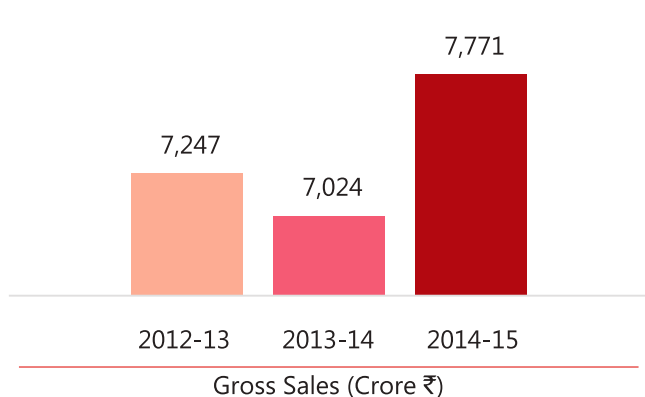
Tapan Kumar Chand
Chairman-cum-Managing Director



Dr. Tapan Kumar Chand has authored a book titled 'Aluminium : The Strategic Metal'. The book has been reviewed by Dr. Abraham Koshy, Professor, Indian Institute of Management (IIM), Ahmedabad. Dr. Abraham has described it as "One Stop Shop" for key information pertaining to the entire value chain of aluminium making from bauxite mining to rolling, casting and high end product making. The book is primarily meant for frontline engineers, professionals, scholars and intellectuals interested in aluminium sector. Besides, the major objective of the book is to **promote strategic use of aluminium and giving a push to green movement**. In the wake of smart cities coming up, the author pleads for extensive use of aluminium to make smart cities

green cities. During the recent visit of the Hon'ble Prime Minister Shri Narendra Modi to Bhubaneswar, Dr. Chand extended him a warm welcome on behalf of all the industries and presented him this book. Shri Modi was very appreciative of Dr. Chand's thoughts and concerns, highlighted in the book.

Key Highlights of 2014-15



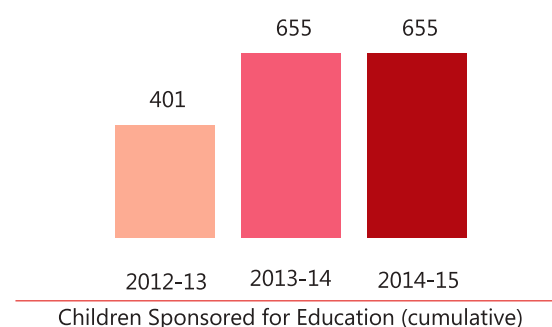
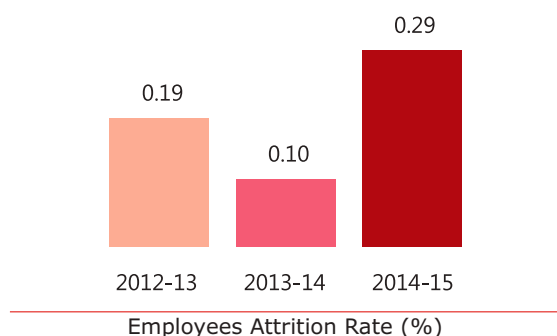
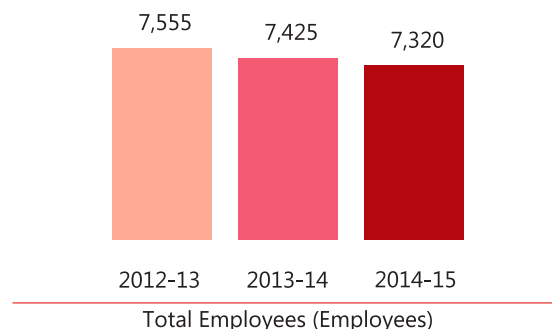
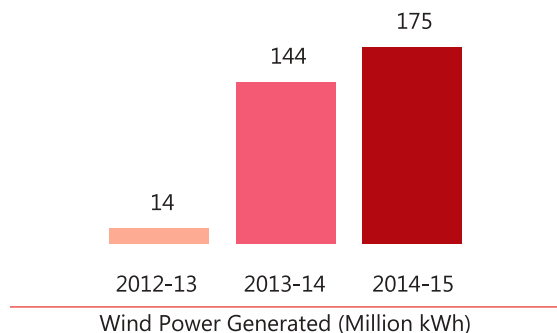
Highest ever production of 96,070 MT of wire rod and 39,803 MT of T ingot achieved in Smelter



Successful commissioning of 260 KWp roof top solar power system at Corporate Office and township buildings at Bhubaneswar generating 167 MWh energy during the year



Rs.19.09 crore spent towards Corporate Social Responsibility (CSR) adopting all the thrust areas identified in the Schedule-VII of the Companies Act, 2013



Energy Management System (EnMS) conforming to ISO 50001 successfully implemented and certified at Smelter leading to ISO 50001 certification of all the units covered under Perform, Achieve and Trade scheme



Rated as 'Excellent' as per the Memorandum of Understanding (MoU), signed with the Government of India for Year 2014-15



Succession Planning Policy developed to identify talent and Employee Satisfaction Survey conducted throughout the organization, indicating job satisfaction level



About the Report

This fourth sustainability report by NALCO for the financial year 2014-15 from April 2014 to March 2015 is a medium of communication aimed at internal and external stakeholders including our employees, customers, local communities, society at large, government, indigenous people, media, and those with business interests in our company (e.g., shareholders, business partners or industry associations) with an objective to apprise them about the sustainability targets and achievements of the organisation and to address the concerns raised by our valued stakeholders.

Having started on this sustainability reporting journey since 2011-12, NALCO has endeavoured to present the sustainability performance across the three pillars i.e. economic, environmental and social aspects, in a balanced, clear, reliable, accurate, reasonable and transparent manner. There has also been an emphasis to structure the contents as per the most relevant and latest reporting practices and as a result, this report has been designed to meet the requirements of GRI G4. To this effect, all the relevant aspects from Indicator Protocol, Sector Supplements and Technical Protocol have been incorporated. The report adheres to the reporting principles of GRI Reporting Guidelines namely, materiality, stakeholder inclusiveness, sustainability context and completeness. Being the first year of reporting as per GRI G4, the report has been prepared as "In Accordance – Core" option.

Reporting Scope and Boundary

This report includes information on various business units of NALCO including the Bauxite Mine at Panchpatmali hills, Alumina Refinery at Damanjodi, Smelter unit and Captive Power Plant at Angul and Port facility at Vishakhapatnam. Other business units such as joint ventures, subsidiaries, leased operations, outsourced operations and services are not included in the report boundary. There were no significant changes during the reporting period in size, structure, ownership or reporting boundary.

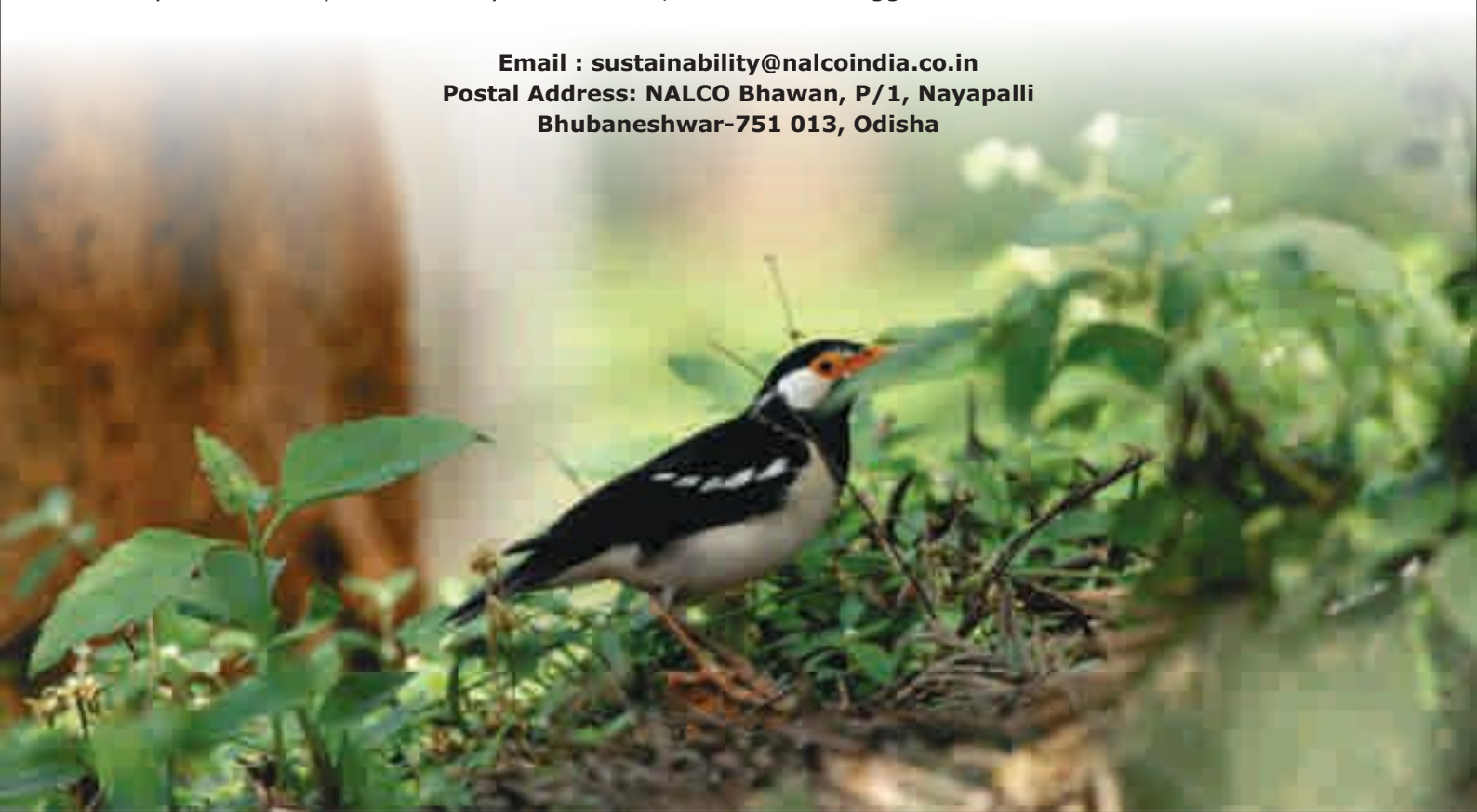
Reporting standards

Financial performance of the organization is reported on the basis of guidelines provided in the Company's Law. Regular quality, environment, health and safety and social audits are conducted against International Standards such as ISO 9001, ISO 14001, OSHAS 18001 and SA 8000. Financial Systems have successfully undergone the statutory audits and internal audits. Norms and procedures prescribed for the work place safety under the Ministry of Labour & Welfare (Factories Act), the Ministry of Environment, Forests and Climate Change and Directorate General of Mines Safety are followed.

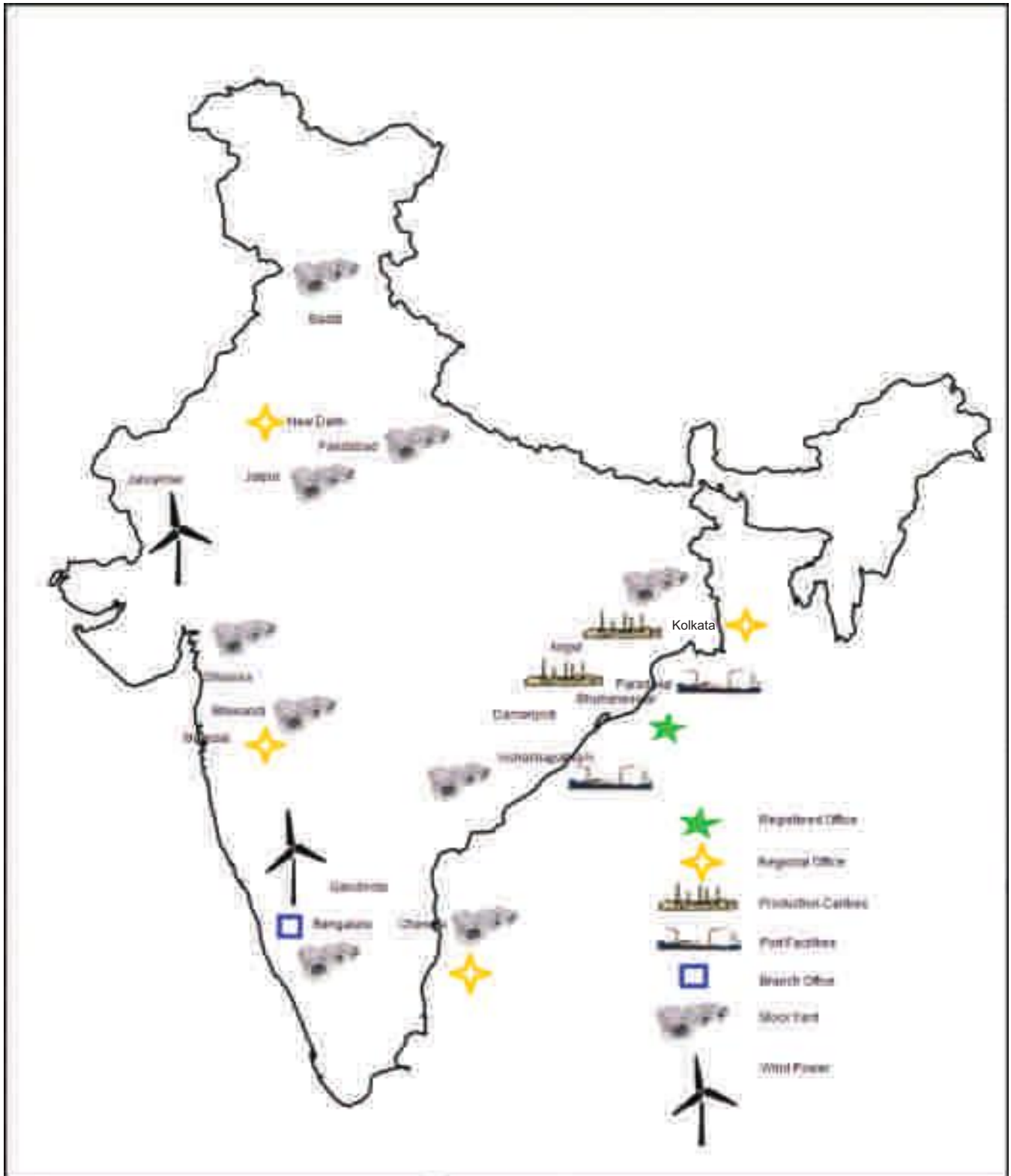
We have also tried to address the 3 principles of Accountability as per AA1000 APS – 2008; the principles of Inclusivity, Materiality and Responsiveness. The report represents the balanced and reasonable presentation of our contributions in the area of sustainability.

We appreciate your feedback and any comments on the report, so we can improve our future reports. You may send/ email your feedback, comments or suggestions to:

Email : sustainability@nalcoindia.co.in
Postal Address: NALCO Bhawan, P/1, Nayapalli
Bhubaneshwar-751 013, Odisha



Pan-India Presence



NALCO enjoys the advantage of having its footprint across the different regions of the country. The production centres and port facilities are primarily located on the eastern region of India. Regional offices and branch offices are present at strategic locations. Customers have ready access to world-class products of Nalco through its well-managed stockyards across the country.

Global Market Outlook

Aluminium has always held its position as a preferred metal globally owing to its numerous favourable properties. Currently it is also the second most used metal in the world after steel. Global Aluminium Production grew by 6.9% from 50.59 million Tonnes in 2013 to 54.11 million Tonnes in 2014 while global consumption grew by 7.4 % from 50.26 million Tonnes in 2013 to 53.97 million Tonnes in 2014. The Aluminium market, thus, recorded a marginal surplus of 0.14 million Tonnes in 2014. China continued to be the world's largest producer and consumer of Aluminium with a production level of 28.3 million tonnes, constituting roughly 52% of total global output and consumption level of 27.2 million Tonnes, constituting roughly 50% of world consumption.

Global aluminium demand growth is expected to average 5.5% or more in coming years. Supply of aluminium unlikely to grow much more than 3% becoming increasingly constrained from 2016 onwards. Macroeconomic indicators suggest that

the Chinese economy has slowed significantly. However, North American demand growth is expected to be high in 2015, considering the improving economy and increasing intensity of usage of aluminium in the transport sector. US automobile manufacturers are increasing aluminium content in vehicles to lower vehicle weight and comply with CAFE requirements and European fuel efficiency requirements are also becoming strict leading to faster adoption of lighter aluminium. In China, aluminium is seen as "green" product with multiple applications in low-energy technology and China will soon ramp up aluminium content of automobiles. (Source: London Metal Exchange)

The London Metal Exchange aluminium prices have been highly volatile throughout the year in 2014, fluctuating between a low of USD 1641.5 in February 2014 (which was the lowest level for the last 5 years) to a high of USD 2099 in November 2014. (Source: London Metal Exchange)



Domestic Market Outlook

The total domestic production of aluminium metal during FY 14-15 grew by 18.3% to reach 2.05 million tonnes in 2014-15. Total domestic consumption of primary metal during 2014-15 remained nearly flat with respect to 2013-14 levels at 1.58 million tonnes. Primary aluminium exports by Indian producers also registered an impressive 58% growth from 0.49 million tonnes in 2013-14 to 0.77 million tonnes in 2014-15.

For the period 2010 to 2016, India would be the only country in the world registering a compounded annual growth rate in the consumption of aluminium. This would be a little above 1%. Companies in India are investing heavily in the aluminium sector. This is a sure sign of dynamism in this sector. The planned investment of over

US\$ 1 trillion in infrastructure over the period 2012-2017, as per the 12th five year plan, would provide a great opportunity to the aluminium industry. India's consumption of aluminium has grown at a CAGR of 15%, in the last 5 years. In terms of aluminium consumption, power sector would lead the way, in the years ahead. Strong trends also visible in areas like automotive, food packaging and electrical. For example, tetra packs will grow at 22% p.a., in India. Aluminium industry would be a direct beneficiary of this. India is importing aluminium products from various countries, across the world. The major items being imported are aluminium processing machinery, raw materials, surface treatment materials and plates/sheets/foils. (Source: Aluminium India)

Alumina

The year 2014 has been a positive year for alumina industry with production and consumption both registering growth globally. Production has risen by 4.8% and stands at 106.26 million tonnes while consumption has increased by 7% to reach 105.44 million tonnes in 2014. On the downside though, this has resulted in a global surplus of about 0.82 million tonnes. China is leading the global production as well as consumption accounting for 49% and 53% share respectively, while Middle Eastern countries are generating healthy demand growing at more than 20% annually.

Aluminium (million T)	World		India	
	2013-14	2014-15	2013-14	2014-15
Production	50.59	54.11	1.73	2.05
Consumption	50.26	53.97	1.58	1.58



Know NALCO

National Aluminium Company Limited (NALCO) is a Navratna CPSE under Ministry of Mines, Govt. of India. It was established on 7th January, 1981, with its registered office at Bhubaneswar. The Company is a group 'A', Central Government Public Sector, having integrated and diversified operations in mining, metal and power with gross turnover of Rs. 7,771 crore in financial year 2014-15.

NALCO is the first company in Aluminium sector in the Country to venture into International market in a big way with London Metal Exchange (LME) registration since May, 1989. The Company is listed at Bombay Stock Exchange (BSE) since 1992. All the manufacturing units and the port facility of the Company are certified to ISO 9001, ISO 14001 and OHSAS 18001 Management Systems and Integrated Management System operates at these units. The energy intensive manufacturing units i.e. Smelter, CPP & Alumina Refinery are also certified to ISO 50001 Standard for Energy Management System. Besides, all the manufacturing units and corporate office are also certified to SA 8000.

NALCO is a major producer of aluminium metal in the country and is the largest exporter of alumina in India. The export aluminium markets served by the company include: Netherlands, Italy, Bangladesh, Korea, Malaysia, Singapore, Vietnam, Turkey, Thailand, Indonesia, China, UAE, Israel, Taiwan, Sri Lanka, etc. Top-quality Alumina produced by the company is exported to China, Egypt, Georgia, Romania, UAE, Ukraine, Bahrain, Qatar, etc.

