"The rise in copper consumption provides us with an opportunity to make India the 2nd largest producer of refined copper"

Santosh Kumar, Chief Marketing Officer, Vedanta Sterlite Copper

Sterlite Copper, a unit of Vedanta Limited, has come a long way since its inception in 1996, emerging as the leading copper producer in India. The company is well on its path to making India self-sufficient in refined copper production.

In an exclusive interview with Santosh Mahanti, Editor of Metal Asia magazine, Santosh Kumar, Chief Marketing Officer at Vedanta Sterlite Copper, tells us in detail about the company's copper business division and diversified product portfolio. He also shares his views on the company's digital transformation journey, circular economy model, and present status of the Indian copper industry, among others.

Can you give a brief introduction about yourself?

I am a seasoned technocrat with over 15 years of experience. In my career with the Vedanta Group, I have generated value across multiple functions. The garnering of cross-functional exposure is a part of Vedanta's organisational philosophy. Our Chairman, Anil Agarwal, has emphasised the importance of having "well-rounded professionals" in strategic positions. The cross-functional exposure garnered by me at the group is a manifestation of our Chairman's philosophy.

I joined the Vedanta Group in 2005 from Alstom. Thereafter, I joined Vedanta's Aluminium business in the sourcing vertical. Following that, I branched out to become a business analyst, where I learnt to assess the health of the aluminium business. After that, I got back into sourcing by handling a profile pertaining to coal procurement. My career trajectory shifted from the sourcing side to the sales and marketing side thereafter. I rose to become the Head of Sales in Europe and then became the Chief Marketing Officer, Asia and Oceania for Vedanta's Aluminium business. During my tenure, we were instrumental in creating demand for "Made in India"

aluminium in the region. After my tenure, I gravitated within Vedanta's non-ferrous segment to the copper vertical as the Chief Marketing Officer.

Throughout my journey, my mantra has been to stay committed in the face of adversity and transform strategic plans into workable solutions. Combining strategic vision with operational insights has enabled me to stay ahead of the curve in combatting business headwinds.

Vedanta has a huge network of subsidiary businesses. Can you tell us about the different verticals of Vedanta?

Vedanta is the sixth-largest diversified natural resources company in the world. Our asset class can be grouped into four sectors, namely Oil & Gas, Non-Ferrous Metals, Ferrous Metals and Power. Within the non-ferrous segment, we are engaged in the production of zinc, aluminium and copper. Within the ferrous segment, we are engaged in the production of iron ore and steel. Our geographic footprint is distributed across India, South Africa and Namibia. Off late, we have branched into the highly strategic segment of semiconductor manufacturing. The concentration of semiconductor manufacturing in Taiwan has strategic implications for India's impending digital transformation. The creation of Greenfield capacity for semiconductor manufacturing in India will help us overcome this strategic vulnerability. At the same time, within our existing asset base, we are committed to helping India reduce its import bill.

You are currently a part of the Copper Business. Can you shed some light on the background of the Copper Business?

The journey of the Vedanta group began with copper. In 1996, India was dependent on imports for its copper needs. Our entry into the business of copper manufacturing and subsequent growth over the past 25 years was instrumental in making India self-sufficient for refined copper. At present, Vedanta's Copper Business has assets in Tuticorin, Tamil Nadu and Silvassa in the Union Territory of Dadra & Nagar Haveli. In Tuticorin, we have a 400 KT per annum Copper Smelter along with sulphuric and phosphoric acid plants. This is an extremely capital-intensive segment. At present, installing a 1 million MT per annum copper smelter requires a capital investment of Rs. 12,000 Crores. At Silvassa, we have a refinery, along with Copper Rod Plants. Despite the suspension of production at our Tuticorin smelter, we have ensured that India has enough copper for its domestic needs via our Silvassa unit that has an installed capacity of 2.16 LTPA of cathode and 2.58 LTPA of rod.

What is the current demand scenario for the copper industry in India?

