TATA STEEL

TATA

Corporate Citizenship Report
2009/2010

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On the front cover: Karen Gilbert, environmental engineer, on site at Tata Steel Colors, Shotton, UK.

The fume extraction baghouse, helping improve air quality at NatSteel's Singapore mill.

The Tata Steel Group Corporate Citizenship Report 2009/10 was produced on behalf of the Tata Steel Group by Group Communications in conjunction with superscript.uk.com.

Long Products Europe, Scunthorpe, UK.

Strip Products UK, Port Talbot.

Tata Steel, Thailand.

TATA STEEL

- Manufacturing
- Raw Materials Projects
- Sales Offices

Strip Products Mainland Europe, IJmuiden, the Netherlands.

Jamshedpur works, Jharkhand, India.

NatSteel, Singapore.

Letter to stakeholders

Tata Steel is an ambitious and results-orientated enterprise. Like all Tata companies, we strive for leadership and global competitiveness in the business sectors in which we operate. Yet throughout its long history, the Tata Group has viewed the creation of wealth not as an end in itself, but as the means by which we make a positive contribution to the communities we serve around the world.

This distinctive philosophy of leadership with trust dates back to the Group's founder, Jamsetji Tata, who wrote more than a century ago that "the community is not just another stakeholder in the business, but is in fact the very purpose of its existence." Two thirds of the equity of the Group's holding company, Tata Sons, is held by philanthropic trusts which continue to benefit a vast range of medical, academic, social and cultural projects and institutions.

Today, Tata Steel is the world's tenth largest steel company, with a presence in over 50 markets and manufacturing operations in 26 countries. We employ over 80,000 people across five continents and have more than 800,000 shareholders.

In leading this complex and increasingly global organisation, it is our responsibility to ensure that Tata Steel acts at all times as a good corporate citizen by:

- Ensuring the safety and wellbeing of our employees;
- Respecting and safeguarding the environment;
- Providing our customers with the best possible products and services;
- Contributing to our local communities and to society in general;
- Generating a good return on their investment to our shareholders, and
- Maintaining the highest ethical standards with our suppliers and contractors and in all our business dealings.

We believe passionately that good corporate citizenship and good business performance go hand in hand and nurture each other through good times and bad. The last two years have seen an unprecedented economic downturn, particularly in Europe, which has forced Tata Steel to defer some of its investment plans and close some its facilities, resulting in job losses. These actions were painful but essential in ensuring the long-term viability of our European business, which continues to provide rewarding careers for many thousands of employees and new recruits worldwide. The company did everything practical to minimise involuntary redundancies while ensuring critical skills were retained. A comprehensive range of redundancy benefits and support services were provided to those who left Tata Steel during 2009/10.

While Tata Steel's Indian operations remained profitable throughout the year, albeit at a reduced level, our manufacturing sites in Europe were forced to operate below capacity. However, they returned to profitability in the second half of the year, and the benefits of the restructuring are expected to become more apparent as the slow recovery continues in European markets. Much stronger growth is now being seen in developing countries, and particularly in China, India and Brazil. In both developed and developing markets, the steel industry will continue to be an important ingredient in the global economic recovery.

Health and safety

Our goal is to become the global steel industry leader in ensuring the safety, health and wellbeing of our employees and onsite contractors.

Tragically and unacceptably, five people died as a result of accidents at our sites in 2009/10. We are absolutely determined to do everything possible to achieve a zero-harm environment at all times. Incidents and near-misses are investigated thoroughly and the lessons learned are promptly shared throughout the organisation.

More positively, our lost time injury frequency rate (the number of lost time incidents per million hours worked) for all employees and contractor staff continued to improve significantly this year, to 0.95, which is well below the worldwide steel industry average.

We have also initiated a range of programmes at all our major locations to minimise health risks and promote wellbeing for employees and their families, a number of which are highlighted in this report.

Employer of choice

Tata Steel's employment philosophy and practices have always been based on the recognition that our people are the primary source of our competitiveness, and we strive to create a workplace which fosters equality of opportunity, continuing personal development, mutual trust, and teamwork.

While our worldwide recruitment level this year remained below the long-term average following the global downturn, we continued to recruit new talent through our graduate and apprentice training programmes. Retention of existing talent is equally important, and we believe that the best way of earning the loyalty and continuing commitment of our employees is by providing them with challenging and fulfilling jobs, with opportunities for development and progression, and with rewarding and fair compensation and benefits schemes.

