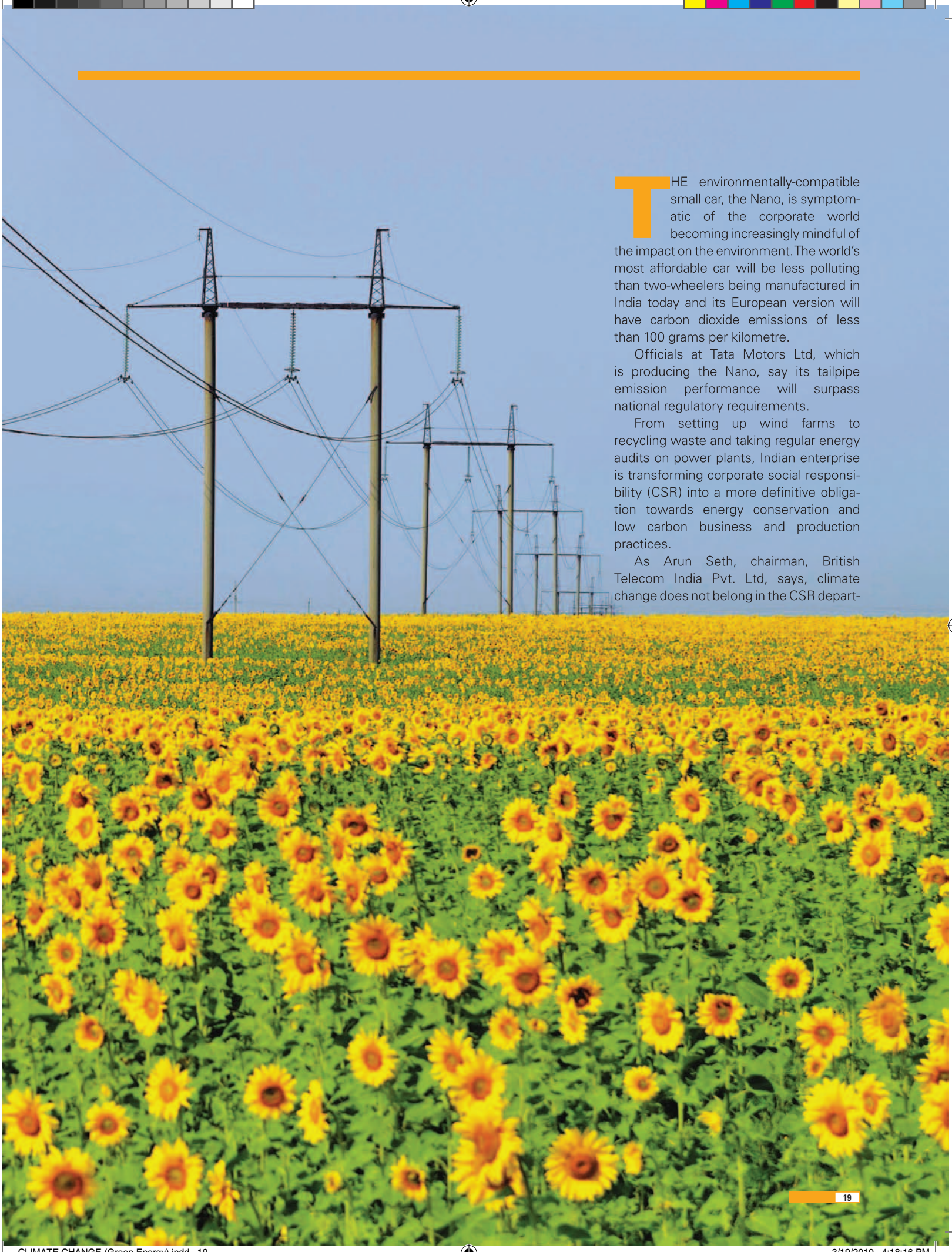
Energy conservation and low-carbon business and production practices are emerging as the new mantra for corporate India as it transforms its corporate social responsibility into a more definitive obligation in the era of climate change, says **Rajiv Pai.**

GREEN ENERGY



THE environmentally-compatible small car, the Nano, is symptomatic of the corporate world becoming increasingly mindful of the impact on the environment. The world's most affordable car will be less polluting than two-wheelers being manufactured in India today and its European version will have carbon dioxide emissions of less than 100 grams per kilometre.

Officials at Tata Motors Ltd, which is producing the Nano, say its tailpipe emission performance will surpass national regulatory requirements.

From setting up wind farms to recycling waste and taking regular energy audits on power plants, Indian enterprise is transforming corporate social responsibility (CSR) into a more definitive obligation towards energy conservation and low carbon business and production practices.