The Indian copper industry is on the cusp of a demand boom. Consumption of copper in India is forecast to grow from 1.1 million MT at present to 5 million MT by 2040. This growth in demand is slated to be at a CAGR of 9.6% per annum and is driven by India's transition to clean energy systems. With the increased demand for copper and India's miniscule reserves of copper ore, the Indian copper industry is expected to rely heavily on domestic recycling practices bringing about a mammoth shift in future of the copper industry.

Can you tell us about the Fujairah Gold Business?

At Fujairah Gold, we operate a Continuous Cast Rod Plant with an annual capacity of 1,00,000 MT and a Precious Metal Refinery with an annual capacity of 50 MT of gold and 120 MT of silver as by-products.

What are some of the key applications of your products?

Our copper cathodes are used as a starting material for copper rods. Copper cathodes are also used for making alloys like brass, bronze, and alloy steel, with applications in defence and construction. Our copper rods are currently used primarily for power and communication cables, transformers and magnet wires. Sterlite Copper will be widening its product portfolio and introducing three new products primarily used in the Indian Railways systems. While we aim to diversify our product portfolio, we also aim to take strides towards the formation of a circular economy in India.

What is Sterlite's vision for a circular economy?

India generates copper scrap in substantial quantities. However, India does not use domestically generated copper scrap in the production of copper. This was highlighted in the National Non-Ferrous Scrap Recycling Framework released by the Ministry of Mines. As per the framework, India's domestic scrap recycling rate of 20% is far below the global benchmark recycling rate of 82%. This low recycling rate has also prevented the formation of a circular economy in the copper industry in India. A major hurdle in the creation of a circular economy in India is the absence of copper scrap standards. Currently, in India, copper scrap is classified into different categories on the basis of the categorisation released by ISRI (Institute of Copper Scrap Recycling Industries).

ISRI classifies copper scrap into different categories based on the physical appearance of the scrap lot in question. This is not the same as scrap standards. Scrap standards broadly classify

copper scrap into different categories on the basis of the chemical health of the scrap lot. The indicators of the chemical health of the scrap lot include copper content, moisture content, foreign material content, radioactivity, hazardous material content, ferrous metal content and plastic content, among others. The existence of Copper Scrap Standards will enable a user to determine the chemical health of the scrap lot in question and subject it to further processing on the basis of this data. In countries with scrap standards, copper scrap with foreign material content ≤2% is directly melted. Copper scrap with foreign material content ≤5% is fire refined. Copper scrap with foreign material content ≤8% is subject to smelting & refining. In India, the absence of standards for copper scrap has impeded the creation of a circular economy in the copper sector.

This is because the absence of standards is in effect the absence of a quality certification mechanism. The National Non-Ferrous Scrap Recycling Framework to be implemented has also recognised the problem by stating that "Strengthening material recycling, including metal recycling, under the formal sector can provide a good opportunity by increasing domestic copper scrap utilisation to cut down scrap imports".

The framework released by the Ministry of Mines has also recognised the need to formalise the sector by developing standards for input waste material suitable for domestic secondary processing. It is the need of the hour that this development takes place in India as it will have two major impacts. First, it will prevent the dumping of scrap formerly entering China and Malaysia into India. Second, it will create a system where recyclers of scrap will process scrap collected by them in a technically appropriate manner as standards will arm them with adequate data to gauge the health of the scrap lot. This will reduce quality concerns with regard to copper generated using scrap as a raw material. In the long run, it will lead to an increase in India's domestic scrap recycling rate and create a circular economy in the copper industry.

What are ways the copper industry can support India's growth directly?

Copper finds abundant possibilities in the vision of Atmanirbhar Bharat – from infrastructure, rural electrification, smart cities and, most importantly, railways – as a part of critical railway infrastructure to boost connectivity.