Our investment in training has actually increased through the downturn – enabling employees individually to help the organisation collectively to respond effectively to the changing market realities.

During 2009/10, for example, a new performance management model called Driving Performance was launched. The aim of the model is to further raise our performance and to ensure behaviour is fully aligned with the five Tata core values of integrity, understanding, excellence, unity and responsibility. More than 1,000 senior managers have so far received training in the values and competencies at the heart of Driving Performance, and the model continues to be rolled out throughout the global Tata Steel organisation.

Tata Steel also believes as a matter of principle, and knows from its long history in India and in Europe, that diversity greatly enhances our overall capabilities and spirit of innovation. We also encourage clear, honest, two-way communication between management, unions and employees at all levels.

Responding to the needs of our customers

While basic steel is a commodity product, we recognise the value of creating close and mutually beneficial relationships with our customers and partners throughout the supply chain. This helps us to develop new and better products and services that are more responsive to their needs.

During the year under review, we developed a new, more outward looking operating model for our business in Europe. The thrust of this more streamlined and integrated operating model is to put the customer first in everything we do – to work more closely with customers in each of our market sectors in order to develop and deliver specialised products and services that will add value to their respective businesses and, in doing so, to our own.

We want Tata Steel to be seen as a premium brand by all our customers around the world. And where we are striving to be superior to our competitors is in understanding and responding superbly to their specific requirements: providing them not just with steel stock but with steel solutions – whether it's to enable them to build lighter, more fuel-efficient vehicles, or to design and construct more comfortable, innovative and cost-effective buildings.

Sustainability

Steel is an intrinsically sustainable material. It is strong, durable and exceptionally versatile. Steel in use today will be reused and recycled many times in the future – it is 100% recyclable, and more than 40% of the world's current 'new' production is made from recycled steel.

Tata Steel makes a significant contribution to sustainable development through the jobs we provide directly and indirectly around the world; through the taxes and duties we pay; through the wealth we generate for our shareholders; through our extensive investment in social and philanthropic projects that benefit society generally, and through positive participation in the communities of which we are a part. We are equally committed to respecting and safeguarding the natural environment and the biodiversity of areas in which we currently operate or seek to expand our activities.

We are also mindful that the global steel industry is a significant generator of CO_2 emissions. At the same time, we believe Tata Steel has a positive contribution to make in addressing the problem of climate change because our high-strength steels are making it possible to design and produce lighter and more fuel-efficient vehicles, including hybrid and electric vehicles, and buildings that are more energy efficient and less material intensive.

In the last 40 years, we have halved the energy needed to make a tonne of steel and, despite the disruption caused by the severe global economic downturn, we remain committed to making further substantial reductions in our total CO_2 emissions. Our strategy for achieving this challenge encompasses ongoing improvements to current manufacturing processes, investment in promising longer-term breakthrough technologies such as the ULCOS (Ultra-Low CO_2 Steelmaking) project in Europe, and development of new products and solutions such as advanced high-strength steels, high-efficiency electrical steels, and Confidex Sustain® – an innovative cradle-to-cradle carbon-neutral building envelope.

Involvement in the community

Active involvement in the local community is a characteristic of all Tata Steel sites around the world. It can take the form of financial support or sponsorship, provision of materials, or the time, skills and enthusiasm of our employees.

We initiate or support a wide range of social, educational, cultural, sporting, charitable and emergency assistance programmes. A number of these are highlighted in this year's report, but just to mention two current examples here:

- Trijanga Township: The township has been created by Tata Steel for people displaced by the company's new greenfield project at Kalinganagar in Jaipur. Each relocated family has been given a 0.1-acre plot of land and funding for house construction, as well as employment. All basic amenities such as water and electricity supply, communal space, a community centre, grain storage facility, children's recreation park, public toilets, welfare office, pre-schools and healthcare are provided, together with all-weather roads, street lighting, drainage, sewage and refuse collection.

  An innovative scholarship scheme has also been introduced for the children of relocated families. The Tata Steel Parivar Scholarship Programme fully funds their professional education, enabling them to become doctors, engineers, technicians and managers. To date, 39 children within the Trijanga Township have received scholarship assistance.

