



PRINCIPLE

6

Environment

Businesses should respect, protect, and make efforts to restore the environment.

Tata Steel has always adopted a proactive approach to the conservation of the environment. The Company's actions are guided by the Tata Code of Conduct, Tata Climate Change Policy, Tata Steel's Vision and Environmental policy.

Resource conservation

Integrated steelmaking requires large amounts of raw materials such as iron ore and coal. To ensure optimal use of resources, the Company's policy of reduce, reuse and recycle has been embedded in its processes. Efforts to improve performances have resulted in considerable reduction in the use of energy and natural resources.

The main raw material used across all three locations in Tata Steel Thailand is ferrous scrap, which is fully recyclable. At NatSteel, scrap metal generated within the plant is mostly recycled internally. In 2011-12, the percentage of recycled input materials accounted for 2.36% of the total billet production at NatSteel.

Research and development of innovative technologies and processes for Ore and Coal Beneficiation

Raw material cost is critical to the sustainability of steel manufacturers. Raw materials used for steel making are not renewable. Therefore, R&D and operations seek to enhance yield and maximise utilisation of raw material. Innovative application of Jigs to beneficiate iron ore to control Alumina, processes to reduce slime generation, research to produce clean coal at optimal yield and plant rejects to produce concentrates are targeted to achieve this objective.

Process optimisation, waste management through reduce, reuse and recycle

Advanced techniques are used to extract iron and carbon, by reusing most of the residual materials through sinter plants, steelmaking and coke ovens, replacing primary raw materials and reducing overall CO₂ emissions.

The most significant by-product of steel making, in terms of quantity, is blast furnace slag. It is used as a substitute for clinker in the cement industry. Steelmaking slag is used for civil engineering purposes and agricultural applications by TSE. Tar and benzole derived from the coke-making processes are used by chemicals industry.

EAF slag, a byproduct of NatSteel's operations, is further processed by a third party for use as road surfacing material. In Financial Year 2011-12, EAF slag accounted for approximately 14.53% of the crude steel produced.

Relatively large volumes of water are used by all steel manufacturing units, mostly for non-contact cooling and is primarily reused. Tata Steel India reported an 18% decrease in specific water consumption over a ten year span from 7.1 m³/tcs in Financial Year 2002-03 to 5.8 m³/tcs in Financial Year 2011-12.

In Europe, the Company is developing a tool that will provide a more accurate measure of fresh water consumed per tonne of steel produced to target additional water efficiency schemes.

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All industrial cooling water processes at NatSteel use NEWater, a high-grade reclaimed water produced from treated, used water that is purified further using advanced membrane technologies. At NatSteel, 100% of the water is recycled and reused a few times before eventual discharge into the public sewage system.

Adoption of green and clean technologies, best operating practices and process upgradation

Appropriate measures for environment protection are taken by adopting BAT (Best Available Technology) and designing pollution control infrastructure to achieve discharge and emissions within statutory limits.

An Environment Impact Assessment is undertaken prior to the implementation of capital projects and appropriate environment management programmes are implemented with the project.

Tata Steel adopts best practices to prevent, or otherwise minimise, mitigate and remediate, harmful effects of mining operations.

Some of the environment friendly technologies adopted in Financial Year 2011-12 include installation of a tailing de-watering plant for the first time in India to nullify the requirement of a tailing pond and the use of a pipe conveyor to reduce dust generation at the Jamshedpur Works.

Mitigating the impact of Climate Change

Although emissions are an area of critical concern for steel manufacturers, Tata Steel believes its products are part of the solution to climate change, as steel has inherent environmental advantages, such as being durable, adaptable, reusable and recyclable.

A waste water treatment plant at Jamshedpur, India.



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energy and environment committees – such as ‘Clean, Green and Safe’ in Singapore, ‘Green Team’ in Canada, the ‘YmGreen’ initiative in the Netherlands and the ‘Greenfection’ campaign in India. The Company’s technical staff and engineers are trained to identify energy-saving opportunities in drive trains (drive controls, motors, couplings and prime movers), which have resulted in significant savings in energy.

In India, an environmental performance report is regularly sent to statutory bodies. This includes monthly reports to State Pollution Control Boards and half yearly reports to the Ministry of Environment and Forests (MoEF) by operating sites in India and quarterly reports by the Raw Materials Division to the Director General, Mine Safety. Real time environment data of the Steel Works is displayed at its main entrance.

Some of the significant issues dealt with by the Indian operations during the year are as below:

- a) The higher emissions at Sinter Plant No. 3 were reduced by commissioning Best Available Technology – Coromax ESP – in January 2012, in compliance with statutory limits.
- b) In order to improve LD Slag disposal practices, the Company has initiated actions at Bagunhatu as prescribed by experts.

On the matter of spillage of fuel oil into the river Tees in the north-east England in September 2008, Tata Steel was fined £8,000. While delivering the verdict, the regulating authorities noted Tata Steel’s prompt and effective response to the original incident, a high level of cooperation between Tata Steel and the Environment Agency and the Company’s good record in the UK.

Extending environment management across the supply chain

The environmental impact of the movement of goods and products, though not captured due to a large global vendor base, is mitigated by complying with procedures laid down under the ISO 14001 standards for vendor registration and contractors. This is being done to reduce air pollution and vehicular emissions at operating sites.

 **SUSTAINABILITY IN ACTION**

- The EU Emissions Trading Scheme (EU ETS) is a ‘cap and trade’ scheme covering all large electricity generators and industrial emitters of greenhouse gases (mainly CO₂) within EU Members States. This sets a ceiling on the total amount of greenhouse gases (GHGs) that can be emitted in a multi-year phase.
- In 2013, the ETS will move into its third phase (2013-2020) and the supply of emissions allowances will be further tightened and set on a trajectory to -21% by 2020 compared to 1990 emission levels. Electricity generators will have to pay for all their allowances through an auctioning process but because the steel industry is classified as being at risk of ‘carbon leakage’, the sector should continue to receive a free allocation, although it will now be based on a CO₂/tonne benchmark of the top 10% best performing sites multiplied by the average output in recent years.
- The above proposals are being discussed with various stakeholders. Tata Steel continues to make efforts to look for solutions that will help reduce its carbon footprint in the future.