The rise in copper consumption provides us with an opportunity to make India the 2nd largest producer of refined copper in the world by 2030. In line with PM Narendra Modi's vision of Make in India, India can be a manufacturing powerhouse of copper. The National Manufacturing Policy, which aims to increase the share of manufacturing in GDP to 25% by 2025, can be achieved if all of us come together with the goal of overcoming barriers to India's copper security.

Additionally, as envisioned by PM Narendra Modi, the copper industry can heavily support the transition to green technologies. One key step to do the same is the establishment of Copper Scrap standards.

Only with strong Copper Scrap standards in place, India can begin recycling using domestic scrap and eliminating any harmful substances like lead from the same. With the establishment of scrap standards, PM Modi's Panchamrit Vision will be supported, and recycling can take place, giving a boost to the domestic markets instead of imports.

What exactly is Sterlite's Digital Transformation?

Copper will be key as we transform the future driven by Industry 4.0 supported by advanced technologies like Artificial Intelligence, VR and Drones. Our latest and one-of-its-kind E-commerce platform "Vedanta Metal Bazaar" will function as a one-stop digital solution for our customers, allowing them to seamlessly navigate through an end-to-end online buying experience. We are giving them live pricing options, e-auction, and live tracking systems. Under our Digital Sterlite programme, we are having smart manufacturing systems like Integrated Quality Management systems deployed at our plant in Silvassa. Other initiatives like the Assisted Reality systems are deployed to ensure the safety of our workers. Sterlite's Digital Transformation aims to increase efficiency and reduce resource wastage in line with our green vision to support recycling.

Why are scrap standards essential for this circular economy model?

Western countries are gradually focusing on recycling copper scrap in their home. This is driven by a desire to make the process of copper manufacturing greener and prevents exports to countries without proper regulations for responsible recycling of scrap. Due to this, it is forecast that the exports of copper scrap are likely to reduce to 1.4 million MT by 2041 from 5.9 million MT in 2011. An example of major investments being made includes the creation of an 80,000 MT per annum copper smelter by Aurubis in the USA. The EU is also working on a prosed amendment to its waste shipment regulation. The amendments state that exports of copper scrap will only be granted to recyclers that have been audited by the EU.

These measures will tighten the scrap export market, and countries like India will have to focus on measures to responsibly recycle domestic scrap by boosting urban mining in the country. India will need to promote urban mining within India as close to 40% of India's copper scrap imports are from the USA, UK and Germany. The actions being taken by the USA and EU, which at present account for 60% of the global copper exported, will be principally responsible for reducing the availability for import of copper scrap.

The only alternative for countries like India is urban mining, and scrap standards are the way to promote it. Scrap standards will classify copper scrap into categories based on its chemical health. Capturing indicators are copper content, radioactivity, hazardous material content, and ferrous and plastic content, among others. Recyclers of scrap might be unwary of the chemical composition of the scrap and directly melt all types of copper scrap, causing enormous environmental and health hazards.

Additionally, being a critical component in the electricity and wiring sector, the enactment of copper scrap standards will ensure the safety of consumers, eliminating potential fire hazards. It will also promote domestic scrap collection and will reduce the dumping of low-quality scrap from the West into India.

Are there examples of other economies in the world following similar routes?

Yes, within Asia, both China and Malaysia have taken the lead as far as recycling of copper is concerned. Interestingly, China was in a comparable situation that India finds itself in today, in terms of low domestic scrap consumption. However, in 2017 the Chinese government introduced policies aimed at reducing China's dependence on imported copper scrap. In January 2020, China approved the categorisation of high-grade copper scrap pegged at 94% copper content as a recyclable. Subsequently, Malaysia implemented standards and pegged copper content at 94.75%. Malaysia has also enacted standards mandating a minimum non-ferrous content of 94.75%. In addition to the enactment of standards, Malaysia has also enacted regulations to monitor the movement of copper scrap into and within the country. China's actions and Malaysia's proposal will compel scrap users in their home countries to source scrap domestically and boost their domestic scrap collection rates.

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