Product Category	Products	Applications
Aluminium products	Ingots, Alloy Ingots, T ingots, Sows, Billets, Wire Rods, Cast Strips	Ingots used for electrical conductors, casting, extrusions and other applications. Billets are basic input for manufacturing high-quality extrusions. Wire rod coils have wide applications in conductor & cable industry
	Aluminium Rolled Products Aluminium Chequered Sheets	Rolled and Chequered sheets widely used in manufacturing and automobile industry
Alumina Products	Calcined Alumina, Alumina Hydrate, Special Alumina & Hydrate	Special Aluminas & special Hydrates have applications in refractory and ceramic industries
		Special hydrates used as filler material in plastic, rubber, paper etc. and manufacturing alumina chemicals



Description of various units of NALCO

Bauxite Mining

On Panchpatmali hills of Koraput district in Odisha, a fully mechanised opencast mine of 68,25,000 tons per year capacity is in operation since November, 1985, serving feedstock to Alumina Refinery at Damanjodi located on the foothills. The transportation is done through a 14.6 km long single-flight, multi-curve cable belt conveyor of 1800 TPH capacity.

Alumina Refinery

The Alumina Refinery of 22,75,000 tons per year capacity is located at Damanjodi, Odisha, approximately 14 km from the Bauxite Mine at Panchpatmali. The Alumina produced is transported to Aluminium Smelter at Angul (Odisha) and to Visakhapatnam Port by rail. Alumina produced is used to meet the requirements for production of primary aluminium at Smelter. Surplus Alumina is exported for sale in overseas markets.

Aluminium Smelter

The 4.60 lakh tons per year capacity Aluminium Smelter is located at Angul in Odisha. Alumina is converted into primary aluminium through a smelting process by using robust AP 18 smelting technology. The plant has integrated facilities for manufacturing Standard & Alloy Ingot, Sow Ingots, T-ingots, Billets, Wire Rods, and Rolled products. Products are sold domestically and exported through Kolkata, Paradeep & Visakhapatnam ports.

Captive Power Plant

Presently the Captive Thermal Power Plant has a generation capacity of 1200 MW (10 X 120 MW). While the captive thermal power plant provides power requirement

of Aluminium Smelter, it also feeds power to Alumina Refinery through the State Grid. The location of captive thermal power plant at Angul is also strategic to the availability and supply of coal from nearby Talcher Coalfields of Mahanadi Coalfields Limited.

Port Facilities

On the Northern Arm of the Inner Harbour of Visakhapatnam Port on the Bay of Bengal, NALCO has established mechanised storage and ship handling facilities for exporting Alumina in bulk and importing Caustic Soda. The current handling capacity of port is 14,00,000 Tons per year. NALCO also uses the ports of Paradeep and Kolkata for export of Aluminium.

Wind Power Plants

The 1st wind power plant of capacity 50.4 MW (2.1 MW, 24 nos. WEGs) in Gandikota, Andhra Pradesh was commissioned in December 2012 and the 2nd wind power plant of capacity 47.6 MW (0.85 MW, 56 nos. WEGs) in Jaisalmer, Rajasthan was commissioned in Jan'2014. Both the plants are in operation.

Rooftop Solar System

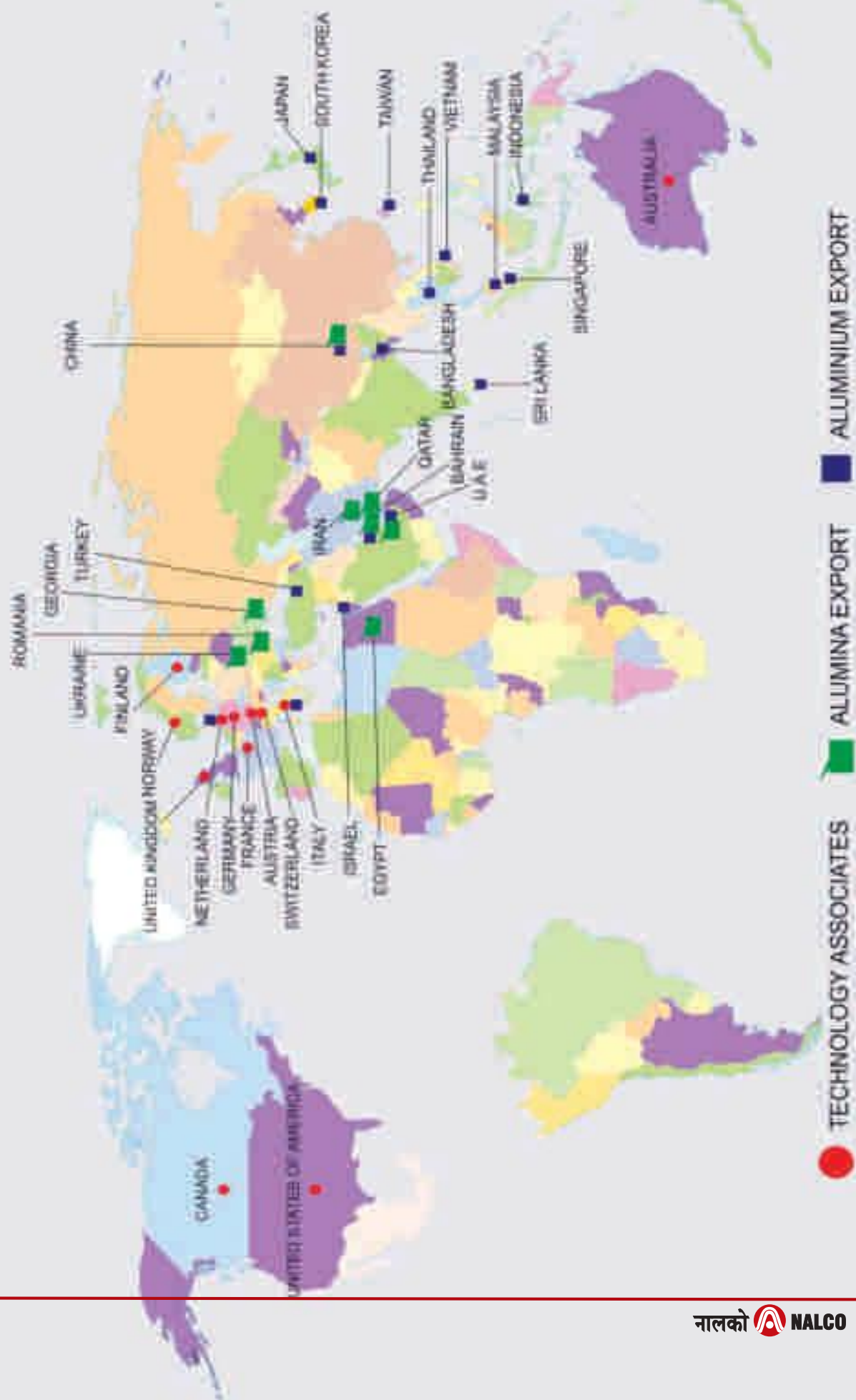
NALCO has commissioned 260 KWp Rooftop Solar Power plant at Corporate Office and NALCO Township at Bhubaneswar during the FY 2014-15.

Nuclear Power

The Company has formed a JV Company with Nuclear Power Corporation of India Limited (NPCIL) for developing 2 X 700 MW Nuclear Power Plants at Kakrapar in Gujarat.



Global Footprint



Our Sustainability Approach

NALCO has held its reputation as a prominent alumina and aluminium producer since past three decades. Our products are widely sought by customers because of the high quality value and adherence to national as well as international standard specifications. We enjoy the benefit of having presence across the complete aluminium production value chain. This results in NALCO touching lives of innumerable stakeholders who are directly and indirectly associated or impacted through our activities.

Sustainability for NALCO is a driver for industrial and economic growth of nation, setting benchmarks for conducting business with sound governance and managing environmental issues while ensuring inclusive growth by meeting the needs and aspirations of the community members.

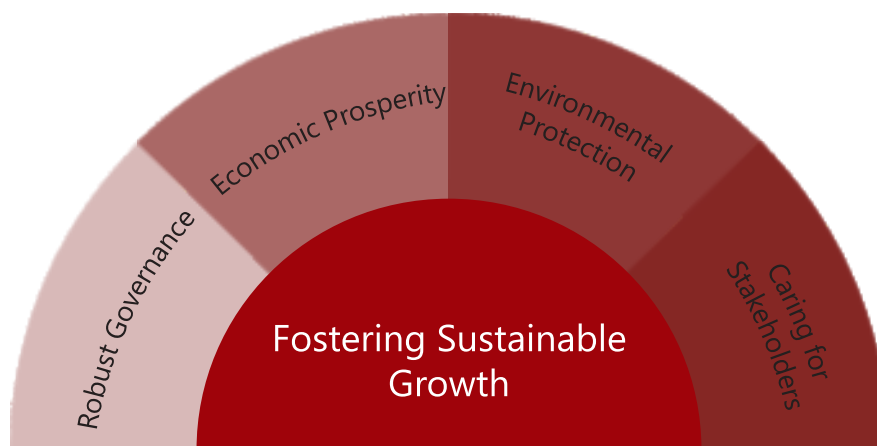
Over three decades of robust growth and performance are testimony to the credo of economic sustainability at NALCO. Holding vantage point as a result of the presence in core sectors and key strategic investments, we are confident of delivering healthy growth in coming years.

Commitment to preserving environment and minimising the adverse effects of our operations has always been our priority and NALCO has strived to go beyond ensuring compliance and adopted best practices to establish operational excellence. Efficient use of energy and resources, waste management, reducing dependence on freshwater while recycling and reusing process water and developing eco-friendly products are some of the focus areas adopted by NALCO.

We recognise the fact that employees are the true driving force behind the success of any organisation and great impetus is given to address all their needs and concerns to enable them in charting out a rewarding professional career. NALCO prides itself on having commendable track record for health and safety and it is accorded highest priority. Our philosophy for sustainable development encompasses responding to needs of local communities and addressing core issues such as education, healthcare, gender empowerment and creating avenues for sustainable livelihood.

However, mining operations involve high degree of environmental impacts spreading over from exploration to extraction and processing. These impacts do not remain confined to just the mining location but extend much beyond impacting surrounding life as well. Our philosophy is to strive for sustainable business achieving economic growth, social equity and environmental balance.

Our products, reach the end users for use in different sectors. In the transportation sector, use of Aluminium reduces the overall weight of an automobile/ aircraft or commercial vehicle as compared to other metals. This improves the fuel economy resulting in net positive environmental impact achieved by significant reduction of emissions during vehicle use phase. Through Research & Development activities, efforts are made towards bringing in innovation & improvements to consistently produce quality products with better energy efficiency, thereby reducing the carbon footprint.



Sustainability at NALCO

Key Sustainability Targets & Performance

Priority Aspect	Business Risk	Key Stakeholders	Target for 2014-15	Achievement
Economic	Falling price of Aluminium	<ul style="list-style-type: none"> Employees Stake holders 	<ul style="list-style-type: none"> Sales turnover – ₹6,925 crores PAT/Net worth – 4.79% Sales turnover/ Net block – 102.05% Average number of days of inventory - 79 	₹7,262 crores 10.33% 109.27% 78
Environment	Material conservation	<ul style="list-style-type: none"> Society Government Customers Regulators NGO 	<ul style="list-style-type: none"> Aluminium fluoride consumption – 19.5 kg/MT Lime consumption – 33 kg/MT 	17.11 27.13
	Energy efficiency	<ul style="list-style-type: none"> Regulators Community NGO Government 	<ul style="list-style-type: none"> Commissioning of 160 KWP Roof Top Solar Plant at Corp. Office – Aug.'14 Smelter DC Power consumption – 13,500 KWH/MT 	May'14 13395
	Water management	<ul style="list-style-type: none"> Community Government Other industries in vicinity 	<ul style="list-style-type: none"> Implementation of Rain Water Harvesting System in Mines – Dec.'14 	Dec.'14
	Green Energy initiative	<ul style="list-style-type: none"> World community Regulators 	<ul style="list-style-type: none"> Tendering for 100 MW Wind Power Plant – Jan.'15 	Sep.'14
Labour practices	Training	<ul style="list-style-type: none"> Employee Contractors Contract labour 	<ul style="list-style-type: none"> Skill and behavioural training to workmen – 15% Training to senior, middle and lower management as per functional requirement – 50% 	18.46% 70%
	Employee satisfaction	<ul style="list-style-type: none"> Employee Contractors Contract labour 	<ul style="list-style-type: none"> Finalising succession planning policy – Jan.'15 Employee satisfaction survey completion – Dec.'14 	Jan.'15 Dec.'14
Human Rights	Freedom of association and collective bargaining	<ul style="list-style-type: none"> Employees Contract labour 	<ul style="list-style-type: none"> Number of structured meeting with Recognised Unions/ Associations etc. – 12 	17
Social	Community welfare	<ul style="list-style-type: none"> Community Society Employees 	<ul style="list-style-type: none"> Sponsoring formal education to tribal / non-tribal children of peripheral village – 600 	655
Product Responsibility	Customer satisfaction	<ul style="list-style-type: none"> Supplier Customer Share holders 	<ul style="list-style-type: none"> Customer satisfaction index target minimum 0.7 – 90% Customer complaints per unit of sale – 0.5% of turn over 	100% 0.009%

Stakeholder Engagement and Materiality Assessment

The expectations and the concerns of stakeholders & the extent to which the relevant issues are addressed, play a vital role in influencing the sustainable growth of an organisation. Stakeholders are the pillars on which the success and subsequent growth of an organisation squarely rest upon. We recognise this aspect and assign due importance to the perceptions and concerns of our valued stakeholders. Our philosophy is to respect the perspectives of all stakeholders and prioritise the captured feedbacks received from them for consideration during relevant decision making process in the organisation. Sensible handling of the stakeholder concerns, fosters long-term growth and provides the social license to perpetuate our economic growth. A structured stakeholder engagement process provides the framework to identify the various risks and concerns in a broader perspective enabling an organisation to develop suitable strategies to address the important issues. The outcome of the stakeholder engagement process is analysed to identify and prioritise the material aspects to be considered by the organisation.

Stakeholder Engagement Approach of NALCO

We are guided by a comprehensive framework for Stakeholder engagement. Interactions with the stakeholders on regular basis not only builds an enduring relationship with all the stakeholders, but also through this, potential & existing risks and

challenges are identified and their impact on our business is assessed. This also provides the opportunity to keep our stakeholders well informed about the genuine concern of our organisation towards their needs.

The important stakeholders identified are Government & Regulatory Authorities, Employees, Investors & Shareholders, Industry Associations, Customers, Civil Society Organisations, Suppliers & Vendors etc. Engagement with these stakeholders are done through structured forums like vendors meet, interactions with suppliers, customers meet, regular meetings with shareholders & investors. Active involvement with industry associations and other membership-based organisations, also provides great opportunities to capture the voice of stakeholders through informal means.

The information pertaining to stakeholders is periodically updated through formal or informal channel of communication. The perspectives of these high impact stakeholders are taken into consideration while mapping the prioritised sustainability issues across important domains i.e. Economic, Environment, Labour Practices, Human Rights, Social, Corporate Governance etc. Sharing important and relevant information with our stakeholders also enhances our brand image, with a positive impact on our long term success. The process is detailed in the stake holder engagement matrix.



Stakeholder Engagement Matrix

Stakeholder Categories	Engagement Avenues	Concerns by Stakeholders	Actions by NALCO	Benefits of Engagement
Government & Regulators	<ul style="list-style-type: none"> • Routine meetings with Centre and State Government, Ministry of Corporate Affairs, Ministry of Environment, Forests and Climate Change on economic, environmental and social issues. • Periodic communications and submissions of various compliances to statutory authorities. 	<ul style="list-style-type: none"> • Local developmental priorities and Infrastructure amenities needs assessment • Renewable purchase obligations • Energy efficiency requirements under Perform -Achieve-Trade • Forest & Environmental compliance • Other applicable acts like Factory and Boiler regulations, Mines and mineral conservation act, Factory act etc. 	<ul style="list-style-type: none"> • MoU with the Ministry of Mines. • Periodic government submissions • Meetings with Govt. • Parliamentary Committee visits • District administration on peripheral development work • Annual reports and regulatory filings. • Supporting visits as required by regulatory authorities to plants, units, offices. 	Ensuring compliance, collaboration with Government on social development
Shareholders & Investors	<ul style="list-style-type: none"> • Annual General Meetings, Periodic financial reports to shareholders and investors • Interactions with financial institutions, shareholders as per statutory need. • Shareholders' surveys and meets 	<ul style="list-style-type: none"> • Economic performance of the organization • Dividend, results and other issues • Grievance resolution 	<ul style="list-style-type: none"> • Analyst meet & conference calls • Analyst briefings • Quarterly results • Annual general meeting • Annual report • Press releases • Website updates • Shareholder's grievance committee 	Wealth creation for shareholders, raising equity, infusion of capital in business
Employees	<ul style="list-style-type: none"> • Periodic interaction with labour unions and associations • Dialogues and communication at department, unit, plant level • Internal magazines and e-newsletters • Employee satisfaction surveys • Grievance redressal forums 	<ul style="list-style-type: none"> • Employee benefits and compensation • Performance management and recognition • Employee grooming and development 	<ul style="list-style-type: none"> • Bulletin boards • Newsletters, mailers • Grievance redressal mechanism • Employee committees • Intranet portal • Periodic meetings with officer's association • Meeting with workmen unions 	Improvement in the motivation and satisfaction levels of employees, timely detection and resolution of grievances, free-flowing communication
Customers & Consumers	<ul style="list-style-type: none"> • Regional and national customer meets • Customers' plant visits and management interactions • Customer satisfaction surveys • Customer feedback and grievance redressal forums 	<ul style="list-style-type: none"> • Product quality, cost, and delivery Product performance including environmental aspects • Customer feedback • Customer complaint resolution 	<ul style="list-style-type: none"> • Product information through website. • Biennial customer satisfaction surveys • Customer complaint resolution system. • In person customer facility visits and engagements to jointly address any technical issues, as and when necessary 	Satisfied customers and improvement in satisfaction indices, stronger bonds with consumers resulting in long-term patronage