As Arun Seth, chairman, British Telecom India Pvt. Ltd, says, climate change does not belong in the CSR depart-

THE NEW SUNRISE INDUSTRY

GLOBAL warming and climate change are among the most talked about subjects the world over. It is now felt that the next century will belong to the country that makes a breakthrough in energy technologies for the world to adopt.

Global energy consumption is projected to soar from 348.4 quadrillion (million billion) British thermal unit (BTU) – a unit of energy used in the power, steam generation, heating and air conditioning industries – in 1990, to 622.9 quadrillion BTU in 2025, half of it to be accounted for by the industrialised countries. Consequently, carbon dioxide emissions that totalled 21.6 billion tonnes in 1990 are expected to rise to 37.12 billion tonnes in 2025.

Analysts points out that India can be a leader in providing innovative solutions to the world to manage climate change, endowed as it is with a rich pool of managerial skills, technology and resources.

The Energy and Resources Institute (TERI) of New Delhi, Tata Power and National Thermal Power Corporation (NTPC) have set up a joint venture to develop a technology that will reduce pollution from coal-based power plants. They will be establishing the country's first photo-bioreactor at NTPC's power plant in Dadri, Uttar Pradesh, at a cost of US$ 300 million. The technology will curb flue gas emissions from thermal power units fired by India's high-ash and low-sulphur coal through the action of micro algae supplied by TERI.

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> **Arun Seth,**
> chairman, British Telecom India Pvt Ltd

ment; "it should be in the mainstream".

Tata Power, India's largest private sector power utility, with an installed capacity of over 2,300 MW in generation, transmission, distribution and trading, has on the anvil a project that can recycle agro-waste such as rice husks into power for rural areas.

Avinash Patkar, chief sustainability officer (CSO), Tata Power, says it is looking at a range of technologies and innovative solutions to supply affordable and cleaner power to rural areas and for carbon capture and reuse to maximise production of oil and gas from old wells and from coal bed methane seams.

One project the company is working on is a standard design for a 250 kW agro-waste gasification power system for rural India. The demonstration plant will be built in Bhivpuri village, 60 km from Mumbai, where a 75 MW hydro station, built by Tata Power, has been operating since 1919.

Agro-waste like bamboo, groundnut shells, rice husk or wood chips can be gasified into producer gas, a mixture of carbon monoxide and hydrogen, with a high calorific value. This gas, when cooled can then be burnt in an internal combustion (IC) engine that drives a generator. The heat rejected in the jacket can be used to pasteurise, or disinfect, drinking water and the IC engine exhaust gas to dry the agro-waste.

With two rice crops a year, farmers usually have rice husk in plenty. Tata Power will purchase it as agro-waste at US$ 21.65 a tonne. "Each such project can provide power to 200 families," says Patkar.

Other companies have had thoughtful initiatives in place a long time before global warming reared its head. ACC Ltd, with its 14 cement factories and 30 ready mix concrete plants across the country, had installed pollution control equipment and high efficiency electrostatic precipitators for its cement kilns, raw mills, coal mills, power plants and coolers way back in 1966, says N S Sekhsaria, chairman and ceo.

ACC has a high energy profile: it is involved in mining (being the largest user of limestone), is a principal coal-user and is one of the biggest freighters on the national rail and road network for materials and products. It is also the first in the country to utilise waste by-products from other industries to manufacture cement.

Global warming is a concern, which is why ACC has constituted a renewable energy division within its power management group. Its first major initiative was a

wind farm, established in 2007, to provide an environmentally sustainable energy input to its Madukkarai plant in Tamil Nadu. The project has already generated 12 million units of green carbon-free energy and the company has received approval for another wind power project in Rajasthan.

"Cement manufacture is energy-intensive, and energy constitutes 15 per cent of our costs," remarks A.K. Pathak, president of ACC's technical support services. The company is producing 69 per cent of its electricity requirement through captive power plants. It has 225 MW of captive power generating capacity, 184 MW of it thermal and the rest based mainly on liquid fuel. An additional 130 MW of captive thermal power is being installed.

"Our efforts have helped reduce our energy consumption from 113 kWh/ tonne to 94.71 kWh/ tonne of cementitous material over the last seven years," notes Sekhsaria. Besides, the company is 'greening' – making energy-efficient – its six-storey, 68,000-sq ft corporate head office, Cement House, built in 1939 in Mumbai.

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> **N S Sekhsaria,**
> chairman and ceo, ACC Ltd

Another major Indian corporate that is contributing significantly to environment-friendly practices is ITC Ltd, the US$ 5 billion group with a diversified presence in cigarettes, hotels, paperboards and specialty paper, packaging, agri-business, packaged foods, information technology and branded apparel.

