Aatmanirbharta in zinc: Powering India’s self-reliant and sustainable future

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As India walks closer to its $30 trillion economic vision by 2047, the true test will not be how much we build, but how well it lasts. Building ambitious infrastructure is only part of the equation as the true progress depends on durability and longevity. This is where zinc plays a crucial role. By reinforcing steel and shielding it from corrosion, zinc helps critical structures last longer, keeping the foundation of our growth solid for years to come. It’s more than just a metal — it’s a key ingredient in creating sustainable and future-ready development.

Zinc is the fourth most used metal globally and with good reason as it protects, it endures, and it performs. In India, infrastructure faces unique challenges — from humidity and salty coastal air to pollution and varied weather conditions. This makes zinc vital for protecting our steel structures. Looking at the past twenty years, India has quietly developed a robust zinc ecosystem that supports key industries like infrastructure, automotive, power transmission, renewables, and advanced energy storage. From mining

to refining - the country has steadily strengthened its capabilities, reducing reliance on imports and moving steadily toward greater self-reliance. Also, since 2002, our refined zinc metal production has quadrupled, meeting around 77 percent of our primary demand. Notably, the sector has also bolstered India’s silver output, vital both for industrial use and strategic stockpiles.

Looking at the future: Doubling zinc production by 2030

India’s infrastructure and manufacturing sectors are growing rapidly with driving a strong demand for materials that are both durable and high performing. Zinc, known for its ability to significantly extend the life of steel, is now becoming a key part of this growth story. To keep up with increasing needs in areas like highways, bridges, renewable energy, and electric vehicles, the industry is focused on doubling India’s zinc production capacity by 2030.

This scale-up is more than just a supply-side response. Corrosion is already costing India close to 5% of its GDP annually, driven by a mix of high humidity, saline coastal air, and pollution. That’s significantly higher than countries like Japan and Australia, where widespread use of zinc-coated steel has brought corrosion-related losses down to below 1.5%. For a country building infrastructure at breakneck speed, the case for galvanisation is not optional — it’s essential.

Investments in this segment are already in progress which includes advanced smelting facilities, increased refining capacity, and improved logistics support. Beyond cutting down on imports, this growth will create a ripple effect throughout the economy.Another important aspect via this will be generating significant employment, drawing in new investments, and strengthening India’s domestic supply chain. Simply explaining that zinc will fuel not only our infrastructure but also India’s path to greater self-reliance.

Galvanized steel: India’s shield against corrosion

Talking about safeguarding infrastructure, galvanized steel stands out as one of the most trusted and proven solutions. Coating steel with zinc forms a durable, corrosion-resistant barrier that can help structures last fifty years or longer. What makes zinc so powerful is its sacrificial quality — even if the surface is scratched or exposed, it continues to guard the steel beneath.

From highways and railways to transmission lines and public utilities, galvanized steel delivers where it matters most which is long-term reliability, lower maintenance, and uninterrupted service. It’s not just smart engineering; it’s future-proofing India’s growth.

Zinc: Powering India's clean energy future

Zinc's importance goes well beyond just protecting against corrosion as it has become a key player in India's renewable energy sector. Solar panels and wind turbines often face some of the toughest conditions, and zinc coatings play a crucial role in enhancing their durability and efficiency. Given this a perspective , a single 10 MW offshore wind turbine can require up to 4 tonnes of zinc, while a 100 MW solar plant may need nearly 240 tonnes.

But zinc's potential doesn't end there. New technologies like zinc-ion and zinc-air batteries are emerging as promising alternatives to lithium-ion, offering safer, more scalable, and environmentally friendly options for grid storage and electric vehicles. This is especially important as India seeks to reduce its dependence on imported lithium and move toward a cleaner, more resilient energy future.

Policy backing for zinc–led infrastructure

Government initiatives like PM Gati Shakti and the National Infrastructure Pipeline are focusing on faster execution, long-term durability, and sustainability. Promoting the usage of galvanized steel and locally sourced materials fits very well with the vision of Aatmanirbhar Bharat — building strength from within.

All this isn't just about meeting targets. It's about creating infrastructure that lasts. For investors, it supports ESG goals. For engineers, it means fewer risks and for the country, it ensures lasting value from every project.

As India enters a new era of development, zinc is set to play an important role in shaping India's future. It will strengthen our infrastructure, energize our green energy ambitions, and deepen our push for self-reliance. The zinc ecosystem is primed and proven and the case for its use has never been stronger.

The moment to act is now.