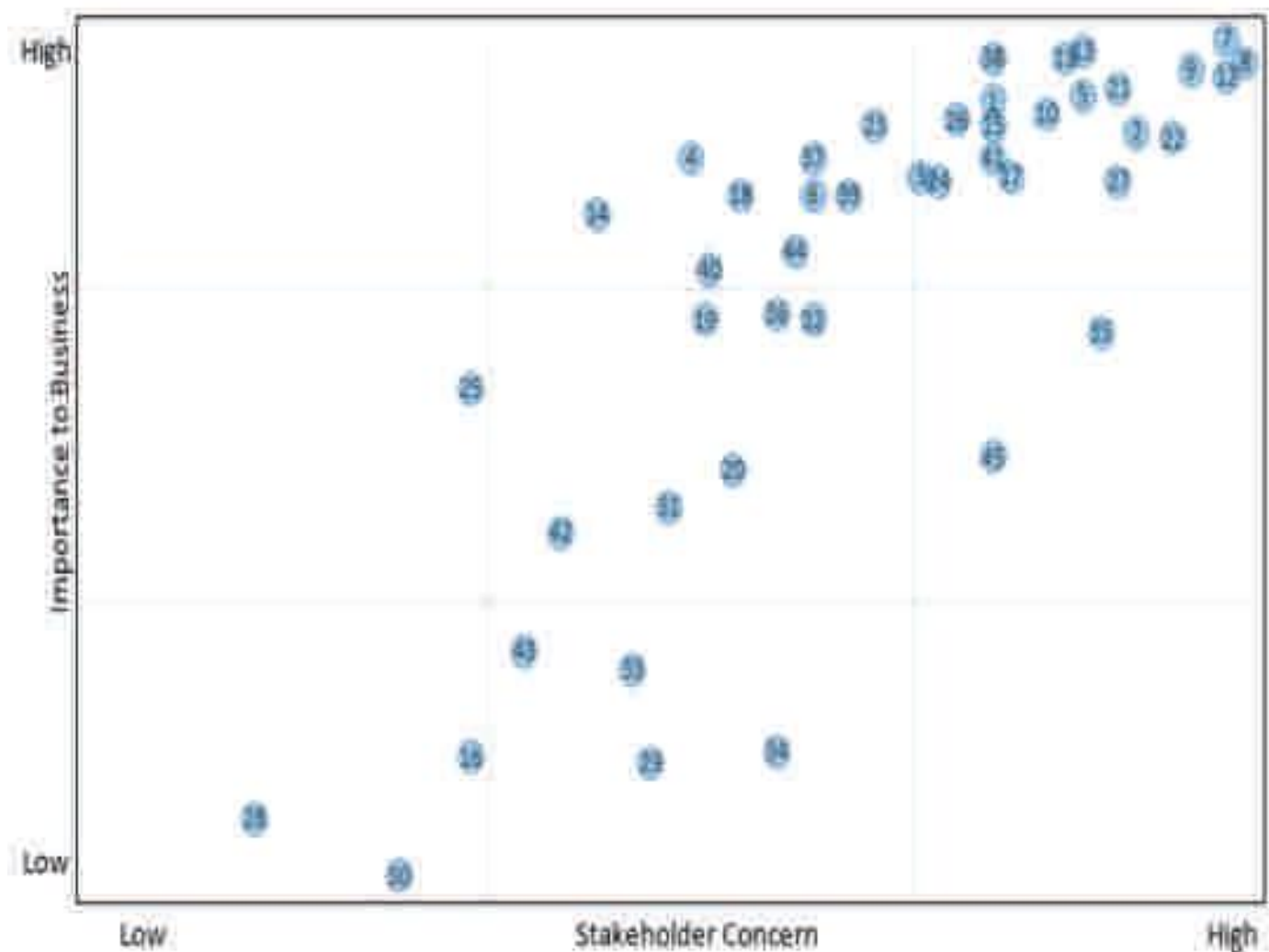
Stakeholder Categories	Engagement Avenues	Concerns by Stakeholders	Actions by NALCO	Benefits of Engagement
Suppliers & Vendors	<ul style="list-style-type: none"> • Periodic vendor and supplier meets • Interactions with suppliers • Supplier relationship management 	<ul style="list-style-type: none"> • Special privilege to MSE units • Anti-corruption practices • Quality of goods and services • Inventory management • Process of adopting integrity pact programme 	<ul style="list-style-type: none"> • Vendor development programme and annual exhibition -cum-buyer seller meet • Participation in exhibitions organised by industry associations, state government • Plant level sub-committee meet at Angul & Damanjodi • Plant level advisory committee meeting at Bhubaneswar 	Improved relationship with suppliers and timely resolution of their queries, concerns and grievances
Community/ civil society organisations	<ul style="list-style-type: none"> • Gram-sabha and public hearing • Meetings with community members and representatives • Need assessment interactions for CSR projects • Local community events 	<ul style="list-style-type: none"> • Community needs on infrastructure, education and health, environmental and social impacts 	<ul style="list-style-type: none"> • Operating mobile health units for periphery villages • Organising health camps in periphery villages • Sponsoring children from periphery villages of Damanjodi for formal education • Water and energy study in periphery villages of Damanjodi 	Partnership with communities for development of the region, improvement in the socioeconomic conditions
Industry Associations	<ul style="list-style-type: none"> • Interactions on common issues for shaping/ influencing policy matters. 	<ul style="list-style-type: none"> • Policy issues • Technological developments 	<ul style="list-style-type: none"> • Participation in developing industry and issue centric programmes and action plans as member of the CII, Utkal Chambers of Commerce, Aluminium Association of India and FIMI 	Knowledge sharing and capacity building
Other service providers	<ul style="list-style-type: none"> • Sharing information with job contractors & workers engaged by them. • Improvement of their competence /capability. 	<ul style="list-style-type: none"> • Health and safety at workplace • Working hours and overtime (wages) 	<ul style="list-style-type: none"> • On the job counselling and feedback • Trainings during induction • Tool box talk • Periodic meetings with production facility in-charge 	Stronger and long-term relationships
Business partners / New ventures	<ul style="list-style-type: none"> • Review of business, • Technical presentations. 	<ul style="list-style-type: none"> • Review of business, • Technical presentations. 	<ul style="list-style-type: none"> • Meetings • Official communication between the parent and joint venture entities 	Technological advancements and knowledge sharing

Materiality Aspects

NALCO has identified material issues through a structured materiality assessment exercise carried out across all the operation location. A formal workshop was organised at each of our locations where we interacted with internal as well as some external stakeholders. This workshop included filling up of stakeholder engagement survey which was designed to capture the perspective of stakeholders on various sustainability issues. This materiality assessment also included one-to-one

interaction with the senior management at plants and mines as well as at corporate office in Bhubaneswar. Through this interaction, we were able to determine the issues which are important from the business perspective of NALCO and issues which are of concern to our esteemed stakeholders. Through this exercise, we have determined our material issues. These issues form the focus of this sustainability report and it is our effort to address them in this report. The aspects highlighted in bold in the next page represent the material aspects as outcome of materiality assessment.

Materiality Matrix



List of Aspects and their Materiality

S. No.	Aspect	S. No.	Aspect
1	Market share and competition	23	Sourcing of water
2	Raw material availability, price & quality	24	Recycling and reuse of waste water
3	Land acquisition for mines and new projects	25	Impact on ground water table and quality
4	Suppliers & dealers network	26	Hazardous and Non-hazardous Waste
5	Customer satisfaction, customer care & trust	27	Improvement in air quality
6	Economic impact of NALCO's business	28	Release of Ozone depleting substances
7	Maintaining and improving product quality	29	Greening of supply chain
8	Efficient production process & technology	30	Emissions form transportation of raw materials, products and employee commuting.
9	Brand image of NALCO	31	Product development strategy and innovation
10	Logistics and distribution cost	32	Restriction of hazardous substances in process
11	Transparency, corporate governance and ethics	33	Product labelling (e.g. ecolabelling, energy labelling)
12	Compliance to regulatory/statutory requirements	34	Eco-friendly product packaging
13	Profitability of the company	35	Labour issues
14	R&D and innovation management	36	Retention of talents by the company
15	Good corporate governance	37	Employee training and skill up-gradation
16	Development of local suppliers	38	Occupational health and safety
17	Globalisation of NALCO's business	39	Gender equity & Non-discrimination
18	GHG emissions & climate change	40	Addressal of employee grievances
19	Usage of renewable/alternative energy sources	41	CSR activities being undertaken by NALCO
20	Enhancing scrap recycling in aluminium making	42	Sports and cultural activities for employees
21	Sustainable mining practices	43	Employee volunteering
22	Energy efficiency improvement	44	Average age of the workforce
		45	Relocation and rehabilitation of displaced community

GRI Mapping of Aspects

Serial No. of Aspects	Linkage with GRI Aspects	Aspect Bounday
1, 13, 17	Economic Performance	Within Organisation
2	Materials	Within Organisation
3	Investment	Within Organisation
5, 7, 9	Product and Service Labelling	Within Organisation
8, 22	Energy	Within Organisation
10	Procurement Practices	Within Organisation
11, 12, 15	GRI Standard Disclosures	Within Organisation
24	Water	Within Organisation
21, 26	Effluents & Waste	Within Organisation
27	Emissions	Within Organisation
36	Employment	Within Organisation
37	Training and Education	Within Organisation
38	Occupational Health and Safety	Within Organisation
41	Local Communities	Outside Organisation

Corporate Governance

NALCO has robust systems of corporate governance. The methodology is an institutional framework with proper checks and balances to undertake, co-ordinate and oversee the interest of all stakeholders. We run a two-tier system – Board of Directors and the management. The Board strives to ensure that the management is doing the best towards performance and profitability of the Company while ensuring a strong culture of value, ethics, integrity, reliability and fairness in dealing within and outside the organization. We believe in sound management, transparency and sharing all related information with its stakeholders.

Our Philosophy

Corporate governance is about commitment to values and ethical business conduct. It gives a picture of how an organization is managed. Corporate Governance is ensured by taking ethical business decisions and conducting business with a firm commitment to values, while meeting stakeholders' expectations. Timely and accurate disclosure of information regarding the financial position, performance, ownership and governance of the Company is an important part of the corporate governance. This improves public understanding of the structure, activities and policies of the organization. Consequently, it results in attracting investors and enhance the trust and confidence of the stakeholders.

NALCO strives to manage the affairs in a fair and transparent manner to gain and retain the trust of

all stakeholders. An enlightened, well-informed and independent Board is the root to ensure highest standards of corporate governance. A sound system of internal control, compliance of laws, rules and regulations, timely supply of material information to all stakeholders have strengthened governance practices in NALCO over the years. The Company has endeavoured to adhere to the ethical standards at the highest level for effective management and to discharge social responsibility for sustainable development of all stakeholders.

The Company is managed by an enlightened Board which formulates strategies, policies and reviews the performance periodically. The Directors, both Fulltime Directors and Non-Executive Directors which include the independent directors are appointed by the Govt. of India from a pool of talent comprising of senior bureaucrats, technocrats, professionals having requisite qualification, experience and expertise in various fields. The Board is assisted by a management team to ensure that day to day activities are performed in an efficient manner. The Board has also constituted several Sub-committees to discharge its responsibilities in an effective manner.

The Board had 10 directors comprising of six full time directors including the Chairman-cum-Managing Director, two non-executive official directors and two non-executive non-official (independent) directors as on 31st March, 2015. Six full time directors including CMD manage day-to-day activities under the overall supervision of the Board.



Top Management



Dr. Tapan Kumar Chand
Chairman-cum-Managing Director



Shri R. Sridharan, IAS
Official Director



Shri N. B. Dhal, IAS
Official Director



Shri N. R. Mohanty
Director (Project & Technical)



Shri S. C. Padhy
Director (HR)



Shri K. C. Samal
Director (Finance)



Ms. Soma Mondal
Director (Commercial)



Shri V. Balasubramanyam
Director (Production)



Shri P. K. Mohanty, IAS
Chief Vigilance Officer

Board Committees

The Board of Directors is the apex body to oversee the overall functioning of NALCO and is responsible for setting the policies and ensure processes are in place to deliver the results. The Board has constituted certain Committees as per requirements under different statutes and some other Committees voluntarily for smooth

functioning of the activities of the Company. The guidelines relating to Board are applicable to the Committees as well, to the extent possible. Various committees constituted at the level of the board of Directors of the company, for various aspects of governance of the company are listed below.

Statutory Board Committees

Audit Committee

Stakeholders
Relationship
Committee

Risk
Management
Committee

CSR &
Sustainability
Development
Committee

Nomination &
Remuneration
Committee

Technology
Committee

Risk Management

A robust Risk Management practice is implemented across the organisation. Risk Management Policy, incorporating guidelines issued by Government of India, is in place. A Risk Management committee operates at board level.

The committee reviews the exceptional risk reports and advises regarding the remedial measures. The risk mitigation measures are periodically reviewed to ensure that those are adequately controlled. Periodic reviews are made to identify new risk areas

along with mitigation plans. For the identified risks, the nominated risk officers maintain risk registers in prescribed format which are also audited by internal auditors of the committee as well as reviewed by senior management. Deviations if any are reported to the Audit Committee and Risk Management Committee. All proposals are generally evaluated based on the envisaged financial, environmental and social risks and their impacts before implementation. Appropriate initiatives are taken to mitigate any adverse impacts.

Corporate Governance Policies at NALCO

- ◆ Code of Conduct for Directors and Senior Management
- ◆ Code of practices and procedures for fair disclosure of unpublished price sensitive information
- ◆ Code of Conduct to regulate, monitor and report trading by its employees and other connected persons
- ◆ Fraud Prevention Policy
- ◆ Whistle Blower Policy
- ◆ Corporate Social Responsibility Policy
- ◆ Sustainable Development Policy
- ◆ Social accountability Policy
- ◆ Policies on related parties transactions

E-governance

The e-governance progress continued with stabilization of material procurement by e-tendering on SRM7 of SAP and service procurement by e-tendering on CPP Portal of NIC. Strengthening of employee services is on the anvil to provide online application and approval of leave, loans and employee bills. On-line performance appraisal for executives and recruitment through online applications become well established during the reporting year.

MoU Performance

NALCO enters into a Memorandum of Understanding (MoU) with Administrative Ministry i.e. Ministry of Mines on annual basis setting targets in financial & non-financial parameters including Sustainable Development aspects. Based on financial performance and achievement of other parameters laid down, the Company is rated 'Excellent' as per the Memorandum of Understanding (MoU), signed by the Company with the Government of India for the Financial Year 2014-15. Performance Related Pay of NALCO employees is linked to MoU performance.

Vigilance

Vigilance department acts as an aid and assistance to the management in various functions to prevent corruption and brings transparency in the system. For creating awareness among employees, Vigilance Awareness Week is celebrated annually at all the units including Corporate Office and Regional Offices. During the year, 12 vigilance awareness training programs were organized at different locations of the organization for sensitizing employees about various rules, CVC guidelines to bring about transparency in the system.

All high value contracts and purchases are analysed by the vigilance department. Some of them are selected for intensive examination. Selected contract/ purchase cases are also analysed during routine/ surprise checks. When any irregularity is established, suitable disciplinary action is initiated through concerned disciplinary authority. Where necessary, findings along with system improvement suggestions, are given to the management by the vigilance department.

During financial year 2014-15, 96 vigilance complaints were received. In addition to this, 26 complaints were pending from previous financial year. As on 31.03.2015 out of total 122 complaints, 97 have been resolved and 25 are pending at different stages of investigation. Vigilance investigations were carried out based on prescribed procedures with functional guidance sought from CVC and appropriate actions as per rules of the company i.e., issuance of advisory letters and imposition of minor/major penalties etc. were taken. Important systemic improvement suggestions were also made during the year.



Number of investor complaints received during the F.Y. 2014-15 is 74, all of which have been successfully resolved. 14 no. of complaints are received from various bidders/ contractors/ vendors. One finding is received from Independent External Monitor in respect of a complaint received.

Adoption of Integrity Pact

In order to enhance the standards of transparency in the procurement transactions of NALCO, integrity pact is adopted since September 2012 while carrying out procurement transactions and contracts to make the whole system more transparent. This is in compliance with the guidelines of Dept. of Public Enterprises, in consultation with Ministry of Mines, Govt. of India. According to this pact, for all procurement transactions of Rs.50 crores and above NALCO would enter into an agreement with the bidder, in order to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/ prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into.

CSR & Sustainability Development Committee

The Companies Act, 2013 mandates constitution of Corporate Social Responsibility Committee. NALCO had constituted Corporate Social Responsibility & Sustainability Development Committee much before the requirements under the Companies Act, 2013. One of the Independent Directors acts as chairman of the committee and committee is empowered to look into matters related to CSR activities and sustainability development programmes.



Awards & Recognitions

NALCO continued to receive accolades from various organizations for its performance in various fields. The following awards received during the year 2014-15, stand ample testimony for the same:

- ◆ Performance Excellence Award-2013, in Golden from Indian Institution of Industrial Engineering.
- ◆ Felicitation of Carbon Sequestration Project.
- ◆ Eastern Region Export Excellence Gold Trophy from Federation of Indian Export Organizations (FIEO) for the year 2012-13, in Premier Trading House category.
- ◆ Sita Ram Rungta Social Awareness Award 2013-14", instituted by Federation of Indian Mineral Industries (FIMI) for Panchpatmali Bauxite Mines.
- ◆ National Energy Conservation Award of Central Electricity Authority (CEA), Ministry of Power, for Energy Conservation in the Aluminium Sector for the year 2012 for M&R Complex.
- ◆ Kalinga Safety Award in Aluminium sector for the year 2013 for Refinery by Odisha State Safety Conclave.
- ◆ EEPC (Engineering Export Promotion Council, Eastern Region)'s Gold Trophy, as Top Exporter in the Large Enterprise Category, for its outstanding export performance during the year 2012-13.
- ◆ First prizes for Panchpatmali Bauxite Mine in Electrical Installations, Welfare Amenities, First Aid, OHC Facilities, Second prizes in Storage, Transport & use of explosives, maintenance of HEMM & workshop, overall performance and third prize in First Aid Competition categories during Odisha Metalliferrous Mines Week.



Policy Advocacy

We advocate policy issues through our involvement in discussions/meetings at associations mentioned above for the benefit of the industry as well as the society at large. Some of the major issues are:

- Enhancing use of Aluminium in various sectors as a material for sustainable future.
- Use of fly ash
- Sustainable mining practices
- Issues of miners' health
- Betterment of industry and its stakeholders
- Employee involvement
- Carbon sequestration
- Compliance to the regulatory requirements

Memberships

NALCO is member of some of the reputed associations. The major ones are:

- Aluminium Association of India (AAI)
- Federation of Indian Mineral Industries (FIMI), New Delhi.
- National Safety Council, Mumbai
- Standing Conference of Public Enterprise, New Delhi.
- Confederation of Indian Industry (CII)
- Indian Ceramic Society, Kolkata
- Quality Circle Forum of India, Secunderabad
- Utkal Chamber of Commerce, Cuttack
- Engineering Export Promotion Council, Kolkata
- Federation of Indian Export Organisation, New Delhi
- International Chamber of Commerce, Delhi

Growth Strategy

The Company has adopted vision 2020 to become a reputed global company in metals and energy sectors. The Corporate Plan drafted in 2009 enumerates the Company's plans to expand in alumina and aluminium sectors in India and abroad, to diversify into power sector and to look for business opportunities in other metals. However, in the backdrop of continuing uncertainties in the global business environment coupled with the changing landscape of business, industry and regulatory framework within the country, the company will revisit its strategies for growth and sustainability. A new Corporate Plan, spanning a horizon of 10 years is envisaged with the support of a consultant of global repute. The plan is proposed to be robust yet flexible to meet the challenges of the evolving future.



Way Forward

◆ Alumina Refinery- 3rd Expansion

Board has accorded approval for setting up of 5th Stream of 1 MTPA capacity in existing Alumina Refinery at Damanjodi with Medium Pressure Digestion Technology.

◆ 100 MW Wind Power Plant

NALCO plans to set up 100 MW Wind Power Project at suitable location(s) in India at an estimated investment of Rs.700 crore.

◆ Solar Power Projects

The Company plans to set up 20 MW scale Solar Power Plant at a suitable location in India to meet its solar Renewable Purchase Obligation (RPO).

◆ Caustic Soda Project

NALCO plans to set up 2.7 Lakh TPA Caustic Soda Plant along with 100 MW Captive Power Plant at Dahej in Gujarat in JV with M/s GACL.

◆ Nuclear Power Plant in JV with Nuclear Power Corporation of India Ltd. (NPCIL)

JV Company NPCIL- NALCO Power Company Ltd "NNPCL" has been incorporated and Kakrapar Atomic Power Project (3&4) has been selected as the first project for the JVC.

◆ Overseas Smelter

NALCO is exploring the opportunity to set up a Greenfield aluminium smelter in a country where energy would be available at a competitive price.

◆ 14 MW Wind Power Plant at Damanjodi

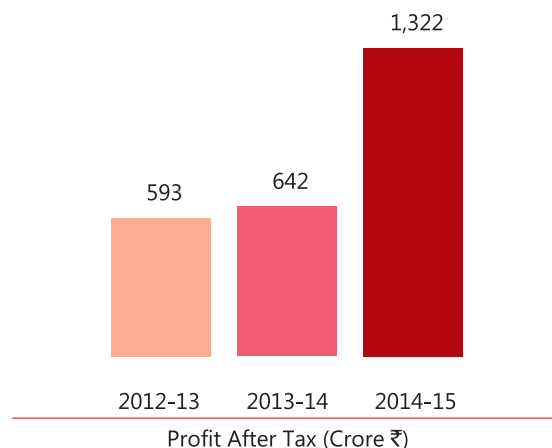
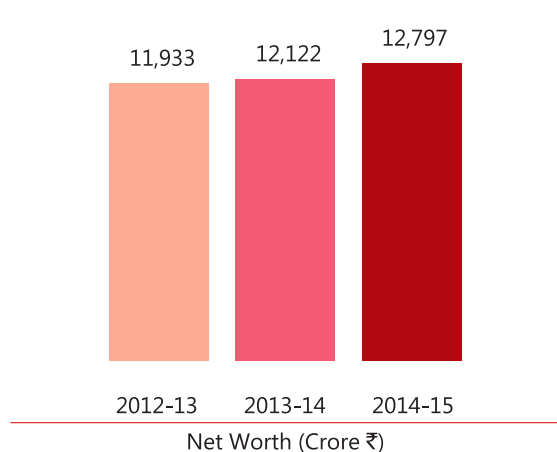
The Company is planning to set up a 14 MW Wind Power Project in mined out area of its bauxite mines in Damanjodi for which Detailed Feasibility Report (DFR) has been prepared.