- UK Steel Enterprise: This wholly-owned subsidiary of Tata Steel was established 35 years ago to help improve the economies of those areas of the UK most affected by changes in the steel industry. Since then, it has helped to create nearly 70,000 new jobs and support more than 4,500 small businesses. Anyone in those regions with a sound business idea and the determination to make it work can seek advice and assistance from UK Steel Enterprise, which also supports local community projects.

  Among the many businesses that UK Steel Enterprise helped to establish or continue their successful growth during the year under review were a dry cleaning company in East Kilbride, a signage and identification company in Darlington, a fast-growing heating and plumbing company in Redcar that is now expanding into the renewable energy market, and Glasgow-based Safehinge Ltd, which has developed an award-winning, child-safe door hinge system.

Our vision

Our shared vision within the Tata Steel Group is to be the global steel industry benchmark for value creation and corporate citizenship.

To realise that aspiration, we know that we must excel consistently in the eyes of all our stakeholders; we know too that we must continue to improve in many areas. We hope this report provides an interesting window on the challenges we are addressing, the progress we have made during the last year, and above all what the Tata brand stands for. As always, we will welcome any feedback from our valued stakeholders around the world.

H M Nerurkar
Managing director
Tata Steel Limited

Karl-Ulrich Köhler
Managing director and CEO
Tata Steel Europe Limited

Our vision and our values

Our vision is to be the global steel industry benchmark for value creation and corporate citizenship.

Dimna Lake in Jamshedpur, the Indian city planned by and named after Tata Group founder Jamsetji Tata.

We will achieve our vision through:

our conduct

by fostering teamwork, nurturing talent, enhancing leadership capability and working together with pace, pride and passion

our people

by becoming the supplier of choice, delivering premium products and services, and creating value in close partnership with our customers

our offer

by developing leading-edge solutions in technology, processes and products

our innovation

by providing a safe and healthy workplace, respecting the environment, caring for our communities and demonstrating high ethical standards.

Founding principles

Since its formation by Jamsetji Tata in 1868, the Tata Group has consistently been run according to the principle that the wealth it creates should be returned to society. Jamsetji Tata believed that 'the health and welfare of the employees are the sure foundation of our prosperity.'

The Group's stated aim is 'to improve the quality of life of the communities we serve.' This is demonstrated constantly by its businesses through their contributions to the communities of which they are part – now in over 80 countries around the world.

Two thirds of the equity of Tata Group's holding company, Tata Sons, is held by philanthropic trusts. Over the decades, these trusts have benefited a vast range of medical, academic, social and cultural projects and institutions.

Tata Steel was one of the main foundations on which this pioneering industrial group has continued to grow around the world.

Our values

The Tata Group has always been driven by five core values:

- **Integrity.** We must conduct our business fairly, with honesty and transparency. Everything we do must stand the test of public scrutiny.
- **Understanding.** We must be caring, show respect, compassion and humanity for our colleagues and customers around the world, and always work for the benefit of the communities we serve.
- **Excellence.** We must constantly strive to achieve the highest possible standards in our day-to-day work and in the quality of the goods and services we provide.
- **Unity.** We must work cohesively with our colleagues across the group and with our customers and partners around the world, building strong relationships based on tolerance, understanding and mutual cooperation.
- **Responsibility.** We must be responsible and responsive to the countries, communities and environments in which we work, always ensuring that what comes from the people goes back to the people many times over.

Goals

The Tata Steel Group is proud of its performance culture. We are committed to the pursuit of challenging targets, and to safety, environmental protection, continuous improvement, openness and social responsibility in every aspect of our business around the world.