Y C Deveshwar, chairman, refers to the three significant environmental milestones achieved by the company. "For six years in a row, ITC has been a 'water-positive' company, and for three consecutive years, we have sustained our 'carbon-positive' status, notwithstanding the large growth in our businesses," he points out. "Besides, we have generated three times more freshwater harvesting potential than what we consume and sequester almost twice the amount of carbon we emit." ITC has also achieved 100 per cent benchmark in recycling solid waste in several of its operations.

ITC's business operations affect the environment by way of greenhouse gas (GHG) emissions, water use and emissions and solid wastes. To mitigate GHG, the company produces a fourth of the energy it requires from renewable resources. It has also created over 80,000 hectares of tree plantations, thereby

GREEN BUILDINGS

THE Maharashtra government is introducing legislation making it compulsory for buildings to meet prescribed green standards. New buildings should make use of eco-friendly technology such as rainwater harvesting and solar energy systems, use recycled water for non-potable purpose and make ample use of sunlight.

Besides, material used in its construction should be made of fly ash cement and lightweight cement bricks so as to keep temperatures low within the building. In turn, local civic bodies would offer developers incentives for going green by way of lower development charges and a rebate in property tax for the residents.

The concept of green buildings is catching up fast in India. According to the Indian Green Building Council (IGBC), part of the Confederation of Indian Industry (CII), India had only 18 certified green buildings and 328 proposals for new ones in 2008. A year later, there were 52 certified green buildings and 436 new proposals.

Jamshyd Godrej, chairman and managing director, Godrej and Boyce Manufacturing Ltd, one of India's largest industrial houses (who is also the chairman of the CII's Climate Change Council), recalls that developers initially had reservations as constructing green buildings cost 12 per cent more than regular ones.

However, they realised that they were cost-effective in the long run, resulting in savings in energy costs of around 40 per cent and of water of around 30 per cent. Also, the natural lighting and good air quality in such buildings led to increased productivity and curbed carbon emissions.

The first and the only project in Mumbai so far to get the Leadership in Energy and Environmental Design (LEED) Platinum rating – the globally-acknowledged benchmark for green buildings – has been the corporate office of British Gas built by Hiranandani Constructions in 2003.

Thirty more to have applied for a LEED rating were commercial projects by developers such as K. Raheja Corp, Lodha Group, Kalpataru Group, Keystone Realtors and Neelkanth Group. These city projects include an Information Technology park, a Metro station and the corporate office of the Oil and Natural Gas Corporation.

sequestering 1.95 times its carbon dioxide emissions. The company plans to green 100,000 hectares over the next five years as a sustainable raw material resource for its expanding paperboards business as also to provide employment to marginalised farmers.

It is the first company from India – and among the first 10 in the world – to publish its Sustainability Report in compliance with the latest G3 guidelines of the Netherlands-based Global Reporting Initiative, a UN-backed, multi-stakeholder international initiative to develop and disseminate globally applicable Sustainability Reporting Guidelines. ITC is also the first Indian company and the second in the world to win the Development Gateway Award.

A study conducted recently by PricewaterhouseCoopers (PwC) in India found that 52 per cent of the ceos questioned on non-financial threats to business cited climate change as a concern, up from only 27 per cent last year. This exercise was part of the Global ceo survey conducted annually by PwC.

The Carbon Disclosure Project (CDP) report, released by the Confederation of Indian Industry (CII) in December 2009,

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> **Y C Deveshwar,**
> chairman, ITC Ltd

found that a large number of companies have not only started disclosing information on their GHG emissions, but are also adopting more accurate methodologies for doing so. Sixty-eight per cent of the respondents to CDP 2009 have reduc-

tion plans in place for slashing either their energy or GHG emissions as compared to 61 per cent for CDP 2008. Besides, 84 per cent did not consider existing regulatory mechanisms as a risk, but rather as an opportunity for triggering long-term investment in energy-efficient technologies.

Taking regular energy audits on equipment like heavy earth-moving machinery and power plants based on heavy fuel oil (HFO) is another method adopted by companies to use energy optimally. The Udaipur-based public sector Rajasthan State Mines & Minerals Ltd (RSMML), which is engaged in mining and marketing industrial minerals, has achieved substantial power savings at its 3,000 tonnes per day (tpd) industrial beneficiation plant at Jhamarkotra mines through the use of roller press technology, comprising two contra-rotating rollers.

The technology helped reduce power consumption in processing each tonne of low-grade rock phosphate from 55 units to 32 units, says Gopal Gandhi, deputy general manager for electricity projects. "The New Delhi-based carbon advisory firm, Senergy Global, helped draft the project design document and concept note," he says. "The project has been validated by the India office of the Norwegian certifying firm of Det Norske Veritas (DNV) and has already gained us carbon credits."