Economic Distinction

Disclosure on Management Approach – Economic Performance

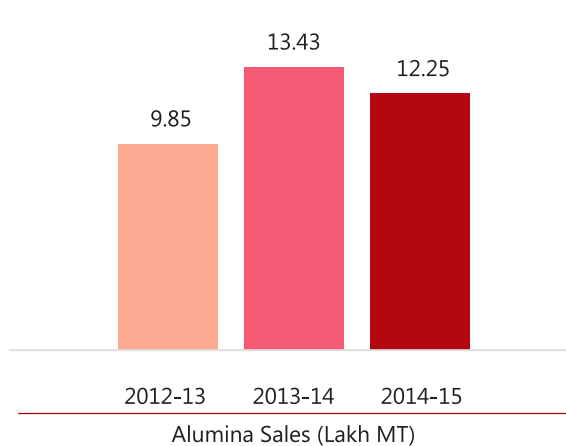
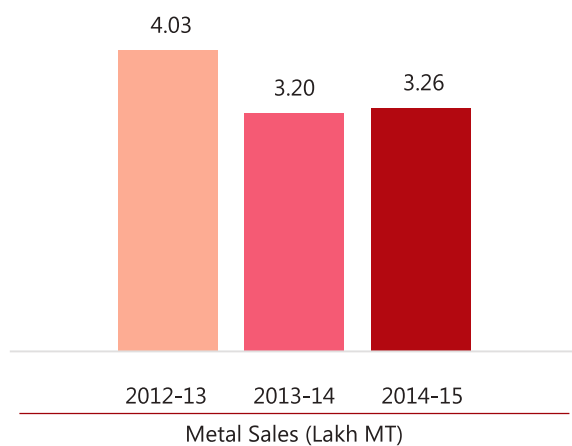
The economic performance of the company has been robust over the past few years. Ensuring strong top line and bottom line while exploring new markets has been a priority for the organisation and management decisions are aligned towards achieving this objective. Going with this trend, the Ministry of Mines, Government of India, (with whom the company enters into an annual Memorandum of Understanding (MoU), had set significantly higher targets for the year 2014-15. Over the years, the company has been making significant investments in renewable energy and diversification projects. The company also continues to focus on contributing to local development – through its CSR initiatives and sourcing from local suppliers. To this effect the company has developed and implemented dedicated CSR and ancillary development policies.



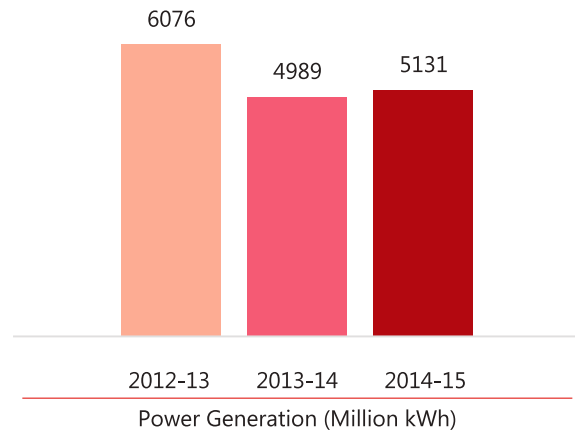
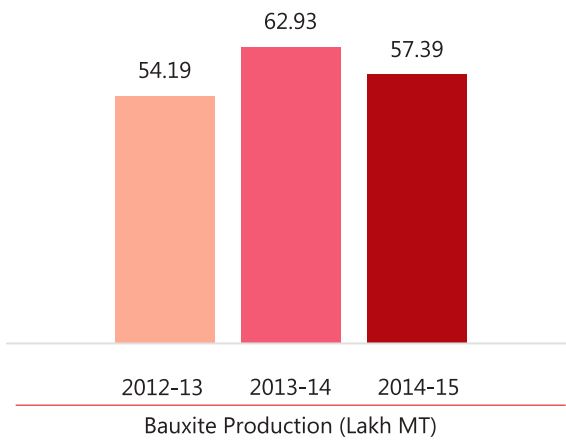
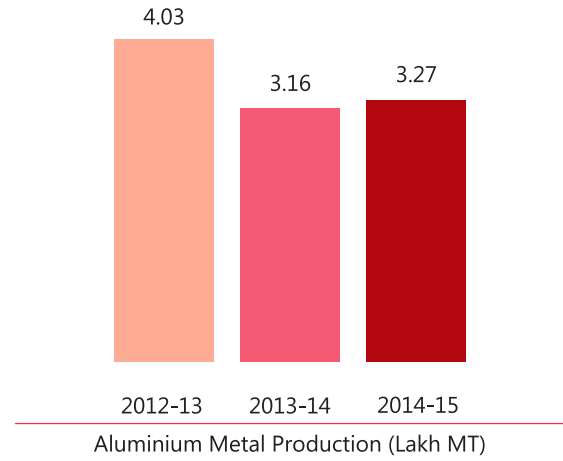
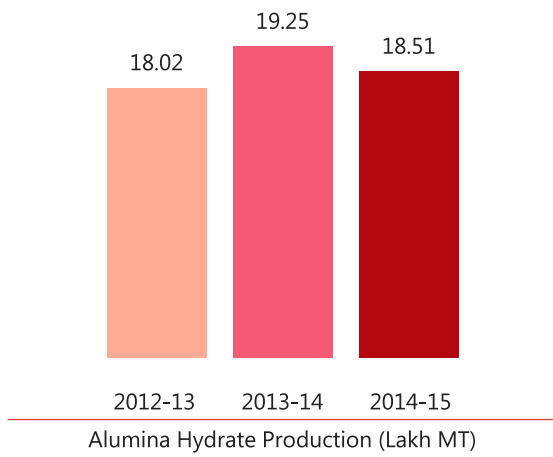
During reporting year Nalco has achieved a Profit after Tax of Rs. 1,322 crores during the year as compared to Rs. 642 crores during the previous year with an increase of 106% over previous year. The net worth of the company increased to Rs 12,797 crore during 2014-15 as compared to 12,122 crore during 2013-14.

The total metal sales during 2014-15 were 3,26,080 MT compared to 3,19,663 MT during 2013-14. Total metal sale consists of domestic sale of 2,65,328 MT and export of 60,752 MT. The domestic sale includes

Wire Rod sale of 96,070 MT which is the highest ever sales surpassing the previous best of 87,969 MT achieved during 2013-14. NALCO has achieved highest ever T Ingot sale of 36,716 MT surpassing previous best of 14,460 MT achieved during 2013-14 and exported 1,529 MT of T Ingots for the first time during the year under report. Chemical sale during 2014-15 was 12,24,643 MT compared to 13,42,761 MT achieved during 2013-14. This includes Calcined Alumina export of 11,84,595 MT during 2014-15 as compared to 13,09,473 MT exports made during 2013-14.



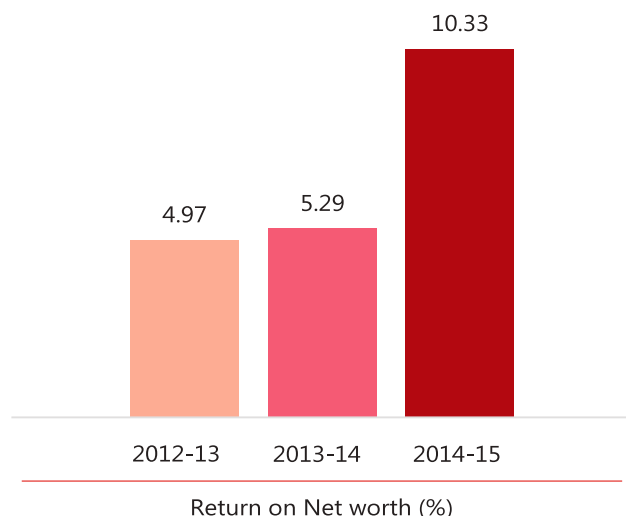
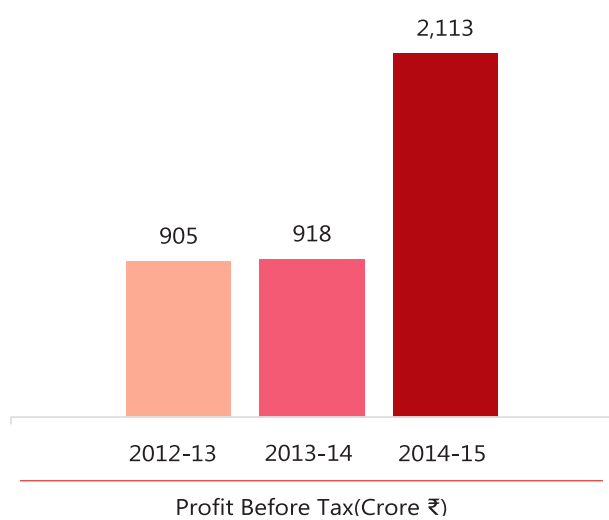
Current challenging market scenario in terms of excess supply resulting in low prices coupled with increased input cost has resulted in production being less than the capacity. However, NALCO is continuously monitoring the present trend and keeping an eye on the future prospects to safeguard its profitability.

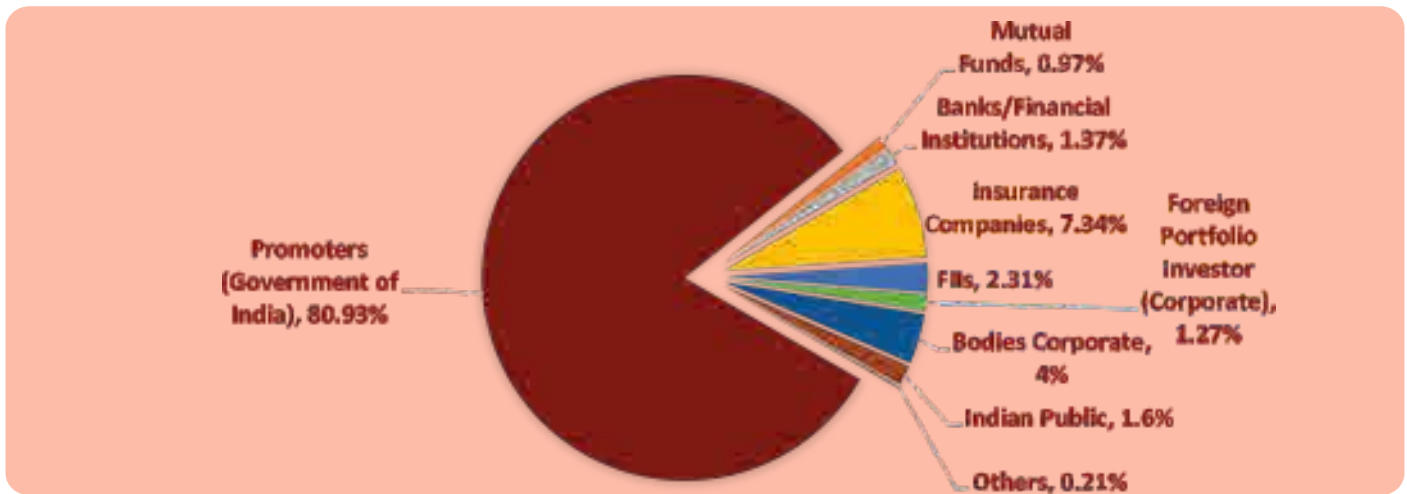


NALCO has been exporting aluminium metal and calcined alumina to various overseas destinations like Netherlands, Italy, Singapore, Malaysia, Korea, Japan, Turkey, Vietnam, Bangladesh, Bahrain, China, Egypt, Iran, UAE etc. Export orders are booked through e-tendering system to the registered customers. The details of financial performance are given below:

Economic Performance of NALCO (in Crore ₹)	2012-13	2013-14	2014-15
1. Direct Economic value generated			
a) revenue from operation (includes export incentive)	6,916.48	6,780.85	7,382.81
b) revenue from other sources	511.05	557.71	672.64
Total	7,427.53	7,338.56	8,055.45
2. Economic Value Distributed			
a) Operating expenses (excluding employee wages and benefits)	5,368.56	5,126.05	4,564.12
b) Employee wages & benefits	1,153.93	1,294.70	1,377.91
d) Payments to providers of capital	322.15	386.59	451.02
e) Payments to government (Tax on PBT)			
i) Corporate Tax	312.21	275.46	791.57
ii) dividend distribution tax	53.26	65.70	90.18
3. Economic Value Retained	217.42	190.06	780.65
4. Additional information on Expenditures included in operating expenses (2a above)			
a) Community Investment (included in 2(a) above)			
i) CSR expenses	30.99	29.00	19.09
ii) Horticulture (green belts within & vicinity of plant)	5.84	5.6	5.52
Total community investment	36.83	34.6	24.83

Financial Performance Indicators	2012-13	2013-14	2014-15
Profit Before Tax (Crore ₹)	905	918	2,113
Profit After tax (Crore ₹)	593	642	1,322
Net worth (Crore ₹)	11,933	12,122	12,797
Return on Net worth (%)	4.97	5.29	10.33
Book value per share (Face value of ₹ 5/- each) (₹)	46.30	47.04	49.65
Earning per share (₹)	2.3	2.49	5.13





Share holder pattern of NALCO

Enterprise Risk Management - Economic

The economic challenges faced due to the turbulent global financial climate are complex in nature. But to ensure sustainable growth, we continually seek opportunities to overcome the challenges. The challenges and opportunities are outlined below:

Challenges	Opportunities
<ul style="list-style-type: none"> Global prices of Aluminium under pressure due to high global inventory of aluminium, sluggish Chinese economy, the appreciation in the US dollar. Prevailing uncertainty in the global macro-economic environment. Growth rate of primary metal supply in India is higher than the demand growth which may lead to a widening of the surplus. Substantial rise in price of coal which is a major input accounting for 40% of production cost. 	<ul style="list-style-type: none"> Expected higher domestic demand of Aluminium Wire Rod due to Government's investment on power transmission sector. Growth in the packaging and automobile sector. Ample opportunities in downstream and value added products. Domestic aluminium consumption is among the lowest in the world at average of 1.4 kg per head compared to that of 8 kg in global level.

Financial Control Mechanisms

Internal financial control mechanism at NALCO is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles.

This includes the policies and procedures that pertain to the maintenance of records, in reasonable detail, accurately and fairly reflect the transactions

and dispositions of the assets of the company; provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company. NALCO has a defined delegation of power with financial limits for approving revenue as well as expenditure.

Supporting Local Procurement

Disclosure on Management Approach – Procurement from Local Sources

Being a Central Public Sector Enterprise, our procurement policy and practices are guided by the Government guidelines. However within the framework of this guideline, steps are taken to promote local vendors and contractors to the maximum extent possible. Our persistent efforts towards this have resulted in improved participation of local small players and the socio-economic development of communities, in and around our operational localities. Special thrust is given for the development of MSE (Micro & Small Enterprise) units. Opportunities are provided to them to produce and supply various input materials and services. Efforts are being made to engage them to improve their contribution in line with Government policies. In this regard, the 19th PLAC (Plant Level Advisory Committee) meeting was held at Bhubaneswar and the PLAC Sub-committee meeting was organised at S&P Complex during the financial year. The “Best Mother Plant” award given to us during Odisha MSME Trade Fair 2015 for maximum purchases from MSME industries. All these provide testimony to the efforts made by us in this direction.



Major initiatives taken during the year for development of ancillary industries are as follows:

- Two MSE units from Odisha were accorded Ancillary status. With this, the total number of Ancillary units of the Company has now increased to 59.
- The procurement of Goods and Services from MSE (Micro and Small Enterprise) units of Odisha including Ancillary Units for the financial year 2014-15 stands at Rs.270.18 crores. The total procurement of Goods and Services from MSE units (including those from outside Odisha) stands at Rs.350.01 crores during financial year 2014-15, as compared to Rs.294.41 crores during financial year 2013-14 which shows an increase of 18.89%.
- A Booklet titled as “Micro and Small Enterprise Product Profile” on products to be developed by MSEs for Smelter and Power Complex published during the year was appreciated by MSME Industry Associations and Entrepreneurs.
- Besides, Buyers and Sellers interaction meetings and various training programmes were conducted at the NALCO Training Institute at S&P Complex, Angul.
- Entrepreneurs’ week was also organized at M&R Complex, Damanjodi. Since the Company has adopted e-procurement process, as per Govt. of India guidelines, emphasis was given to facilitate and enable the MSE vendors by way of training support and hand holding support to participate in the e-procurement processes.



Environmental Care

As a responsible Corporate entity, NALCO is committed for a cleaner, greener and safe working environment in all its production units. All production units are certified to International Standards, on Environmental Management Systems (ISO 14001), Occupational Health and Safety Management Systems (OHSAS 18001) as well as Energy Management Systems (ISO 50001).

Our commitment to minimize our environmental footprints, from the stage of commencement of operations to the post-closure stage is strongly articulated in our Environment policy document. The comprehensive policy document is applicable for implementation in all units, operations and offices. The units implement the Corporate Policy with objectives derived from it specific to areas of operation.

Our Mines, Port operations at Vizag and all the plants are implementing Environment Management Systems conforming to the International Standard ISO 14001. Specific initiatives for enhancing energy efficiency are taken up to achieve targets under the Perform, Achieve and Trade (PAT) scheme of Govt. of India.

Nalco proactively takes steps to meet the challenges of upcoming stringent statutory regulations from time to time. For developing awareness on environment, Safety and Health, NALCO imparts internal as well as external training

to its employees, contractor workers, celebrates Environment, Safety and Health functions like World Environment Day, Vanamahotsav, Chemical Disaster Prevention Day, Ozone Day, National Safety Day/Week, Electrical Safety Week, Road Safety Week and continuously publish Bulletins, Newsletter and Annual journal.

Review of environment impacts arising out of key business activities are done every year to identify and assess potential environment risks and take steps to mitigate the identified impacts. Sustainable mining practices including the approved Mines closure plan are implemented in the Mines area. Wildlife Conservation Plan and Biodiversity Management Plan are also in place for launching appropriate initiatives. Similarly, in all our plants i.e. Alumina Refinery, Smelter & CPP review of environment impacts arising out of key business activities are done every year and steps are taken to mitigate the identified impacts. Hot-spots and gaps for significant environmental impacts and effects i.e. emissions to air, effluent discharge quality, hazardous waste etc. are identified. These form a basis for various environment initiatives.