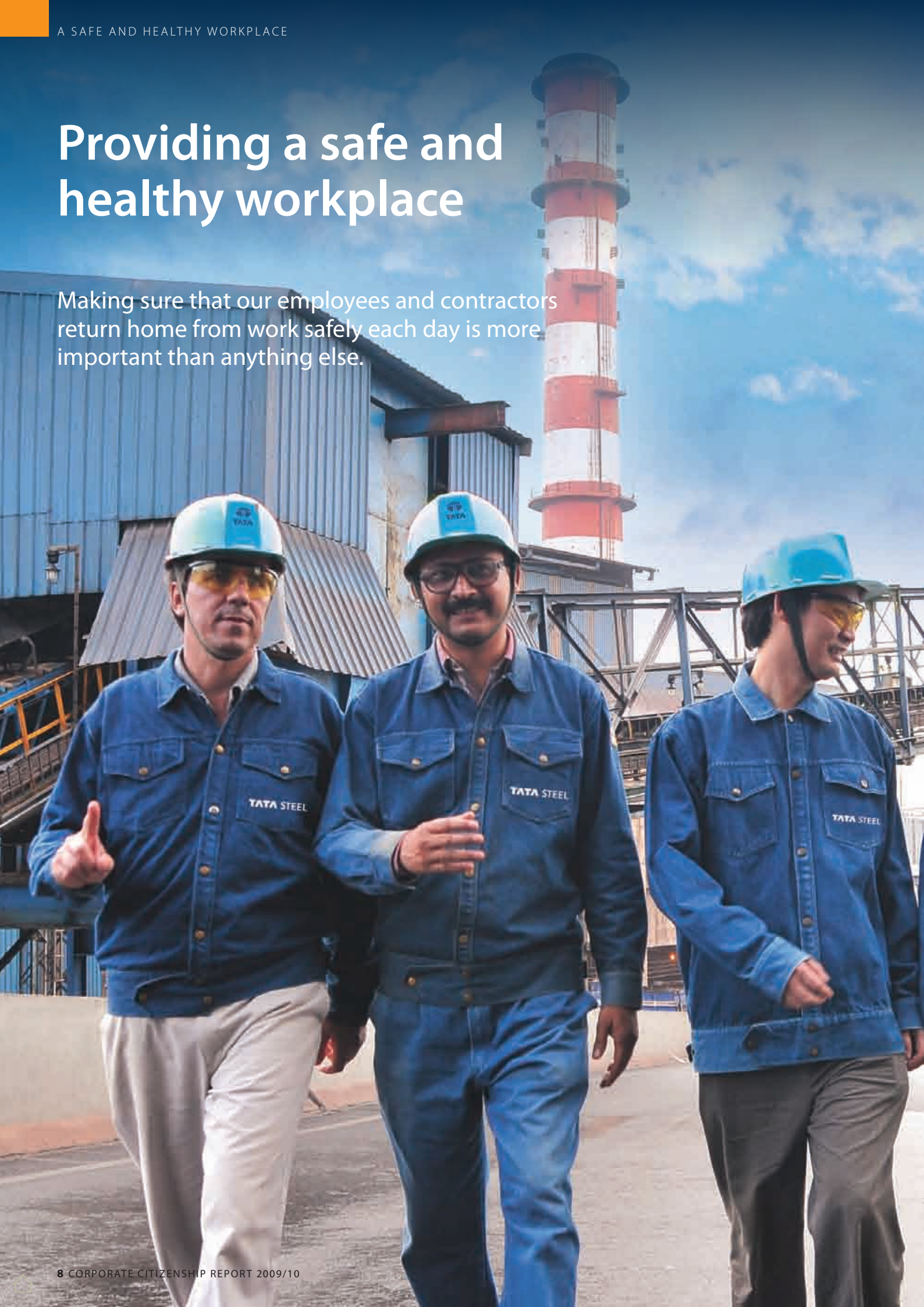
We have set ourselves four key corporate goals to achieve by 2012:

- Value creation: Deliver a 30% return on invested capital (ROIC)
- Safety: Achieve an industry leadership position by driving down our lost time injury frequency rate (LTIF) to a maximum of 0.4 incidents per million hours worked
- Environment: Reduce carbon dioxide (CO_2) emissions to less than 1.9 tonnes per tonne of crude steel (t/tls) [1]
- People: Rank as an employer of choice in the top quartile across all industries.

1 This vision target was originally based on an internal reporting scope. To provide international comparability, we have adopted the recently-devised World Steel Association (worldsteel) reporting scope. As an indicator, 1.9 is the equivalent of 1.7 under the previously-used internal reporting scope.

Providing a safe and healthy workplace

Making sure that our employees and contractors return home from work safely each day is more important than anything else.



We are committed to ensuring zero harm to our employees, contractors and the communities in which we operate. This is integral to our business process and is laid down in our health and safety policies, standards and working procedures.

Our journey towards safety excellence was initiated with guidance from DuPont, a world leader in safety, and from other companies recognised for their high standards in health and safety including Australian-based BlueScope Steel.

We aspire to be the health and safety benchmark for the steel industry globally, and our goal is to achieve a lost time injury frequency (LTIF) rate of 0.4 or lower by 2012.

Working together

Every Tata Steel Group board meeting includes a detailed review of health and safety issues. A board-level Safety, Health and Environment Committee provides overall leadership in SH&E matters throughout our global business.