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>
> **Gopal Gandhi,**
> dgm, Rajasthan State Mines & Minerals Ltd

DNV's head of climate change in South Asia, C. Kumaraswamy, says his firm is accredited by the United Nations Framework Convention on Climate Change (UNFCCC) as an operating entity under the Clean Development Mechanism (CDM) for the technical scope of energy industries, distribution and demand, manufacturing, construction and chemical industries, fugitive emissions, solvent use and waste handling and disposal. DNV, he adds, delivers independent third party services for climate change activities the world over, including India.

CDMs are emission reduction projects where an industrialised country invests in an emissions reduction venture in a developing country. RSMML's wind farms of 74.8 MW at Jaisalmer produce 110 million units of electricity every year without any pollution. "This quantum of electricity, produced by conventional thermal power

plants, would have emitted approximately 80,000 tonnes of carbon dioxide (CO_2) annually," Gandhi calculates.

According to the Kyoto Protocol, which India has ratified, each tonne of CO_2 saved will translate into Carbon Emission Reduction (CER) credit under the CDM, which can be traded with a willing company of a developed nation, having the mandate to reduce emissions. For example, 100,000 kWh power generated from pollution-free sources such as windmills will avail such a company 60 CERs.

RSMML has already been credited 50,000 CERs and is earning 15,000 CERs yearly through online auctions. It is now adding 15 MW of wind farms at a cost of US$ 17.3 million. "These credits, successfully generated and traded, will provide RSMML additional financial strength to adopt suitable technologies and projects for further conserving the eco-balance," notes Gandhi.

The company has also set up a one tonne per day (tpd) jatropha-based bio-diesel plant at Jhamarkotra for captive use on its heavy mining machinery. "We are operating some of our vehicles too on an experimental basis with bio-diesel and will extend its scope to the remote tribal areas of Udaipur district," he says. "The project will generate employment and eco-friendly returns for the company, being eligible under the CDM category."

> Financial institutions (in India) will play an important role in the shift to cleaner energy.
>
> **Stephen Green,**
> group chairman, HSBC Holdings plc

HSBC, the international banking major, is also coming to grips with the issue of climate change in India and elsewhere. Stephen Green, the group chairman of HSBC Holdings plc, thinks that "financial institutions will play an important role in the shift to cleaner energy." According to Unmesh Brahme, senior vice-president, corporate sustainability, HSBC India, the bank has a responsible lending policy, and was also the first bank to go carbon neutral in 2005.

Among the many ways in which it is trying to be a thoughtful consumer is by using vermiculture to disintegrate waste, installation of sensor taps, waterless urinals, dual mode cisterns and water harvesting projects, besides low-energy light bulbs, automatic power factor panels and air-conditioning controls.

The HSBC Climate Partnership, a US$ 100 million project of the bank, was launched globally in May 2007 and in India

in January 2008. The partnership in India is working through specific projects implemented by conservation agencies such as the WWF, Earthwatch Institute and The Climate Group.

By promoting action in the Ganga river basin, HSBC and WWF intend to develop a framework for sustainable water and energy management in critical parts of the basin. Earthwatch is involving 3,150 HSBC employees in local volunteering opportunities to address the impact of climate change in their region.

Logistics major DHL India, which handles over 80 million air shipments exceeding 350,000 tonnes and over 54,000 twenty-foot equivalent units (TEUs) of ocean freight, besides utilising close to 30 commercial flights per day, encompasses a vast energy profile.

Malcolm Monteiro, senior vice-president, says that under its 'green innovation' scheme – in force in Mumbai, New Delhi, Chennai and Pune, cities that account for 68 per cent of DHL's fleet nationwide – the company has introduced vehicles that run on liquefied petroleum gas (LPG). LPG engine emissions are estimated to have 13 per cent less carbon dioxide, 15 to 80 per cent fewer oxides of nitrogen, 20 to 40 per cent less hydrocarbons, and 30 to 35 per cent less carbon monoxide.

DHL also offers the carbon-neutral and low-carbon shipping service, called DHL Gogreen Express, to its customers who are looking for a more environmentally responsible shipping option.

Vedanta Resources plc, the US$ 8.2 billion London-based diversified FTSE 100 metals and mining group chaired by non-resident Indian Anil Agarwal, which has its principal operations in India, last year invested US$ 53.11 million in environment management. This included setting up degassing and reverse osmosis units and ventilation, tail gas treatment and dry scrubbing systems at its various plants across India.

With extensive interests in aluminium, copper, zinc, lead, iron ore and commercial energy, Vedanta also operates in Zambia and Australia.

The proactive stance of Indian industry on issues relating to climate change reflects the government's stance that India's carbon footprint would never exceed that of developed nations.