Environmental Risk Management

Brief description of environmental concerns, risks and opportunities are listed below:

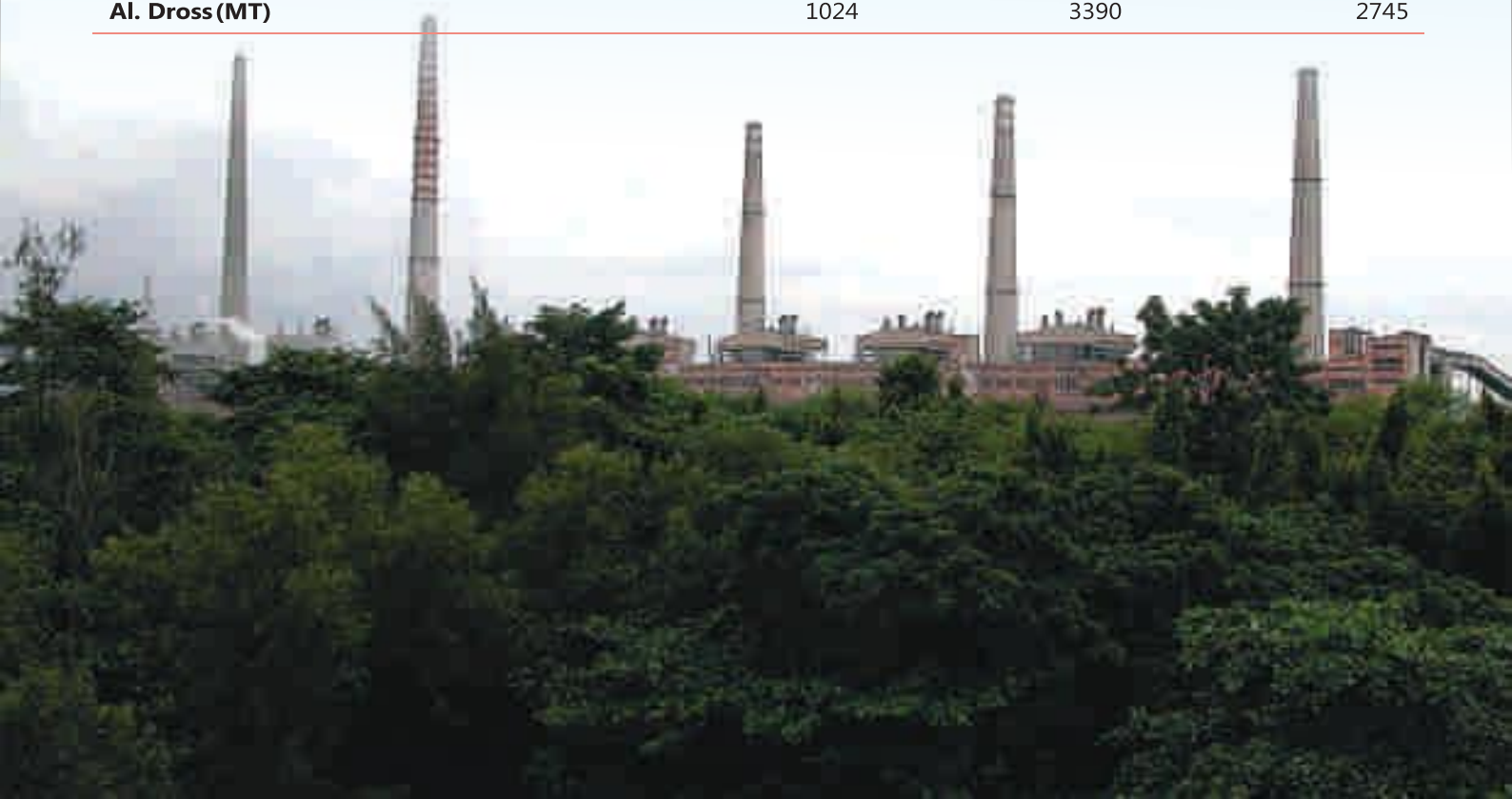
Products	Environmental Concerns	Risks	Opportunities
Alumina	Air Pollution, Water pollution, land contamination	Risks arising from <ul style="list-style-type: none"> • Caustic handling • Alumina leakage • Ash spillage • Red mud generation 	Scientific Management of Wastes and utilising wastes like redmud, fly ash. Incorporation of improved technology for prevention & control of environmental pollution etc.
Aluminium	Air pollution. Water pollution, Land contamination, resource depletion	Risks arising from <ul style="list-style-type: none"> • Spillage of bath materials to basement • Spent potlining • Aluminium dross • Coke dust emission, escape of pitch fume, HF and other gas emissions from pot operation • Leakage of metal due to pot failure 	<ul style="list-style-type: none"> • Spent potlining utilization in Cement industry • Dross recycling • Scrap re-melting
Electricity	Air Pollution Water Pollution Land Contamination	Risks arising from: <ul style="list-style-type: none"> • Emissions • Ash Spillage and noise from power plant operations 	Fly ash utilization in brick making, cement plant etc.

Disclosure on Management Approach - Raw materials

Availability of raw materials is a key issue for Aluminium sector. NALCO has established robust process for monitoring and measuring the raw material consumption. Efficiency in resource use is integrated into our product and process design. Due cognizance of importance regarding efficient use of energy, water and raw materials for enhancing sustainability is instilled in our managerial interventions. R&D efforts and innovative steps are taken for continual improvements in optimization of resource use i.e. energy, water, raw material etc. Renewable materials in the form of wooden pallets is used for packaging purpose, however the quantity of wood consumed less than 0.1% by weight, of the total raw material consumption.

Materials consumed		Source	2012-13	2013-14	2014-15
Raw Material	Alumina (MT)	Internal Production	7,95,432	6,13,943	6,31,453
	Calcined Petroleum Coke (MT)	External Suppliers	1,56,163	1,16,988	1,24,310
	Coal Tar Pitch (MT)	External Suppliers	37,445	27,621	29,075
	Bauxite (MT)	Internal Production	54,19,391	62,92,677	58,34,921
	Caustic Soda (MT)	External Suppliers	1,57,674	1,88,279	1,90,491
Associated Process Material	Aluminium Fluoride (MT)	External Suppliers	7,463	5,606	5,597
	Wheat Bran (MT)	External Suppliers	1,972	2,369	1,881
	Lime (MT)	External Suppliers	57,946	60,660	50,231
	Explosives (MT)	External Suppliers	936	1,013	1,068
Packaging Material	VSI HDPE fabric (m ²)	External Suppliers	4,76,775	5,16,082	6,53,517
	Wood in wooden pallets (ft ³)	External Suppliers	15,311	17,109	33,634
	Steel straps (MT)	External Suppliers	179	172	170
	Polyster Strap (MT)	External Suppliers	78	52	55
	HDPE Laminated bags for hydrate & Alumina (Numbers)	External Suppliers	5,39,328	5,35,633	6,79,056

Recycled Input Materials	2012-13	2013-14	2014-15
Al. Dross (MT)	1024	3390	2745



Sustainable Sourcing

Sustainable sourcing of Bauxite has been primarily ensured by having captive mines situated close to the Alumina Refinery. 100% of our bauxite requirement is met from this source. Similarly, the CPP for Smelter is close to the coal mines of M/s MCL from which coal is procured as per fuel supply agreement (FSA). For any gap in requirement vis-a-vis availability through FSA, procurement of coal through e-auction or import or both is done, based on cost benefit analysis. A dedicated Captive Railway Merry-go Round System is available for transportation of coal from Bharatpur Mines to captive power plant (CPP). Due to our direct control over the mining, extraction and transportation of bauxite and close coordination with Coal Mines for coal supply & Railways regarding transportation of major raw materials, competitive edge is added to sustainable sourcing throughout the supply chain. All bulk raw materials i.e. Caustic soda, lime, CT Pitch, CP Coke, Aluminium Fluoride etc are procured from multiple vendors in order to have better reliability of supply. Continuous efforts are made to expand the vendor base for ensuring sustainability in sourcing stores & raw materials.

Disclosure on Management Approach – Energy & Emissions

Energy cost is a major component of the manufacturing cost in a typical Aluminium plant. Hence, energy efficiency is vital to reduce the production costs and thereby to improve competitiveness in the market.

Efficiency in resource use is integrated into our product and process design. Due cognizance of importance regarding efficient use of energy, water and raw materials for enhancing sustainability is instilled in our managerial interventions. R&D efforts and innovative steps are taken for continual improvements in optimization of resource use i.e. energy, water, raw material etc.

There are continual efforts towards improving the energy efficiency and employees are encouraged to come up with ideas and suggestions. There are drop-boxes at prominent locations and there is a provision for rewarding the best ideas. To its credit, all the energy intensive units of NALCO have been certified as per ISO 50001.

Energy Management Systems conforming to ISO 50001 standard are implemented in our energy intensive plants, the designated consumers under PAT scheme. Energy Policy emphasizes our thrust on driving energy efficiency measures. Implementation of these Management Systems, certified by a reputed external Certification Body with global accreditation, underpins the priority accorded towards environment and energy management. The Sustainable Development Policy also provides ample focus on environment and energy related issues. Steps are also taken for green energy generation i.e. wind power & solar power.

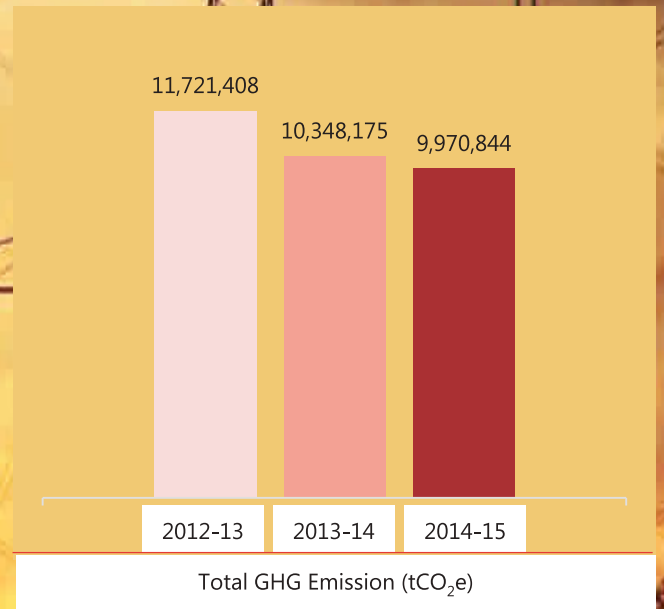
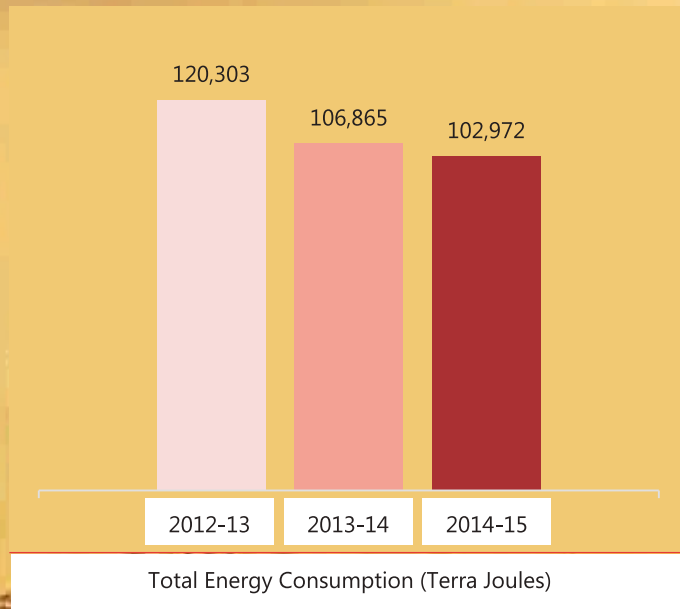
Aluminium production is fairly energy intensive considering the process of extracting alumina from bauxite and then smelting it into liquid metal. With several interventions aimed towards reducing the energy consumption, we are able to continually improve performance in terms of energy use. This has also led to reduction in the amounts of greenhouse gas (GHG) emissions.

Consumption of primary fuels (including fossil fuel) lead to direct GHG emissions and consumption of electrical energy leads to associated, indirect GHG emission. During 2014-15 total direct energy consumption was 102972 TJ against 106846 TJ consumed last year. Total indirect energy consumption was negligible during 2014-15 compared to 19 TJ consumed previous year. Calorific values suggested by IPCC for different fuels were used for energy calculation. Total direct green house emission during 2014-15 was 9.97 million ton Co₂e compared to 10.34 million ton Co₂e of previous year. Total indirect green house emission was negligible during reporting period compared to 4224 ton Co₂e of previous year. This is a restatement of energy and green house emission for previous year. Emissions from electricity have been calculated using the emissions factors published by the Central Electricity Authority of India. Emissions from fuels are calculated using the emission factors by IPCC. The other relevant indirect greenhouse gas emissions are insignificant considering the scale of operation.

Energy Consumption (GJ)	2012-13	2013-14	2014-15
HFO	78,83,046	72,00,188	68,27,126
LPG	7,867	4,845	7,701
LDO	2,42,571	1,05,715	1,14,748
Diesel	4,32,712	2,38,713	2,28,620
Coal	11,10,87,048	9,92,96,324	9,57,93,431
Electricity Consumed (Indirect Energy)	6,50,171	19,495	0
Total Energy Consumption	12,03,03,415	10,68,65,280	10,29,71,626

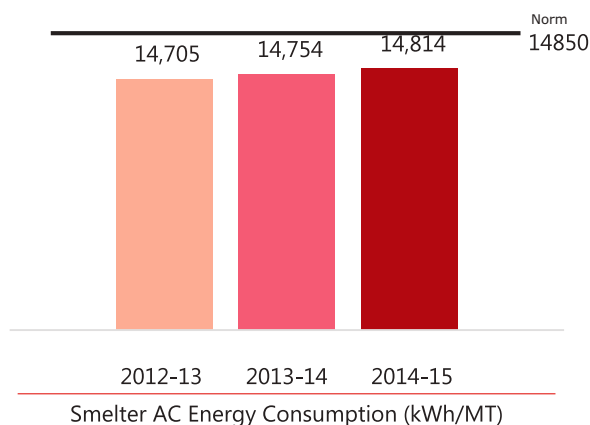
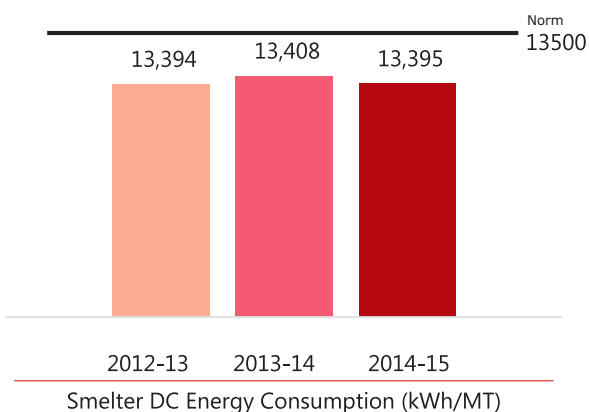
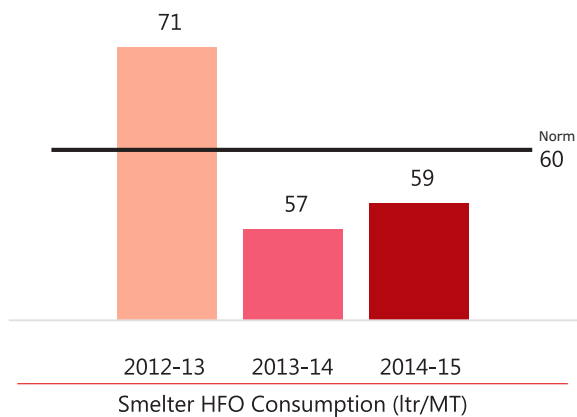
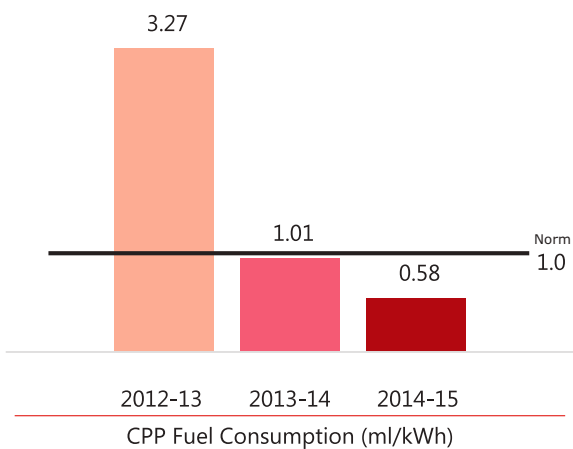
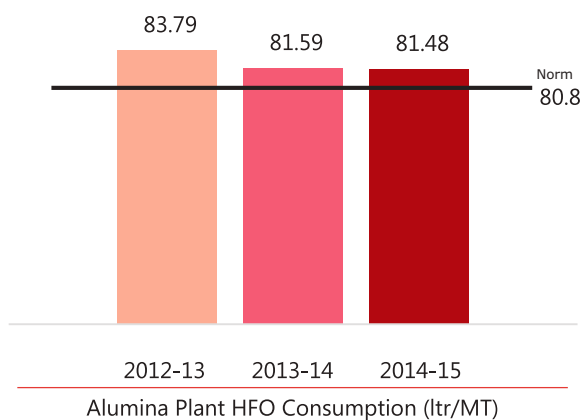
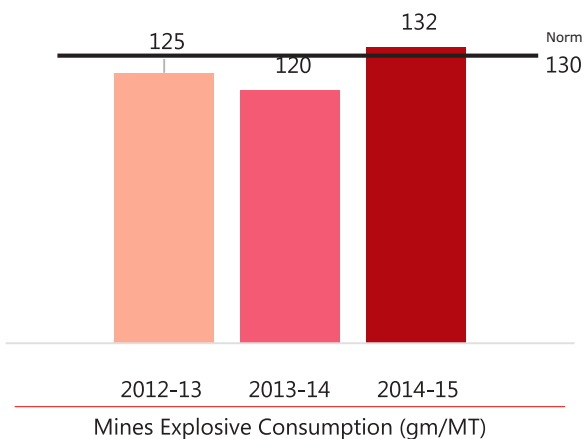
GHG Emissions (In Tonnes CO₂e)— Scope 1 & 2

Fuels Consumed	2012-13	2013-14	2014-15
HFO	6,10,147	5,57,295	5,28,420
LPG	496	305	486
LDO	17,974	7,833	8,503
Diesel	32,064	17,689	16,941
Coal	1,09,19,857	97,60,829	94,16,494
Electricity Consumed (Indirect Energy)	1,40,870	4,224	0
Total GHG Emission	1,17,21,408	1,03,48,175	99,70,844



Tracking and Improving Performance

Being an energy intensive industry, NALCO has been fully aware of the criticality of energy conservation. In order to inculcate fervour for reducing the energy consumption during operational activities in employees, key indicators have been identified and monitoring and review mechanisms have been established.



Energy Conservation Initiatives

Major initiatives on conservation of energy during 2014-15, and their impacts are indicated below:

Unit	Energy Conservation Measures	Energy Saved
Alumina Refinery	Automatic control system to maintain Seal Air DP across Coal mills in old Boilers i.e. in Boiler-1, 2 & 3 by application of VFD system, thereby avoiding throttling of manual valve.	269 TOE
	Optimisation of Gland Steam Condenser operation of TG by optimising steam ejectors	8951 TOE
Aluminium Smelter	The specific DC energy consumption in smelter Plant has reduced due to use of ALPSYS Pot regulation system in all Pot Lines, reducing anodic problems, reducing wedge drop and stem beam drops, use of graphitized cathode blocks, use of slotted anodes and increasing Anode stub hole & pin length in running pots.	11,071.5 TOE
	Furnace idling time was reduced by adopting best practices and optimising operation with availability of hot metal and planning of production as per market demand resulting in reduction of specific fuel oil consumption. Other factors include semi-automatic firing with PID controller for optimum firing in furnaces, ensuring proper atomisation and combustion in the furnaces etc.	317.257 TOE
Captive Power Plant	Three Regenerative Feed Water Heater replaced in Unit-5, 6 & 7 resulting in temperature gain of Feed Water by 5-60 C & help in arresting heat loss of feed water.	6,019 TOE
	Fuel oil consumption has reduced from 5084 KL in 2013-14 to 2993 KL during the year by implementing improved operation and maintenance practices.	2028 TOE
	In the lighting system 948 nos. of 40W TL copper choke were replaced with Electronic choke, 469 nos. of 2x40W tube lights with 2x28 W T5 fitting and 1656 nos. of 125W HPMW lamps with 70W HPSV ones.	14 TOE
Bauxite Mining	Load sharing (temporary merging) of capacities of the existing three 33 / 0.433 KV, 1250 KVA transformers at MRS sub-station, in order to have an optimum loading of two transformers while keeping one switched off alternatively, in a period of ten days.	Approx. 15,020 KWh (1.3 TOE)
	Modification of sump height of sprinkling pump house for haul roads has resulted in significant savings based on number of operation of pumps for sprinkling purpose.	Approx. 2100 KWh (0.18 TOE)
	Installation of 10 36 W LED based solar street light poles completed at water distribution pump house area new sub-stations and CISF barrack area. This replaces conventional street light system with 250W HPSV luminaries with control gear losses up to 50 W.	Approx. 8,140 KWh (0.7 TOE)

Achievement under PAT Scheme

Our Alumina Refinery and the Smelter & Power Complex were identified as designated consumers (DCs) by the Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India. As per notification during March 2012, these two DCs were given challenging targets to reduce specific energy consumption compared to the baseline performance in, the three year period (2012-13, 2013-14, 2014-15) of Perform, Achieve & Trade (PAT) Cycle-1 by certain percentages. As per the audit reports of the accredited Monitoring and Verification Energy auditors of BEE, both the DCs through their significant energy saving initiatives, have not only achieved the targets but have also performed better than that. However, the communication from BEE regarding the final achievement is awaited.

