

Green strategies

Tata Metaliks has given a green slant to all of its business and plant operations in a bid to reduce its carbon footprint and mitigate its environmental impact

At Tata Metaliks (TML) every day is Environment Day. While most organisations are still formulating their strategy on climate change, the company has already rolled up its sleeves and begun to tackle the issue.

Managing director Harsh Jha encapsulates his company's strategy on climate change in the simple phrase, Express concern simply. He says, "The issue of climate change is mired in jargon, so the message gets diffused. The average person finds it difficult to relate to it. We decided to express the message simply so that everyone would feel motivated to do something."

In a striking instance of walk-the-talk, Mr Jha announced that employees at Tata Centre in Kolkata, where the company's corporate office is located, must work between 9am and 5:30pm with the leeway to come 30 minutes earlier and leave 30 minutes later. Those wanting to work beyond this time must get prior approval from their senior manager.

Working on Saturdays is discouraged. This instruction, combined with the practice of keeping the lights switched off during the day and depending solely on sunlight, helped lower the electricity bill by nearly 30 per cent, a reduction that caused other companies in Tata Centre to sit up and take notice.

Not satisfied with just these savings, the company went a step further. Mr Jha says, "The men's restroom on our floor in the Tata Centre has two huge blowers which used to operate all the time. The restroom is maintained by Tata Steel. We are not required to fiddle with it. Yet we spent our own money to replace the blowers with another technology that is operated by motion sensing in order to save electricity. The new technology is simple yet functionally effective and has created a different mindset in people. This is the approach we have taken to make people sensitive to the environment."

A similar approach has inspired the construction of Metaliks House in Kharagpur, which is designed such that 80 per cent of the office space does not require artificial lighting during the day.

It is the simplicity of TML's environmental initiatives that has appealed to employees everywhere. All across the company's locations, there is a quiet revolution happening as people support the company in its attempt to counter the adverse effects of climate change.

The company's plant in Kharagpur, West Bengal, is seeing dedicated activity at every level. TML has thought of innovative means to reduce its carbon footprint.





“The issue of climate change is mired in jargon, so the message gets diffused... We decided to express the message simply so that everyone would feel motivated to do something”

Harsh Jha

Going green

One of these initiatives has to do with increasing the green cover around the plant. The Ministry of Environment and Forests mandates that 33 per cent of the area around a plant should consist of greenery. TML's 197-acre plot has already achieved a green cover of 33.46 per cent. The green cover provides several benefits: the plants absorb carbon dioxide, give out oxygen and also help suppress noise and reduce dust.

The goal for 2010-11 is to increase the green cover to 35 per cent. As of 2009-10, there were nearly 40,000 varieties of plants in the TML and Tata Metaliks Kubota Pipes plantations. The vegetation includes indigenous plant species, flowering plants, foliage, herbaceous annuals, biannuals, perennials and ornamental shrubs that provide both environmental and aesthetic value.

Water woes

Another green initiative is related to water. Mr Jha says, “We depend entirely on groundwater. There is no municipal supply. Our goal is to pump into the ground as much water as we draw from it. We want TML to become a completely water neutral operation. It is a tough task. At this point, we don't know how we will do it. But we have taken up this target and we are going to do it by 2015.” The company has studied the water consumption data at Kharagpur and made a process improvement to cut down the water requirement. It has also sought guidance from the department of hydrology, Indian Institute of Technology (IIT), Kharagpur, which deals with groundwater responsibilities.

These measures are necessary. The profusion of greenery in the area once ensured that even when Kharagpur was dry, the company's premises got sufficient rainfall. Recent studies however have shown that the water table is receding. In the last few

years, the area has seen the spawning of a number of factories, which draw water from the ground but do not sustain it. The company is suffering the consequences of others' negligence.

To counter this problem, TML is prepared to invest effort and technology. It has launched many initiatives for enhancing the water table. A 'Breakthrough and continuous improvement' project was initiated in 2007-08 to reduce water consumption in the plant. An internal team installed water meters to gather data on water consumption in different processes. A detailed root cause analysis was done in 2008-09 and various improvement areas were found. Action plans were made and implemented.

Building efficiencies

As with water, TML is also conscious about its usage of power. Since it generates its own power, it cannot consume more than is generated, thereby setting a limit on consumption.