Each of the Group's four regional businesses has a well-established and comprehensive health and safety policy, with supporting principles, standards and procedures, and a Tata Steel group-wide health and safety policy has been introduced from January 2011. Clear objectives for process safety, occupational safety and health are embedded within the health and safety management plans of each business.

In the year under review, we sought to increase the level of integration and shared learning on safety matters throughout our global operations. A meeting of safety professionals from India and Europe was held in November 2009 to promote shared learning and adoption of best practices across our four regional businesses. For example, the Red Stripe Bulletin system that was originally devised by our European business has now been extended to cover all our global operations. The system cascades information, findings and recommendations about serious and potentially serious incidents as soon as they are available, and requires feedback on actions taken to prevent similar occurrences.

In October 2009, the World Steel Association (worldsteel) recognised Tata Steel for demonstrating excellence in health and safety, particularly in relation to its contract workforce programme. The construction of the new blast furnace at Jamshedpur recorded 35 million accident-free hours.

In India, we have established safety committees involving employees at all levels, helping to ingrain a strong sense of personal responsibility across functions. These have contributed significantly to the formulation and upgrading of policies, strategies and standards. Our lost time injury frequency rate in India has improved from 3.5 to 0.56 in the last four years, and we are determined to continue to drive it lower.

Left: Employees at Jamshedpur steelworks, India.

Tata Steel in Europe has a Health and Safety Management System (HSMS) consisting of a comprehensive array of tools, standards and procedures. Launched in November 2008, it was fully implemented across all our European operations by the end of 2009. The HSMS is a highly structured system that encompasses 15 fundamental principles including accountability, management of change, and audit and review, and is based on industry best practice. Our lost time injury frequency rate in Europe improved by 16% in 2009/10 versus the previous year.

In Thailand and China, a programme called Safety Excellence Journey was rolled out during the year at the Group's wire mills, as well as some of Tata Steel's associated companies such as Tayo Rolls (cast iron and steel roll manufacturer), TRF (material handling solutions company), and The Tinplate Company (packaging steel).

NatSteel Singapore also embarked on a two-year, DuPont-guided safety excellence journey in 2009. Measures taken to date include the continuous active involvement of senior management, safety training, establishment of a safety council, and formation of risk containment groups to identify and contain high-risk activities. STOP (Solve This Ongoing Problem) teams observe safety behaviour and interact with employees on safety. NatSteel's subsidiaries will gradually become fully aligned with the DuPont safety management system.

Performance

Fatalities

Tragically and unacceptably, five people lost their lives while working at Tata Steel during the current reporting period.

Two employees and two contractors were killed in India. Three of the fatalities occurred in the Raw Materials division – one in the Jharia mine, one in the Noamundi mine and one in the Sukinda Chromite mine. A contractor at the Jamshedpur steelworks died in a road accident. An employee of NatSteel died in March 2010 after suffering fatal injuries in the Singapore rolling mill.

Each of these incidents has been thoroughly investigated and every possible measure is being taken to prevent similar tragedies in the future.

Lost time injury frequency rate

Our key safety performance indicator is lost time injury frequency (LTIF) rate combined for employees and contractors. The Group's global performance data shows an improvement in LTIF from 1.38 in 2008/09 to 0.95 in 2009/10. (see table on page 48).

Safety performance within our European organisation for the year under review was the best in its long history. The year's average combined employee and contractor rate was 1.5 – 16% lower than 2008/09. Tata Steel in Europe is targeting a 25% year-on-year improvement in LTIF and recordables for 2010/11.

In India, Tata Steel recorded an LTIF rate of 0.56 during 2009/10 – a 30% reduction from the previous year.

Mining

Tata Steel strives constantly to improve and extend our systems for managing the significant safety risks associated with the extraction of raw materials as we expand global operations to enhance our raw materials self-sufficiency.

Underground operations pose particular safety and health risks. Mine locations, by their very nature, are remote. Miners work in confined spaces and deploy explosives to extract minerals.

We have adopted best mine rescue procedures at all our mining units. The Tata Steel Safety Excellence Management and Review process is used to proactively assess risks and hazards and control them through multi-level safety action plans.

The systematic process involves conducting detailed analyses of the root causes of unsafe conditions and implementing corrective actions to make the workplace as safe and healthy as possible. Computer-based strata analysis by in-house experts is used to assess and establish safe operating conditions in different parts of each colliery.