Air Emissions

NALCO has been proactive in taking up measures for reducing the environmental impact of its operations. In an effort to reduce the harmful effects on environment and mitigate the air pollution, following measures have been taken:

- During the year, 1,00,343 trees were planted at Mines and around 15,000 trees were planted in CPP
- At Smelter, online monitoring system at fume treatment plant stacks and effluent treatment plant have been installed
- Erection and commissioning of fume treatment centre with latest dry scrubbing technology at Bake oven-I has been completed at smelter.
- At CPP, to further reduce stack emission, retrofitting of ESPs by installing an additional pass and revamping of old ESPs (Unit-1, 2, 3, 4, 5, & 6) has been completed.
- Installation of 4 Continuous Ambient Air Quality Monitoring Station for ambient air quality monitoring with digital display & transmission of data to OSPCB through GPRS has been completed at CPP.
- Dust extraction system has been installed at CHP-II crusher house of CPP to control fugitive coal dust emission

Initiatives to control air emissions at NALCO Mines are as follows:

- Use of Rippers to the maximum extent possible to avoid drilling & blasting
- Wet drilling is practiced for all the blast hole drills during the dry seasons

- Proper maintenance of diesel equipment & transportation vehicles to decrease the emission level of NO_x and SO_x
- Pressurized water sprinkling/dry fog system is used at un-loading point & transfer points of crushing & conveying system to suppress air borne dust
- Slow unloading of overburden is done in backfilling area to reduce dust emissions
- Completely covered conveyor belt of 14.66 km is provided for transporting crushed bauxite to stockpile at refinery
- Five 28 KL capacity water tankers are deployed for regular water sprinkling on haulage roads
- On permanent haul road, PLC controlled auto sprinkling system is installed to control dust generation
- Mine faces are staggered to avoid concentration of dust, noise, vibration and exhaust due to HEMM operation
- A green belt of fast growing plantation is maintained ahead of working faces to provide a biological fencing over these peripheral barriers to prevent dust & noise spreading outside the mine area
- Dust masks are provided to protect the workmen exposed to high dust generating area for longer duration

Apart from GHG emissions, other emissions like NO_x, SO_x, etc. generated by the operations are within the permissible limits prescribed by CPCB/ SPCB. The environmental statement containing such information is submitted to regulatory authority every year. NALCO's smelting operation consumed 710 kg of R-22 refrigerant gas (ODS) & 659 kg of R-124 gas and mining used 165 kg of R-22 gas (ODS) to make up for the leakages. Captive Power Plant of NALCO consumed 732 kg of R-22 gas.

Per Fluorocarbon (PFC) gases from Smelter

The primary aluminium production process i.e. Smelter operations lead to emission of two perfluorocarbon (PFC) gases i) tetrafluoromethane (CF₄): 80-90% and ii) hexafluoroethane (C₂F₆): 10-20%, having high global warming potential which are emitted due to Anode Effects from Electrolytic cells. A project was taken up in smelter in collaboration with Jawaharlal Nehru Aluminium Research Development & Design Centre (JNARDDC), Nagpur for measurement of PFC in 180 KA Point feed Pre-baked (PFPB) cell, using photo acoustic field gas monitor. During this period, Potline 3 and Potline 4 were equipped with most advanced ALPSYS pot control system ensuring well-regulated alumina feeding while Potline 1 & 2 was not having such facility.

As per Tier 3B of IPCC guidelines, CF₄ slope, CF₄ over-voltage coefficient and C₂F₆ weight fraction were obtained and compared with IPCC 4th assessment report, table 2.14, chapter 2, page 212. These data exhibit good agreement with data reported as per IPCC guidelines for PFC measurement. During 2013-14, Potline 1 and Potline 2 were also equipped with ALPSYS pot control system rendering all 4 potlines under ALPSYS and the Anode Effect which contribute to PFC emissions were brought down. This is the restatement of PFC gases in Smelter based on the project in Smelter taken up by JNARDDC, Nagpur.

Water Conservation

Disclosure on Management Approach – Water & Effluents

Water consumption is high in Aluminium sector. Water is considered as one of the global risks during the reporting period. Further, water demand has increased by other industries in India. Relatively, large volumes of water are used by all Aluminium manufacturing units, mostly for non-contact cooling which is also reused. NALCO majorly consumes surface water drawn from rivers and streams. Municipal water and rain water consumption is comparatively negligible. All production units source surface water from nearby streams or rivers within the permissible limit without significantly affecting any water body.

Priority is given to sustainable use of water & we recover and reutilize water where ever possible. All our production units are zero discharge units with respect to their waste water and sewerage water management. The treated waste water was reused in process and sewerage water is used for horticulture. Augmentation and recycling of waste water at our Smelter plant & township by reverse osmosis process is planned. In CPP, the ash pond overflow water is recycled and reused in the ash disposal system. In the year 2014-15: 1,25,17,775 m³ water was recycled from CPP Ash Pond, 90,95,084 m³ from Refinery Ash Pond and 31,71,586 m³ water was recycled from Refinery Red Mud Pond for different process use.

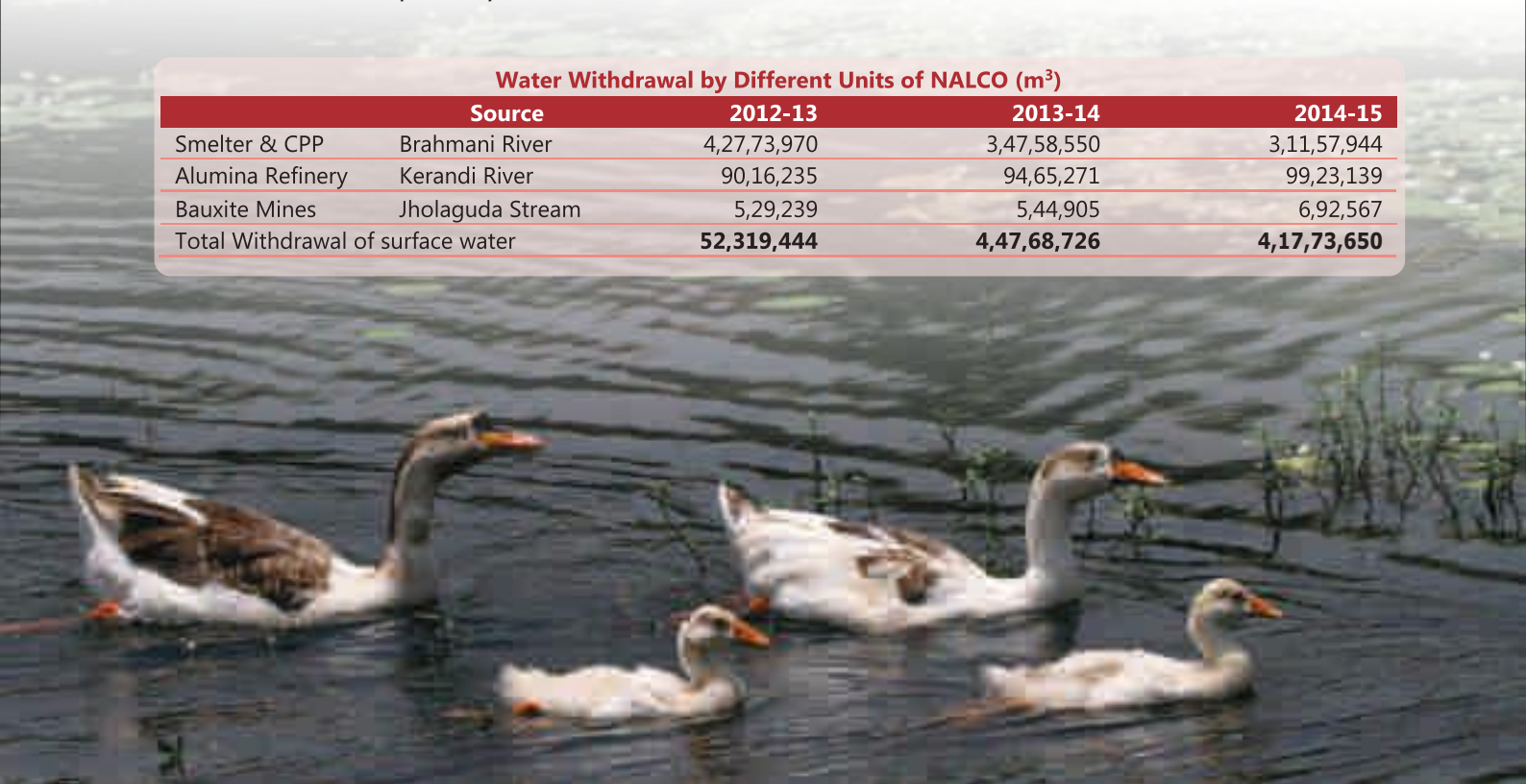
Water Management Initiatives

Priority is given to sustainable use of water and we recover and reutilize water where ever possible. All our production units are zero discharge units with respect to their waste water and sewerage water management. The treated waste water was reused in process and sewerage water is used for horticulture. Some of the water conservation initiatives are:

- Augmentation and recycling of waste water at our Smelter plant by reverse osmosis process is planned.
- In CPP, the ash pond overflow water is recycled and reused in the ash disposal system
- Garland drains around the mining area are maintained to drain surface run-off water following natural gradient. Proper drainage control is also maintained within the mining area.
- Effective sewage system is provided in Mining area. Effluents from Mechanical workshop area is channelized through well designed oil-water separation tank and clear water is collected in zero discharge sump. Similarly canteen waste, after treatment, is directed to the zero discharge sump. Water from zero discharge sump is pumped for horticulture use and dust suppression.

Water Withdrawal by Different Units of NALCO (m³)

	Source	2012-13	2013-14	2014-15
Smelter & CPP	Brahmani River	4,27,73,970	3,47,58,550	3,11,57,944
Alumina Refinery	Kerandi River	90,16,235	94,65,271	99,23,139
Bauxite Mines	Jholaguda Stream	5,29,239	5,44,905	6,92,567
Total Withdrawal of surface water		52,319,444	4,47,68,726	4,17,73,650



Water Recycling and Reuse

All our production units are zero discharge units with respect to their waste water and sewerage water management. The treated waste water is reused in process and sewerage water is used for horticulture. Augmentation and recycling of waste water at our Smelter plant by reverse osmosis process is planned. In CPP, the ash pond overflow water is recycled & reused in the ash disposal system. Refinery plant is designed with Zero Discharge Concept. And hence the utilisation of effluent pond

water is 100% throughout the year. STP treated water is 100% utilised for green belt development / horticulture purpose throughout the year.

During the reporting period 2,30,000 m³ water from Smelter, 1,00,000 m³ water from CPP and 4,92,750 m³ water from Refinery was recycled at STP. Also, 3,24,000 m³ water from Smelter, 23,90,000 m³ water from CPP and 76,650 m³ water from Mines was recycled from ETP.



Waste Management

Disclosure on Management Approach – Effluent & Waste

NALCO is very conscious of the need to conserve natural resources because of various reasons, the major being our own dependence on the availability of these natural resources for our very survival. Wherever possible, we apply 3R approach of – Reduce, Reuse & Recycle. Despite, all the efforts, it is quite expected that lot of wastes are generated in the process.

For the Mines & Plants, comprehensive Environment impact assessment is carried out and Environment Management Plan approved by Regulatory Authority is implemented to mitigate any risks regarding negative impacts on environment or society, emanating from products, processes & services. The initiatives taken as per the plan are monitored by regulatory agencies. Aspect Impact Study, Hazard Identification & Risk Assessment and Emergency Management Plans are also drawn up with periodic reviews to address environmental and social risks.

Mining of bauxite and its refining generates various kinds of hazardous and non-hazardous wastes like used oil, spent resin, fly ash, ETP sludge, redmud etc. NALCO have waste management plans in place for all our operations to effectively manage its waste – in terms of waste minimisation and appropriate disposal methods. NALCO is also attentive to opportunities for recycling and reusing generated waste at our plants.

Red mud is typical to the aluminium industry and is generated as a waste in refinery. The quantity of red mud waste generated depends on bauxite composition and technology involved. Approximately one to two tonnes of red mud may be produced per tonne of alumina. NALCO annual operations result in the generation of around 2.45 million MT of red mud. Red mud essentially contains highly alkaline water and poses a threat to the

environment. Red mud is stored in red-mud pond with zero overflow to avoid any incidents of soil/ground water contamination. The organisation uses lime grit that is being generated as a waste during refining for low land filling and fly ash brick manufacturing. Fly ash produced in our CPP is used in brick making, cement making, stone quarry filling, low lying area reclamation etc. Recycling & utilisation of waste are summarised below:

Hazardous Waste Generation		2014-15	Waste Management Method
Alumina Refinery	Spent Resin (MT)	15.35	Disposed in secured land fill
	ETP Sludge (MT)	2,421	Disposed to redmud pond
	Used oil (KL)	69.65	Sold to authorized recycler
	Discarded Asbestos (m ³)	51.1	Dumped in specified pits
Smelter	Aluminium Dross (MT)	4,621.7	Recycled in the process
	Cathode Residue (MT)	2,906	Stored in secured land fills
	Spent Anode (MT)	51,647	100% recycled in anode making
	Rejected Filter Bags (MT)	26.75	Incinerated in pot
	Rejected ALF ₃ bags (Nos)	1,06,581	Incinerated in pot
CPP	Used oils (KL)	107.4	Sold to authorized recycler
	Spent Resins (KL)	2.9	Disposed in secured land fill
Mines	Used oil (KL)	69.41	Sold to authorized recycler

Non Hazardous Waste Generation		2014-15	Waste Management Method
Alumina Refinery	Red mud(MT)	24,59,409	Disposed to redmud pond
	Lime grit (MT)	14,360	4,450 MT sold, 9,688 MT disposed & rest to low lying area filling
	Fly ash (MT)	5,55,051	2,91,416 MT reused & rest dumped at ash pond

Smelter	Metallic Scrap (MT)	6,742	4,525 MT sold while rest discarded
	Mixed Debris (MT)	2,350	Disposed in the low lying areas
	Refractories Bricks(MT)	1,816	Suitably Reused
CPP	Fly ash (MT)	19,95,849	4,74,582 MT (23.78%) reutilised within the unit while rest is disposed off by hydro flushing method to ash-pond & the over flow water from the Ash Pond is recycled back. New units are provided with dry ash collection system
Mines	Overburden (MT)	23,29,000	Reused in backfilling of mined out area

Recycling/ Reuse of waste

Unit	Utilisation	Percentage
Bauxite Mines	Overburden is utilized for reclamation for mined out areas	100%
Alumina Refinery	Caustic Soda is recycled from redmud	6.1%
	Ash utilization	52.50%
Smelter	Recycling of Aluminium scrap, spent anode, flue gas dust from bake oven, carbon anode baking waste, green anode ridge waste	100%
	Aluminium dross recycled as input to process	59%
	Recycling of coke dust in green anode making	50%
CPP	Ash Utilisation	23.78%



Case Study

Improvement in generation of Crushed Bath in Auxiliary Bath Handling System in Rodding Shop-1 of Smelter Plant

An improvement project was taken up in Rodding Shop 1 by a Cross Function Team adopting Lean Six Sigma methodology. The project was successfully completed and the solutions were implemented since 2012 after obtaining approval of Management. Benefits realised are improvements in productivity and suitable addressal of environmental concerns. The beneficial effects were sustained throughout 2014-15.

Description

Consistent Supply of Crushed bath to pot line from Carbon Plant is essential for optimum performance of Pot Line. Crushed bath is used for covering of anodes in the pots. Such bath in powdered form is generated in carbon area by recycling of solid bath sticking to spent anodes sent from pot line. In the electrolytic Pots, in case any anode is not fully covered with crushed bath, the anode top comes to direct contact with molten electrolyte causing erosion of the iron pins of the anode and impurities in the aluminium metal produced. In extreme case, the anode gets detached from its stem and falls into pot bath. Lack of sufficient covering of anodes with crushed bath also disturbs the electrolyte Pot thermal balance. Carbon plant is required to supply right quantity of crushed bath as per the demand in the potline, depending on production plan and short supply of bath adversely affects productivity and quality.

The auxiliary bath system is installed in the Carbon Plant-1 to augment the capacity of crushed bath generation and also for recycling of aluminium dross generated in Cast House furnaces & globular bath

generated in potline. Increase in output from auxiliary bath system is aimed at bridging the demand – supply gap of crushed bath in potline. The target set was to increase bath generation in auxiliary bath system from about 34 MT/shift to 56 MT/shift.

Analysis

Based on Cause and Effect analysis the probable causes identified were, Constraint/ inefficiency in : input material feeding, Reciprocating feeder running, Screening, De-dusting fan running, De-dusting system performance, Belt running, Feedbox jamming, Autogenous mill running, Purging , Screw conveyor running, DDV screen breakdown.

Root Causes Identified

Based on data analysis and observation at site, the root causes identified are: reciprocating feeder stopped when upstream and downstream is ready, Inadequate pneumatic conveying system, reduced effectiveness of purging system.



Solutions Implemented

After approval from management, the following solutions in respect of root causes identified, were implemented:

- Replacement of defective pneumatic cylinders of the mal-function purging dampers.
- Removal of the redundant Rotary Air-lock from the end of the conveying system to make direct discharge into the crushed bath silo.
- Rectification of the erroneous logic which was causing automated stopping of RC feeder at 10 minutes intervals.
- Replacement of damaged pipes & bends.

Improvement

Implementation of the above, resulted in improvement of productivity from 34 MT/shift to 52 MT/shift.

Control

In order to hold the gains, the following steps were taken:

- Automation programme backup after modification of logic.
- Removal of rotary air lock
- Human Machine Interface was modified.
- Schedule maintenance activities updated.

Sustenance of Improvement

The improvement in productivity was sustained since July 2012. Subsequently, due to constraints regarding disposal of aluminium dross generated



from Cast House furnaces, management decided to maximise recycling of dross by regular feeding of the same as input material in the auxiliary bath system. This decision was taken to address an important and urgent environment concern, accepting a drop in productivity. However, the productivity of the auxiliary bath system was sustained at 40 MT/shift, higher than the initial 34 MT/shift, while maximising the recycling of aluminium dross. A compressed air booster is also provided in conveying pipe to improve efficiency of the system. The auxiliary bath system is fully functional as on day utilising maximum recycling of aluminium dross from Cast House.



Towards Responsible Mining

Disclosure on Management Approach - Sustainable Mining

Sustainable mining practices including the approved Mines closure plan are implemented in the Mines area. Site Specific Wildlife Conservation and Management Plan are also in place for launching appropriate initiatives. Similarly, in all our plants i.e. Alumina Refinery, Smelter & CPP review of environment impacts arising out of key business activities are done and steps are taken to mitigate the identified impacts. Hot-spots and gaps for significant environmental impacts and effects i.e. emissions to air, effluent discharge quality, hazardous waste etc. are identified and appropriate mitigation measures are taken. These provide a basis for various environment initiatives.

Bio-diversity Management

We strive to create a positive impact on the ecological system wherever we are operating by responsible natural resource management and preserving biodiversity. We are conscious of the necessity of managing our land and enhancing its biodiversity. Community support is a strong challenge in our industry and hence requires a greater deal of land stewardship.

None of our mining operations are within 10 km of protected areas or areas of high biodiversity value. Also no protected or sensitive area exist nearby our other units like Alumina Refinery, Smelter, CPP and the Port Facilities. We have already initiated a vegetation survey for crops and vegetables in the nearby area of our Alumina Refinery. As per the directives given by Ministry of Environment and Forests, we have prepared a wildlife management plan for both central and north block of the mine and also for the south block of Panchpatmali Bauxite mines.

The following impacts are anticipated due to operation of mines:

- Fragmentation of habitat due to conveyor belt, service road and HT power line
- Dust in atmosphere, contributed by mining and associated activities, noise and vibrations due to blasting and operation of the machines may scare wild animals and birds from the nearby forests.
- Lights from mining area during night disturbs the wild animals

NALCO has prepared plan for conservation of wildlife in the core and buffer zone of Mines. The Site specific Wild Life Plan for South Block has been approved by PCCF (Wild life), Bhubaneswar. The Wild Life Plan for Central North Block has been prepared and has been submitted to State Forest Department for approval. A biodiversity study was conducted for Mines by Odisha University of Agriculture and Technology, Bhubaneswar and fresh study is envisaged to find out the impact of the mining operation on biodiversity and developing a plan for taking necessary corrective and preventive measures.

Total leased area of Panchpatmali mines is 1,843.624 Ha. The original mine lease area consists of mostly barren land with some palm bushes. No schedule-1 species, as per the Wildlife Conservation Act-1972, are present within the core zone. The mined out area is being backfilled and reclaimed with dense poly-culture plantation of the local species. With this, the scanty vegetated virgin land will be converted to a dense plantation that will improve the floral content and attract fauna to the plateau. Also, some water reservoirs have been developed on the plateau to increase the surface water availability in the area. These initiatives ultimately enrich the bio-diversity and contribute to the improvement of the region's eco system.