Part of the coke used as fuel inside TML's blast furnaces gets used in the chemical reaction. The other part, which comes out from the top of the furnace is called blast furnace gas. This is used to generate power, as it still has some latent heat and unspent fuel. The unspent fuel is used to generate power while the heat, about 600-700 kcal/Nm³, is recycled to remove moisture from coke or used as fuel in the boiler to reduce high-speed diesel consumption.

Having generated as much power as required, the surplus gas will be used to supply heat energy to TMKPL. TML has also started monitoring its energy consumption and greenhouse gas emissions.

Other initiatives to protect the environment are the replacement of a petrol-operated motorbike used by employees for movement within the plant with an electric two-wheeler, and the use of video conferencing for communication between the company's sites at Kharagpur, Kolkata and Redi. A solar heater has been installed in the canteen to reduce the consumption of fuel. Promoting the use of email, CFL lamps, printing on both sides of the paper, etc are other earth-friendly initiatives introduced by the company.

Using nature

TML has also adopted the use of natural fertilizer made with compost and vermiculture; in this it has taken the help of ladies of a local self-help group.

Furthermore, TML has constructed 16



houses in Kharagpur for its employees that have a unique environment friendly feature — they remain cool in summer and warm in winter. The roof terraces of these buildings are filled with a layer of upturned *kulhads* (small clay pots), topped with an inch of cement. The *kulhads* entrap air, which expands in summer but blocks heat. In the winter, the air contracts, leaving a vacuum that acts as an insulating layer. Says Mr Jha, “The beauty of the idea lies in its simplicity.”

Spreading the word

The most heartening feature of TML's anti-climate change initiatives is that the company has aligned them with its business. The reason for this is rooted in the nature of pig iron and the challenges it poses to the environment. Pig iron is a high water-intensive business. Also about 1.4 tonnes of iron ore and 0.72 tonnes of coke go into the production of 1 tonne of hot metal, generating carbon dioxide and other effluents as part of the process.

While these challenges are inherent to all pig iron manufacturing companies, TML stands tall on account of its conscience and its willingness to do what it takes to reduce carbon emissions. The company has not only sought to reduce the amount of carbon emission at its own blast furnaces but also at the foundries of its customers.

Sudhin Mitter, vice president, marketing and sales, says, “The idea is to make our customers more competitive, while gaining their loyalty. Also, since foundries pollute heavily, we want to help them to reduce their pollution levels by improving their operational efficiency.”

This was done by improving the melting rate, requiring the cupolas in the foundries to consume less coke to break the pig iron and make the castings. A similar process was used in the blast furnace, which uses coke as fuel, and in the induction furnace, which uses electric energy, to separate iron from iron ore in the process of making pig iron.

This improvement makes the process more economical, since the consumption of coke ranks as a very high cost for the foundries. Also, since the use of coke generates carbon dioxide, a reduction in the amount of coke used helps ensure less carbon emission.

Additionally, TML gave the foundries horticultural inputs to help them cultivate plants that reduce pollution, as well as technological inputs to help them reduce emission levels. A team of three to four TML engineers, with a background in foundries,



Tata Metaliks' pig iron facility at Redi, Maharashtra

studied the workings of each foundry and made certain recommendations on the processes which would enable the foundries to be more efficient, save money and reduce their carbon emissions. These recommendations were shared through customer meets.

Customers were quick to appreciate the efforts. But TML was not one to rest on its laurels. The company immediately set another challenging task for itself, that of producing pig iron that would consume less energy. It joined hands with Tata Steel R&D department and IIT Kharagpur to establish a correlation between the size and shape of the pig iron and the size of the cupola.

Mr Mitter says, “We theorised that if you use a bigger size of pig iron ingot in a smaller cupola, your melting efficiency will be reduced. You will consume more coke and generate more carbon dioxide. The right shape and size of pig iron correlating with the size of the cupola would help ensure minimum energy consumption, increase efficiency and reduce costs.”

The theory was tested through mathematical models; field trials were conducted in the foundries. Mr Mitter adds, “We wanted to see if our proven theories would be validated.”

Currently the foundries allow economic considerations to decide what size of ingot they will buy. They do not realise that the size can affect the melting. Mr Mitter believes that the company's new understanding will bring a lot of savings to the foundry industry. A soft launch has already enthused customers.

Through all these initiatives, TML has clearly expressed its commitment to the planet. The company deserves commendation for pursuing economic development in tandem with environment protection. ●

Cynthia Rodrigues