Humidity, heat and dust, along with noxious gases, all have the potential to adversely affect the health of an underground miner. Tata Steel provides comprehensive healthcare services for employees and their families at all its mines and collieries. There is a network of dispensaries at each location, well connected to hospitals with modern diagnostic and treatment facilities.

The mining division's safety goals are in line with the rest of Tata Steel: zero fatality in its operations and a lost time injury frequency rate of 0.4 or better by 2012.

Mines Safety Week

Tata Steel mines took part in India's 47th annual Mines Safety Week, held at the end of October 2009 and organised by the country's Directorate General of Mines Safety. The mines marked the occasion by holding safety forums, and training and awareness sessions. The Noamundi Iron mine was inspected by a delegation headed by the regional director of mine safety and the director of SAIL Bolani Iron Ore mines. Sijua and Bhelatand collieries awarded safety prizes to employees. Safe practice was shared through demonstrations, posters, drama and song. In addition, workshops and seminars on a variety of safety topics, including material handling and gases, were held at the mines throughout the year.


54th Annual Safety Week celebrated

Backsense Radar System for safety in West Bokaro

Process safety

Process safety management relates to the operation and maintenance of installations and equipment to prevent major incidents such as explosion, fire or the release of toxic gases and molten metal. Tata Steel operates a number of high-hazard facilities and is acutely aware of the potential consequences of such incidents for our employees, neighbours and the environment, as well as for our business.

Our focus at all times is to identify the hazards, determine the risks, and ensure that effective controls are in place to minimise the potential for, and consequences of, a major incident occurring.

High-hazard facility assessments

Embedding process safety deeply within our worldwide business requires extensive and ongoing commitment. In Europe, this has been under way since 2008 when we established a steering group and recruited process safety experts to enhance our capability in this critical area.

The process safety team has visited all our European manufacturing facilities, and assessed and categorised their activities. Most, though not all, the major hazards associated with the steel industry are found on the larger integrated steelmaking sites, which in Europe operate under the EU's Seveso II Directive. A number of our smaller sites have also been assessed by the process safety team as containing potential risks; improvement plans to implement effective process safety management controls have also been put in place at these sites.

In India, we have launched Process Safety and Risk Management (PSRM) in high-hazard operations and this will be fully implemented in all facilities by 2012. Most departments have already collected the process safety information for this critical process, and 13 departments have completed the PSRM implementation process. A total of 175 processes have been identified for Process Safety Improvement (PSI) and Process Hazard Analysis (PHA). An audit process has been established and 40 employees trained as PSRM auditors. The essential concept of integrating process safety into the design stage of all new projects has also been implemented.

Occupational safety

Tata Steel strives constantly to reinforce its strong safety culture through leadership, respect and engagement to ensure that people at all levels are encouraged to challenge unsafe behaviour.

Mandatory health and safety standards, developed for each of our four business entities, provide the clearest possible direction on key issues. Safe working procedures have been put in place where additional guidance is required to ensure full and consistent compliance with a given standard.

Focused campaigns were carried out in India on gas safety, material handling, conveyor belt safety and road safety. Within the Fatality Risk Control Programme (FRCP), a total of 3,586 actions were identified and corrected. Comprehensive job cycle checks were implemented to ensure the adequacy of standard operating procedures and their effective use at all times. A total of 20,438 job cycle checks were carried out.

A communication programme, run jointly by senior management and union representatives, focused on potential hazard areas including road, gas, working at height and energy isolation. Nineteen meetings were held covering high-hazard departments, and new scaffolding and access systems were sourced to improve working at height. An integrated safety audit covering all aspects of behavioural safety, process safety, contractor safety and fire safety as well as legal issues was introduced and carried out in 12 high-hazard departments. A new safety mascot known as Jeevan was introduced during the year. More than 2,500 employees have been trained in the use of life-saving equipment.

The Jamshedpur sinter plant invited employees to bring their spouses to take part in a programme called 'Safety – a way of life', which gave them an opportunity to learn more about the conditions and challenges their partners face at work.

NatSteel in Singapore held its first safety day on 24 November 2009. The event included an exhibition with 14 booths, and demonstrations on fire fighting and CPR, and attracted more than 1,000 attendees.