The benefits envisaged from mitigating measures on Biological Environment are:

- Ultimate reclamation planned leads to congenial environment for development of flora & fauna through afforestation and creation of water resources.
- The mining lease area is rarely inhabited by wild animals. Further controlled blasting measures adopted to reduce the noise levels and generation of ground vibrations minimizes the impact on the wildlife in the nearby forests.
- Siltation of surface water is avoided by adoption of control measures like check dams and gully plugs, garland drains and settling ponds etc. The check dams also helps in enhancing the time period of water flow through nallahs and streams of the valley, thereby enhancing the ground water recharge.
- Rainwater harvesting by way of diverting all garland drains into settling ponds and allowing this water to percolate in ground, is being practiced in the mine. This improves the groundwater conditions in the hill, which is in favour of vegetation growth.

Implementation of progressive Mine Closure Plan

Reclamation and rehabilitation of mined out area are carried out as per progressive Mine Closure Plan, approved by Indian Bureau of Mines (IBM). Overburden and top soil, stripped ahead of bauxite mining faces, are dumped in mined out areas for backfilling purpose. Levelling of laterite overburden is done and over that top soil is put, which gets subsequently levelled & dressed, developing reclaimed land suitable for plantation with provision of benches and terraces.

The reclaimed area is biologically rehabilitated by carrying out plantation of suitable species. During 2014-15, 20.38 Ha of mined out areas were reclaimed, with total cumulative area reclaimed and rehabilitated in Mines as on 31.3.15 being 263.30 Ha.

Important Environmental Management Initiatives

- Peripheral barrier of over 7.5 m width is left all along mined-out area with green belt developed over it.
- Garland drains along with proper drainage control are maintained around the mining area to drain surface run-off water following natural gradient.
- Dust suppression in mining area is carried out by water sprinkler using tankers in addition to auto sprinkler system all along central haul road.
- Effluent from mechanical workshop area is channelized to oil-water separation tank and clear water is collected in zero discharge sump. Similarly canteen waste, after treatment, is directed to the zero discharge sump and treated water is pumped for horticulture use and dust suppression.
- Plantation of 30,89,853 trees (cumulative) of 66 species completed
- Adequate measures taken to reduce noise & vibration from blasting & equipment/ machineries operation.

Status of tree plantation at NALCO for the year 2014-15

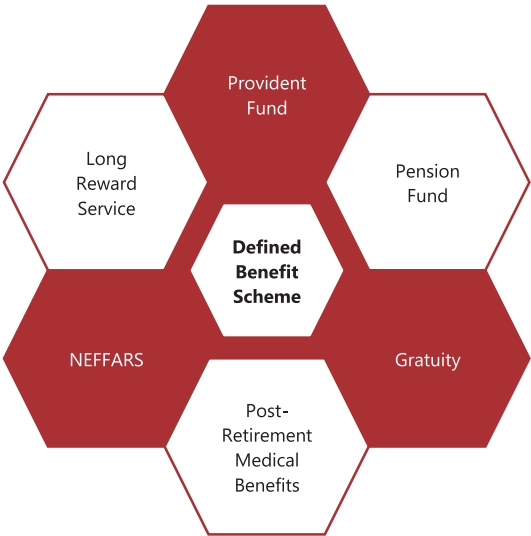
Unit	Mines	Refinery	Smelter	CPP	Peripheral	Total
Targets	1,00,000	50,000	15,000	15,000	11,700	1,91,700
Achievement	1,00,343	50,000	16,000	15,000	42,500	2,23,843



Nurturing Human Resources

Disclosure on Management Approach – Employment

A progressive organization provides enablers for employees to play a pivotal role in shaping the future of the organisation. Caring for the well-being of employees and nurturing their talent is an integral part of our culture. A fair, equitable and non-discriminatory management approach is adopted to create a high performance work culture. Management is sensitive to the needs of its employees and committed towards employee wellbeing. We have established robust practices focused on according prime attention to address and resolve the concerns of employees. There are several programs within the organization which are based on the concept of fair management and aim to ensure that employees are dedicated to their jobs and assured with a sense of security. The HR policy seeks to inculcate a feeling of collective involvement among the employees to keep them motivated. Training needs of the employees are catered with the objective of building a rewarding career with ample progress and high level of satisfaction. The actions and initiatives are backed by the strong management systems such SA 8000 and OHSAS 18001 which have been implemented across all the locations. Maternity leave is available to female employees as per provisions of Maternity Benefit Act 1961.



Nalco extends lot of benefits to its permanent employees, which include medical facilities, leave travel concession, accommodation, subsidised electricity, water facilities, miscellaneous allowance, parental leave, pension schemes, etc. A unique scheme called NEFFARS (Nalco Employees Family Financial Assistance Rehabilitation Scheme) is also offered to employees. Contract employees are also covered under some benefit schemes such as Provident Fund, Medical benefits, etc. During the year 2014-15, Rs.1,378 crore was spent towards employee benefit expenses as compared to Rs.1,295 crore spent during 2013-14.

Recognized unions are consulted by management in all matters affecting work persons. A notice period of 21 days is given, as per section 9 of the Industrial Dispute Act of 1947, prior to implementation of any significant operational change. We ensure complete freedom for employee to form any association. About, 99% employees are members of the Registered Unions. As far as, the Recognised Unions are concerned, 52.3% of unionized employees are members of these Unions as on 31.03.2015. Important policy matters connected to issues like wages, incentives, benefits, standing order etc., are finalised through collective bargaining method. NALCO respects the rights and privileges of the registered trade unions, providing a conducive environment for maintaining good Industrial relations. The five recognized trade unions at units during 2014-15 are :

Units	Name of Recognised Unions
Smelter	NALCO Employees Sangha
Captive Power Plant	Nalco Shramik Congress Union
Mines	Nalco Mines Employees Union
Alumina Refinery	NALCO Mazdoor Sangha
Corporate Office,	Nalco Employees Forum

(Upto January, 2015)

Representatives of the recognised unions are nominated to different joint participative committees like Canteen Management Committee, Safety Committee, Grievance Committee, Welfare Committee, etc. and they get involved in the committees starting from shop floor level to the apex level during discussions on matters relating to production, quality, cost-control, environmental matters and sustainability, factoring in participative management in its true sense.

As per Presidential Directives, efforts have been made for recruitment/promotion of SC / ST / OBC candidates. NALCO is also complying with the provisions of the Persons with the Disabilities Act, 1995. In order to have a control over the implementation of Presidential Directives as well as Government instructions, Liaison Officers for SC/ST/OBC have been appointed to look after the reservation matters for SCs/STs/OBCs as well as Persons with Disabilities (PWD).

As on 31.03.2015, out of 7,320 employees (including regular trainees) on the Company's roll, there were 1,194 (16.31%) SCs, 1,324 (18.09%) STs, 789 (10.78%) OBCs and 84 (1.15%) persons with disabilities. The total number of female

employees in the organization stands at 355. During the reporting period, 10 employees were hired on temporary/contractual/casual basis.

Apart from four layered i.e. Unit level, Complex level, Corporate level (Directors level) and Apex level (CEO level) system of participative Management with Recognised Union, shop level, joint committees are also very effective in ensuring true workers' participation in Management. Authorised representatives of the Recognised Unions are invited to issue based discussions on all important matters affecting the service conditions of the employees and final decision is taken through mutual consultation, wherever required ending with formal settlement.



The profile, skill and Gender diversity etc. amongst employees are mentioned in the tables below :

Employee's Age Profile

Employees' Breakup by Cadre	Male			Female			Total		
	<30	30-45	>45	<30	30-45	>45	<30	30-45	>45
Executives	200	513	1076	23	22	32	223	535	1108
Non-executives	241	1587	3348	18	115	145	259	1702	3493
Total	441	2100	4424	41	137	177	482	2237	4601

Employee's Skill Matrix & Gender Diversity

Employees' Breakup by Gender	2012-13			2013-14			2014-15		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Executives	1731	68	1799	1741	68	1809	1789	77	1866
Non Executives	5471	285	5756	5335	281	5616	5176	278	5454
• Supervisory	815	48	863	833	48	881	796	46	842
• Highly skilled /skilled	3821	130	3951	3710	129	3839	3747	129	3876
• Semi-skilled /Unskilled	835	107	942	792	104	896	633	103	736
Total	7202	353	7555	7076	349	7425	6965	355	7320

Breakup of New Hires (2014-15)	Male			Female		
	<30	30-45	>45	<30	30-45	>45
Executives	90	5	0	11	1	0
Non Executives	3	4	0	3	2	0
Total	93	9	0	14	3	0

Employees Separation (2014-15)	Executives		Non Executives		Total
	Male	Female	Male	Female	
Demise	2	0	19	1	22
Resignation	18	2	1	0	21
Superannuation	48	1	133	5	187
Termination/Struck Off	1	0	1	0	2
Total	69	3	154	6	232



Building Careers

Disclosure on Management Approach – Training & Education

Human Resources Development is the key for the success of NALCO. Keeping this in mind and the targets set, functional and developmental training needs are identified from multiple sources i.e. primary being, the competency related needs, needs arising from organizational requirements and finally departmental / sectional imperatives. Thereafter annual training plan is prepared for imparting trainings. Provision of budget is kept for implementing the scheduled training programmes. Trainings are provided by both internal and external experts. Emphasis is being placed on specific position related training needs and there is an attempt to customize programmes, to the extent possible. Training effectiveness evaluation is also carried out in line with the requirement of quality management systems, to measure the benefits emanating from the action. Effectiveness of the hard skill related training received by the participants is assessed by concerned Head of Department.

Talent Development through Training

Employee Category	No. of Employees Trained		Training Man-Days		Average Training Hours	
	Male	Female	Male	Female	Male	Female
Executives	2380	128	11637	1351	39	84
Non-Executives	3276	157	5840	270	14	14
Total	5656	285	17477	1621	25	46



Special Training on Human Rights and Anti-Corruption

NALCO conducts regular trainings for employees on human rights and socially accountable policies. We provide training on SA 8000, covering various aspects of human rights, to our executive and non-executive staff. As on date almost all the executives and most of the non-executives were given awareness about SA8000. Besides training programmes are also conducted on health and wellness, lifestyle Management, etc.

Every year about 100 executive employees and 150 non-executives are covered in various Preventive Vigilance training programmes in entire NALCO. Various circulars of CVC are circulated to all concerned, as and when required. CVC guidelines are also suitably addressed in various manuals i.e. Purchase Manual, Contract manual.

Grievance Redressal Mechanism

There is a scheme of formal grievance procedure for both executives and non-executives. Under the scheme a grievance committee is formed taking representatives of the Recognised Union. Any grievance application received from an employee is scrutinized by the committee and expeditious action is taken to resolve the grievance within the framework of the company policy. In case any grievance could not be solved through Grievance Redressal Mechanism, the concerned employee is counselled with reason of non-action.

Disclosure on Management Approach – Occupational Health & Safety

Health and safety of our employees is of foremost importance for us. We have in place a strong Health and Safety policy, the implementation of which is overseen by our plant safety personnel and plant heads. All our production facilities are OHSAS 18001 certified. Health and safety audits are being done regularly to assess our performance.

All our employees are always encouraged to participate in various trainings sessions and seminars pertaining to health and safety issues that are being conducted by internal and external experts. Through these training sessions and various communications channels, the employees and contract persons are encouraged to accord priority to safety needs both personal and for their co-workers.

Process design, safety engineering and administrative controls have been incorporated suitably to have an accident free workplace. Our efforts have brought about significant success over the years.

For developing awareness on safety & occupational health, NALCO has been continuously imparting internal as well as external training to its employees and contract workers. It has provided Occupational Health Centre (OHC) at its S&P Complex as well as M&R Complex. They have qualified doctors, technical staff & modern testing facilities. We also conduct Periodic Medical Examination of all our regular employees. The analysis of PME results indicates no Occupational Diseases observed in both the complexes. During 2014-15 there were no fatalities at any of our units.

PME Statistics

Units	Permanent Employees	Contractual Employees
CPP	1290	1782
Smelter	3119	3010
Refinery	1354	2071
Mines	148	92

Holistic Health Management

- Stress free & healthy life style training programmes are regularly organized with expert faculty assistance from reputed organization for employees & their spouses
- Special programmes on prevention of life style diseases including yoga which are regularly organized for employees and their family members
- Signage boards are put up at various places including No smoking and No-Tobacco use to educate general public.



Safety Statistics

Our safety performance for the reporting period is provided in the table below:

Unit	Category	Reportable Accidents	Man-days worked	Man-days lost	Man-hours worked	Lost days Rate	Rate of Injury	Absentee Rate
Smelter	Employees	0	773,664	0	6,189,312	0	0	0
	Contract Labour	3	138,7802	165	11,102,416	0.012	0.27	14.86
CPP	Employees	0	375,514	0	3,004,116	0	0	0
	Contract Labour	0	603,755	0	4,830,040	0	0	0
Mines	Employees	0	133,797	0	1,070,376	0	0	0
	Contract Labour	0	156,601	0	1,252,808	0	0	0
Refinery	Employees	0	496,183	0	3,969,464	0	0	0
	Contract Labour	0	400,113	0	3,200,904	0	0	0
Port Facility	Employees	0	13,430	0	1,07,440	0	0	0
	Contract Labour	0	30,603	0	2,44,824	0	0	0

All three accidents at smelter involved male employees

Safety initiatives at NALCO units:

Bauxite Mines

- Training on "Safe use & Handling of Explosives" was imparted to blasting crew members during the year.
- Dust, Noise and Equipment Vibration Survey by National Institute of Miners Health (NIMH), Nagpur was carried out during the year. All the parameters are within prescribed norms.
- There were no fatal, serious, reportable and minor accidents at Mines during the year.

Refinery Plant

- All fire management activities were carried out and there was no major fire incidence during the year.
- There was no reportable Industrial Accident during the year.

Smelter Plant

- There were 3 reportable industrial accidents during the year. Corrective & Preventive actions have been taken based on the cause analysis.

Captive Power Plant

- In order to make aware on hazard & risk involved on daily activities, "TOOL BOX" talk / meeting started in all the departments on regular basis.
- For the first time 'Safety Report' has been prepared by Safety department for submission to DoFB, Odisha.



Human Rights

Disclosure of Management Approach – Human Rights

Respecting human rights is ingrained in our work culture. In the job contract conditions, human rights related parameters like child labour, forced labour/ compulsory labour are introduced to restrain the service providers for any violations. The employee grievance mechanism encourages venting the voice of employees related to discrimination if any. Protecting and respecting human dignity is central to our everyday business operations.

The priority accorded to Human Rights issues are reflected in implementation of SA 8000 Management System at all our production units and Corporate Office, in order to maintain decent work places and ethical business practices. The Code of Business conduct and ethics for Board members and Senior Management, mandates to be fair and not to discriminate in the basis of race, sex, religion and the values of equality, tolerance, respect for others are stressed. Human Rights practices with ethics is a highpoint in our Sustainable Development Policy. One complaint related to sexual harassment was pending as on 1.4.14 .This was successfully resolved during the reporting year.

Screenings during projects and procurements

Before commencing any new project or signing any contract, we undertake due diligence to make sure that there are no negative impacts on human rights and well-being of the society. We have an established screening process in place to evaluate and select suppliers/sub-contractors on their ability to meet our standards and requirements. We have formulated a SA 8000 based questionnaire which helps us in screening all our vendors on various human rights and social accountability aspects. In order to eliminate risks of child labour & forced labour/compulsory labour in our supply chain, SA 8000 questionnaire are sent with two-part bidding enquiries to all the prospective bidders. All our agreements and tenders are in compliance with all the relevant statutory obligations and national laws. We also do regular monitoring of our existing supplier to verify their adherence to our policies.

We prohibit any form of child labour in our as well as our suppliers operation. We also strongly prohibit any kind of forced labour/compulsory labour in our organization under any circumstances. We have a strict policy in place and it's also well communicated to all the concerned parties internally and externally.

Facilitating human rights through trainings

We conduct regular training programs to train our employees on our human rights and socially accountable policies. We provide half a day training on SA 8000, covering various aspects of human rights, to our executive and non-executive staff. As on date almost all the executives and most of the non-executives were given awareness about SA 8000.



Giving Back to Society

Disclosure on Management Approach – Local Communities

Ensuring inclusive growth by contributing towards the peripheral development has always been a priority and part of business strategy for NALCO. This becomes even more important considering the wide-ranging operations from mining to production of aluminium and the innumerable community members connected to us in some way or the other. It has been our core belief that sustainable development cannot be achieved holistically without giving the due importance to social and environmental dimensions along with the economic dimension. In order to ensure that CSR activities and social interventions are undertaken as per the requirements of local communities and also deployed to achieve desired results, robust policies and processes have been developed for the same. The organization firmly believes that long term success can only be achieved through sustained development of society where it operates. Creating an enduring positive social impact on the communities in the neighbourhood of operations is accorded top priority in our Sustainable Development policy. Focused initiatives on Sustainability and CSR are taken up for ensuring a better quality of life for the local and marginalized communities. NALCO has established a CSR & SD committee as mandated by law which oversees the formulation, deployment and review of CSR initiatives.

As a Socially Responsible Business Enterprise, we have always contributed towards development of its stakeholders more particularly for those residing in the peripheries of our plants and operational areas with utmost importance given to the protection of environment. Since inception, we have shown concern for all stakeholders in all our operations and activities with the aim of achieving sustainable development not only in the economic dimension but also in the social and environmental dimension. This has been possible through implementation of its sound and ethical policies on CSR and environmental protection. The Company has been allocating 2% of its net profit after tax for CSR

activities since 2010-11 out of which, 1% is spent for Peripheral Development activities through RPDAC. The balance 1% is spent for CSR activities through Nalco Foundation.

From 2014-15 onwards, the Company is mandated to spend 2% of its average net profit during the three immediately preceding financial years under different heads stipulated under Schedule VII of the Companies Act, 2013.

During this year, the Company focused its CSR activities in the field of health care service, promotion of education and environmental sustainability, renewable energy etc.

CSR Thrust Areas for NALCO

- To play a catalytic role for improving the living standards and quality of life of the community through upliftment of economic status & community care
- To develop the infrastructural facilities to cater to the social and economic need in vicinity of the community
- To provide better health care & health education
- To promote education & literacy
- Pollution control and environmental measures
- Promotion of sports & games, arts, crafts & culture
- To minimise (making it zero) the negative & social environment impact resulting from its economic activities
- To promote a responsible public image

Planning and implementation of CSR activities

The monitoring & evaluation of all the CSR projects undertaken as are as per the approved CSR policy of organisation.

The community is involved in each and every stage of the project starting from planning to implementation and monitoring stages. We seek suggestions of villagers through "Village level development committees" to prepare an action plan for their upliftment. This involvement helps to ensure the successful implementation of activities thereby making the whole process sustainable.



Healthcare

For providing better health care services to the Periphery village people, four Mobile Health Units (MHUs) are being operated in collaboration with Wockhardt Foundation in periphery villages of M&R Complex, Damanjodi. Similarly, three Mobile Health Units (MHUs) are operating in Angul Sector with the help of Lions Club, Angul. Each MHU provides primary health services to the villagers include free medicines, diagnostics and awareness building through Information Education Communication (IEC) activities. In addition to above, an OPD Centre meant for Out Patient Treatment of people of periphery villages in Angul sector has also started operating since July, 2014 in the S&P Complex. The Centre is functioning with a qualified Doctor, para-medical staff. Free medicines are provided to the patients of periphery villages through the Centre. Total 1,425 patient from periphery villages have availed treatment during the year.

During the 2014-15, 2,254 camps were conducted and total 1,06,272 patients from periphery villages at Damanjodi and Angul were treated and medicines were, provided free of cost.

Education

Tribal children of periphery villages at Damanjodi were admitted in residential schools at Koraput, Jeypore and Bhubaneswar schools viz. (i) Kalinga Institute of Social Sciences, Bhubaneswar, (ii) Koraput Development Foundation, Koraput & (iii) Bikash Vidyalaya, Koraput. Since the inception of this scheme, 655 children from 16 periphery villages of Damanjodi sector have benefitted

from this opportunity and are still continuing their education in such institutes. The entire cost of their education, from class I to class X, is borne by Nalco Foundation, the CSR arm of the Company.

Moreover, peripheral village school students are also extended educational facilities in the Company aided schools i.e. Saraswati Vidya Mandirs & Delhi Public Schools located at Damanjodi and Angul sectors.

Other Initiatives

The various programmes and initiatives undertaken, are briefly outlined below:

- 14353 saplings have been distributed in 2045 households of 25 peripheral villages at M&R Complex, Damanjodi as an environmental care initiative.
- Financial assistance of Rs.1.50 Crores is provided for organizing Champions Trophy Hockey Tournament-2014, held in Bhubaneswar from 6th to 14th Dec'14.
- One Mini Bus, with a financial implication of Rs.12.50 Lakhs, was provided to Open Learning Systems, Bhubaneswar for transportation of Cerebral Palsy and Mentally Challenged Children.
- Towards harnessing the unconventional and renewable energy sources, we have commissioned 160 KWp Roof Top Solar Power Project at Corporate Office and 100 KWp at Township Buildings in Nalco Nagar, Bhubaneswar.

Distribution of Fruit-bearing Seedlings

NALCO, under its CSR activities, distributed fruit-bearing seedlings to the inhabitants of Kurumul Village under Peripheral jurisdiction. Grafted fruit plants like Mango, Coconut, Guava, Cashewnut, Drumstick, Lemon and Pomegranate were distributed to 90 families of the village. The villagers were informed about the importance and benefits of the plantation. Senior NALCO officers from Horticulture, Administration and H&A department were present for the distribution event. Staff of Horticulture Department, coordinated and assisted seedling distribution programme.





As a PSU-partner in Government's Swachh Vidyalaya Abhiyan, NALCO was asked by Ministry of Human Resource Development, Government of India, to construct 355 toilets in 203 schools, in Angul and Koraput districts of Odisha and Visakhapatnam district of Andhra Pradesh. NALCO could successfully achieve beyond the target within the stipulated time. The project was implemented through NALCO Foundation, the CSR arm of the company.

Most of the schools allotted were located in remote and tribal areas of Odisha and Andhra Pradesh.

Since, some of the schools did not have any approach roads, pre-fabricated toilets were carried on head loads, crossing rivulets and hillocks. Due to space constraints, designs had to be modified for some of the schools. Besides, summer vacation, monsoon menace, acute shortage of skilled workers & labourers, resolving local issues and theft of construction materials also took their toll.

Despite such heavy odds, NALCO not only achieved the targets in time but also constructed 79 additional toilets, beyond the MHRD target, as per ground realities and requests from school authorities. Thus the total number of toilets constructed by NALCO stands at 434.



Tale of Transformation

Residential Education sponsorship, in collaboration with the Kalinga Institute of Social Sciences (KISS), Bhubaneswar, is the flagship programme of NALCO's CSR initiatives. Through this scheme tribal children residing in peripheral villages of Mines and Refinery Complex at Damanjodi are sponsored for education to reputed residential school till they complete matriculation. Expenditure on this account is borne by Nalco Foundation.

Mitel Muduli, 9, from Bhitarmarchmal village and son of a casual labourer at NALCO's mines is one such boy who has taken admission in KISS. Maina Muduli, Mitel's father says: "I could not have afforded Mitel's education in a good residential school like KISS but for Nalco Foundation's support. I visit him every month. He has changed a lot. They (KISS) take good care of him". His mother Padma adds: "I could not recognize him at first when I went to see him at Bhubaneswar last month after so many days. He touched our feet and greeted us. This had never happened before. He has learnt many good things there (KISS)".



Mitel's teacher at KISS, Dumni Soren, herself is a postgraduate from KISS and elaborates, "When the children came here, I faced problems in communicating with them. Sanitation and hygiene was hitherto unknown to them. But, now they are very conscious about personal hygiene. They are punctual and disciplined in their activities."

Back in the periphery villages of Damanjodi, many similar stories can be heard from the parents of the children.

A Ray of Hope at Old Age

Adequate medical care is always a concern for majority of tribal population residing in remote areas of Koraput district. Therefore Nalco Foundation started Mobile Health Services in the 142 periphery villages with an aim to provide medical services at the doorstep.

One day, Ram Barik, a 55 year old resident of Damaguda in Koraput, fell down and his right leg got broken. Instead of going to hospital he approached some people practising indigenous medicine. Many days passed and condition of the broken leg turned serious, when Mobile Health Unit of Nalco Foundation spotted him during its routine visit and encouraged him to go to Koraput district hospital. Doctors diagnosed that the patient was in terrible condition as he delayed to come to hospital.

Back in village, MHU team of Nalco Foundation decided to provide him medical support through regular follow up during visit to Dumaguda. After seven months of consistent efforts, there was significant improvement and now Ram Barik is not

only able to stand but also able to walk well. Ram Barik says: "Hundreds of people are getting health service by the MHUs of Nalco Foundation at their doorsteps. As I could not walk, the Van didi every month visited my home and brought medicines. The MHU team took my special care during most difficult phase of my life, when I was in a state of shock and was concerned about my survival. Now I can walk well and owe my active life to Nalco Foundation."



Product Stewardship

Our products are designed to serve the needs of the society and is well received in the domestic as well as in the international markets. The development of products and associated processes incorporates economic value, societal benefits and environmental stewardship. Safety, Occupational Health and Environmental issues are also comprehensively addressed in our Sustainable Development policy.

Our products, Aluminium and Calcined Alumina, are widely sought after by customers because of the high quality of the products & associated service. Quality of Aluminium produced is as per P1020A specifications required for London Metal Exchange registration. Similarly, Alumina Hydrate and Calcined Alumina are produced as per internationally recognized metallurgical grade alumina standard.

Product Innovation

Continual improvements in our processes ensure production of desired quality of Calcined Alumina and Aluminium. By producing and supplying to customers products as per the specified quality on

consistent basis, smooth operation of plants at customer end is facilitated resulting in optimum use of energy and other critical inputs in the customers' processes. Environmental footprint is reduced by transportation of bauxite in a single flight multi-curve long distance cable belt conveyor.

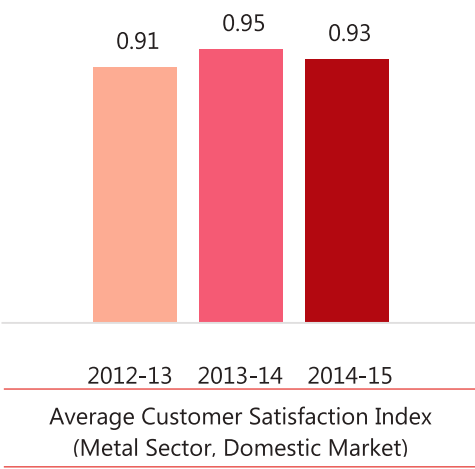
The extensive use of aluminium by the automobile manufacturers has not only resulted in significant weight reduction, but also as a result improved the fuel efficiency reducing the GHG emissions over the complete life cycle. Studies have shown that reducing weight of an automobile by 10% can result in up to a 7% reduction in the vehicle's GHG emissions over the life cycle. (Source: European Aluminium Association). Comparing a baseline steel vehicle with an Aluminium-intensive vehicle design revealed that the Aluminium design offer 25% reduction in vehicle weight resulting in 20% reduction in primary energy consumption and a 17% decline in CO₂ emissions over the vehicle's life cycle. (Source: Oak Ridge National Laboratory). Significant environment footprint reductions have been achieved over the years by Aluminium industry. Increased Aluminium use can drive future improvements.

Customer Satisfaction

Disclosure on Management Approach – Customer Focus

Our motto and core driving principle is to identify and deliver the needs of customer and adopt a customer centric approach to provide better service to customers. The Sustainable Development Policy highlights economic issues to be addressed for enhancing value creation for Stakeholders and the Mission Statement focuses on Customer Satisfaction. Meeting the needs and expectations of the customer by consistently improving our performance is also our chosen path in achieving business excellence and fulfilling other social obligations. NALCO conducts customer satisfaction survey, twice a year, for mapping satisfaction index and collecting customers' feedback. Trends are then analysed to internally benchmark our own performance to improve further. We are proud to have achieved targeted customer satisfaction level feedback from 100% of the respondents. The Average Customer Satisfaction Index for metal Sector, Domestic Sector is shown in the graph. Taking cognizance of importance regarding customer feedbacks during various interactions, the important processes i.e. marketing, production, process control are periodically revisited for enhancing Customer Satisfaction. There was one customer complaint pending at start of the year while 7 were received during the year. At the end

of reporting period, 6 complaints were disposed while 2 were pending.





Product Labeling

NALCO meets the requirements with respect to product labeling by following the practices as prescribed by regulations. For e.g. in case of Aluminium metal, the product grade, stack no., bundle no., net weight is displayed on the product label. In case of Rolled Products, Name of the Company & production unit and place, Coil No, Grade, Size (Thickness X Width) in mm, Net Weight (in kgs.), Signature of the inspecting authority, Date of Packaging, No. of sub-stacks and total no. of sheets per packet (for Rolled sheets only) is displayed on the product label.

There has not been any case filed by any stakeholder against the company regarding unfair trade practices, irresponsible advertising and/ or anti-competitive behaviour during the last five years.

Recycling of process waste

Being a primary aluminium producer, the thrust is given to recycle the inevitable process wastes to the maximum possible extent. The aluminium dross generated in melting furnaces at Smelter are processed in autogenous mills where metal is separated from bath material and the recovered metal is recycled. The aluminium wedges used for bypassing pots, pot hoods, pot cowl, residual metal pad etc are melted and recycled through potline scrap melting furnace.

Abbreviations

AA	AccountAbility
CAFÉ	Corporate Average Fuel Economy
CAGR	Compounded Annual Growth Rate
CHP	Coal Handling Plant
CPCB	Central Pollution Control Board
CPP	Captive Power Plant
CPSE	Central Public Sector Enterprises
CSR	Corporate Social Responsibility
CVC	Central Vigilance Commission
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESP	Electro Static Precipitator
ETP	Effluent Treatment Plant
FSA	Fuel Supply Agreement
FY	Financial Year
HEMM	Heavy Earth Moving Machinery
ISO	International Standards Organisation
LME	London Metal Exchange
MHRD	Ministry of Health Resource Development
MHU	Mobile Health Unit
MoU	Memorandum of Understanding
MSE	Medium & Small Enterprises
MU	million units (million kWh)
ODS	Ozone Depleting Substances
OHC	Occupational Health Center
OHSAS	Occupational Health and Safety Management Systems
OSPCB	Odisha State Pollution Control Board
PAT	Profit After Tax
PAT Scheme	Perform Achieve and Trade Scheme
PBT	Profit Before Tax
PFC	Per Fluoro Carbon
PME	Periodical Medical Examination
RPDAC	Rehabilitation and Peripheral Development Advisory Committee
S&P	Smelter and Power
SA	Social Accountability
SC/ST	Scheduled Caste / Scheduled Tribe
STP	Sewage Treatment Plant
TG	Turbine Generator
TOE	Ton of Oil Equivalent
TPH	Tons per hour
VFD	Variable Frequency Drive

GRI Sector Supplement for Metals and Mining Sector

MM1	Amount of land (owned or leased, and managed for production activities or extractive use) disturbed or rehabilitated.
Response	Page No: 46
MM2	The number and percentage of total sites identified as requiring biodiversity management plans according to stated criteria, and the number (percentage) of those sites with plans in place.
Response	Page No: 46-47
MM3	Total amounts of overburden, rock, tailings, and sludges and their associated risks.
Response	The amount of overburden generated during 2014-15 is 23,28,930 MT. There are no significant risks associated with handling of overburden.
MM4	Number of strikes and lock-outs exceeding one week's duration, by country.
Response	There have been no strikes or lock-outs in the reporting period
MM5	Total number of operations taking place in or adjacent to Indigenous Peoples' territories, and number and percentage of operations or sites where there are formal agreements with Indigenous Peoples' communities.
Response	NALCO has only one mining operation at Damanjodi. While setting up its operations, all local regulatory requirements have been adhered to.
MM6	Number and description of significant disputes relating to land use, customary rights of local communities and Indigenous Peoples.
Response	There have been no disputes relating to land use, customary rights of local communities and Indigenous Peoples.
MM7	The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and Indigenous Peoples, and the outcomes.
Response	While setting up its operations all local regulatory requirements have been adhered to.
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.
Response	There are no company operating sites where artisanal and small-scale mining (ASM) takes place on, or adjacent to, the site.
MM9	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process.
Response	No resettlements took place at any location during the reporting period
MM10	Number and percentage of operations with closure plans.
Response	There is only one mining operation of NALCO at Damanjodi and closure plans exist for same as per the statutory norms.
MM11	Programs and progress relating to materials stewardship.
Response	Page No: 33-34, 47

GRI G4 Content Index



General Standard Disclosures			
General Standard Disclosures	Page no.	External Assurance	Description
Strategy and Analysis			
G4-1	2-3	-	Statement from the most senior decision-maker of the organization.
Organisational Profile			
G4-3	10	-	Name of the organization.
G4-4	10	-	Primary brands, products, and/or services.
G4-5	10	-	Location of organization's headquarters.
G4-6	7, 11, 12	-	Number of countries where the organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report.
G4-7	31	-	Nature of ownership and legal form.
G4-8	10, 12	-	Markets served (including geographic breakdown, sectors served, and types of customers /beneficiaries).
G4-9	4-5, 7, 29	-	Scale of the reporting organization.
G4-10	50	-	The total number of employees by employment contract and gender
G4-11	48	-	The percentage of total employees covered by collective bargaining agreements
G4-12	7, 10, 11	-	The organization's supply chain
G4-13	6	-	Significant changes during the reporting period regarding size, structure, or ownership.
G4-14	22	-	Whether and how the precautionary approach or principle is addressed by the organization
G4-15	6	-	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses
G4-16	25	-	Memberships of associations (such as industry associations) and national or international advocacy organizations

Identified Material Aspects and Boundaries

G4-17	11	- All entities included in the organization's consolidated financial statements or equivalent documents
G4-18	15	- The process for defining the report content and the Aspect Boundaries
G4-19	19	- All the material Aspects identified in the process for defining report content
G4-20	19	- For each material aspect, whether the Aspect is material within the organization
G4-21	19	- For each material aspect, whether the Aspect is material outside the organization
G4-22	No Restatements	- The effect of any restatements of information provided in previous reports, and the reasons for such restatements
G4-23	6	- Significant changes from previous reporting periods in the Scope and Aspect Boundaries
Stakeholder Engagement		
G4-24	16-17	- List of stakeholder groups engaged by the organization
G4-25	15	- Basis for identification and selection of stakeholders with whom to engage
G4-26	15-17	- Organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group
G4-27	16-17	- Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting
Report Profile		
G4-28	6	- Reporting period (such as fiscal or calendar year) for information provided
G4-29	6	- Date of most recent previous report (if any)
G4-30	6	- Reporting cycle (such as annual, biennial)
G4-31	6	- The contact point for questions regarding the report or its contents
G4-32	6	- The 'in accordance' option the organization has chosen, the GRI Content Index for the chosen option, the reference to the External Assurance Report, if the report has been externally assured
G4-33	6	- Organization's policy and current practice with regard to seeking external assurance for the report
Governance		
G4-34	21-22	- The governance structure of the organization, including committees of the highest governance body
Ethics & Integrity		
G4-56	22-23	- The organization's values, principles, standards and norms of behaviour such as codes of conduct and codes of ethics

Specific Standard Disclosures				
DMA and Indicators	Page no.	Omissions	External Assurance	Description
Category: Economic				
Material Aspect: Economic Performance				
G4-DMA	28	-	-	Disclosure on Management Approach
G4-EC1	30	-	-	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.
Material Aspect: Procurement Practices				
G4-DMA	32	-	-	Disclosure on Management Approach
G4-EC9	32	-	-	Proportion of spending on local suppliers at significant locations of operation
Category: Environmental				
Material Aspect: Materials				
G4-DMA	34	-	-	Disclosure on Management Approach
G4-EN1	34	-	-	Materials used by weight or volume.
Material Aspect: Energy				
G4-DMA	35	-	-	Disclosure on Management Approach
G4-EN3	35-36	-	-	Energy consumption within the organisation
Material Aspect: Water				
G4-DMA	40	-	-	Disclosure on Management Approach
G4-EN8	40	-	-	Total water withdrawal by source.
Material Aspect: Emissions				
G4-DMA	35	-	-	Disclosure on Management Approach
G4-EN15	35-36	-	-	Direct greenhouse gas emissions (Scope 1)
Material Aspect: Effluents and Waste				
G4-DMA	40, 42	-	-	Disclosure on Management Approach
G4-EN23	42, 43	-	-	Total weight of waste by type and disposal method.
Category: Social				
Labour Practices and Decent Work				
Material Aspect: Employment				
G4-DMA	48	-	-	Disclosure on Management Approach
G4-LA1	50	-	-	Total number and rates of new employee hires and employee turnover by age group, gender, and region
Material Aspect: Occupational Health and Safety				
G4-DMA	52	-	-	Disclosure on Management Approach
G4-LA6	53	-	-	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region and gender.
Material Aspect: Training and Education				
G4-DMA	51	-	-	Disclosure on Management Approach

DMA and Indicators	Page no.	Omissions	External Assurance	Description
G4-LA9	51	-	-	Average hours of training per year per employee by gender and by employee category.
Human Rights				
Material Aspect: Investment				
G4-DMA	54	-	-	Disclosure on Management Approach
G4-HR1	54	-	-	Percentage and total number of significant investment agreements and contracts that include human rights clauses or that have undergone human rights screening.
Society				
Material Aspect: Local Communities				
G4-DMA	55	-	-	Disclosure on Management Approach
G4-SO1	55-57	-	-	Percentage of operations with implemented local community engagement, impact assessments, and development programs.
Product Responsibility				
Material Aspect: Product and Service Labelling				
G4-DMA	60	-	-	Disclosure on Management Approach
G4-PR5	60	-	-	Results of surveys measuring customer satisfaction.



NALCO AT A GLANCE



Corporate Office



Bauxite Mines



Alumina Refinery



Aluminium Smelter



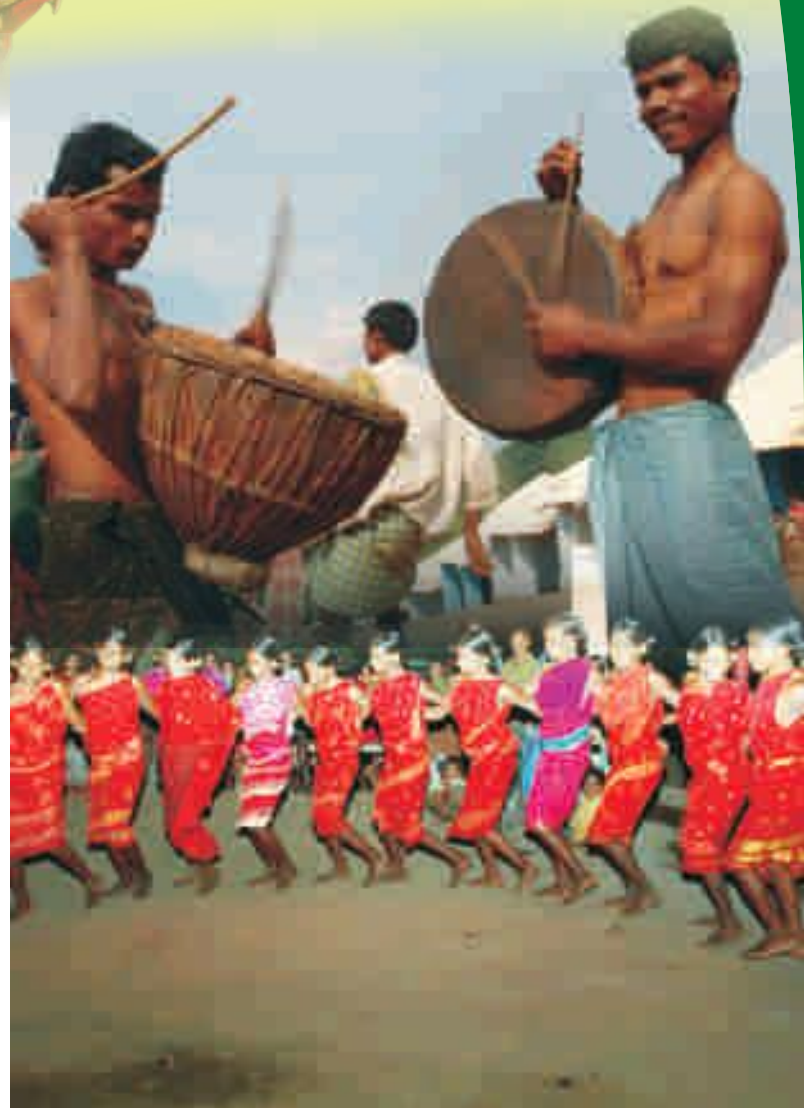
Captive Power Plant



Port Facilities

**WORK-LIFE
BALANCE**

**PROMOTING
ART & CULTURE**





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