Zero Harm

During 2010, a safety initiative involving locations managed from Europe highlighted six day-to-day hazards that present the greatest safety risks in the workplace. These are: fork-lift truck operations; slips, trips and falls; loading and unloading; working at height; noise; and man-machine contact. These six hazards accounted for over 60% of our lost-time injuries in 2009, and each became the theme of the imaginative campaign for a period of two months. Posters have been produced in seven languages.

The aim was to celebrate the company's efforts in safety improvement with customers, neighbours, contractors and government. NatSteel hosted a safety and environmental seminar for the steel industry in South East Asia and presented two papers on its safety practices. The company was also invited to become a member of the national workplace safety & health sub-committee for Singapore's metal working and manufacturing industry.

NatSteel (Xiamen) in China held a safety experience sharing session for employees in April 2009. Later in the year, NatSteel and Tata Steel Thailand initiated an integrated programme to communicate safety messages to employees.

Contractor safety

Specific measures have been taken throughout the Tata Group to improve contractor safety at its locations.

Tata Steel in India held a contractor safety awareness programme in November 2009, attended by 500 contractors. More than 4,000 contractors have been trained and certified in working at height.

The fabrication yard at Orissa, responsible for the manufacture of around 250,000 tonnes of structural materials needed for the new integrated steelworks in Kalinganagar, Jajpur, achieved one million injury-free man hours in October 2009. The workforce at Orissa includes members of Tata Steel Parivar (rehabilitated families), who joined the project with varying levels of skills and little prior exposure to industrial work on this scale, but are doing an excellent job. (see *Caring for Communities* section)

Occupational health

Tata Steel is totally committed to safeguarding and promoting the physical, mental and social well-being of its employees. We believe that health protection should not simply be limited to the provision of adequate personal protective equipment, but should also involve eliminating, reducing or isolating hazards wherever possible. The range of identified potential health hazards includes noise, vibration, hazardous substances, manual handling, driving and climatic conditions. We are currently in the process of establishing baseline exposure levels to prioritise our improvement plans and to measure their effect.

Controlling health hazards

A programme has been introduced at all our European sites to identify, control and minimise potential health hazards. The goal is to reduce the number of employees exposed (without personal protective equipment) to the five main health hazards on our sites by 25 per cent by 2015.

Health promotion

In India, we are working with an organisation called SAFE and have engaged external consultants to create a comprehensive safety education campaign for schoolchildren in Jamshedpur and in the communities surrounding our mines and collieries.

In Corby in the UK, the Tubes site hosted a 'Healthsplash' day in February 2010 in conjunction with the National Health Service and the Corby International swimming pool. Employees were offered health and wellbeing advice, free BMI (body mass index) checks and free gym passes for one month.

In Port Talbot, the company's drug and alcohol awareness campaign, run in partnership with the Community Union and local contractors, has resulted in almost 6,000 employees receiving drug and alcohol awareness training, and 970 managers being trained in how to spot and deal with possible substance misuse. Over 50 employees received help via the rehabilitation programme, with a success rate in excess of 92%. Fourteen members of employees' families have also been helped. The Welsh Assembly Government has commended Tata Steel as an example of workplace excellence on this issue.

Driving safety

In Jamshedpur, 20 employees volunteered to spend time at the main road junctions in the city to remind motorists of safe driving habits. Onsite road safety was further enhanced with the completion of a programme of improvements including a new transport park to accommodate up to 350 heavy vehicles, traffic calming measures and a new footbridge.

In Europe, Strip Products UK won an award from Road Safety Wales for its campaign to raise awareness of road safety among employees and to tackle a small minority who displayed poor driving skills and attitudes. Working closely with staff, unions and the local authority's road safety team, the scheme led to a significant reduction in on-site incidents and helped improve driving standards on the site and in the community.

Also in Europe, a company standard on safe driving was introduced in May 2009. It included a ban on using a mobile phone, even hands-free, while driving on company business.

NatSteel Singapore held a health screening day for 707 employees in January 2010.

Respecting the environment

Respecting and safeguarding the environment is a fundamental principle held by all Tata Group companies.

Tata Steel's Jamshedpur steel plant, India.

Tata Steel has implemented environmental management systems that have been certified as meeting the requirements of international standard ISO14001 at all its main manufacturing sites. These systems provide us with a framework for managing compliance and achieving continuous improvement. Our overall performance is subject to ongoing and detailed scrutiny by the Tata Steel Group board of directors, and Group-wide leadership in environmental matters is provided by the board's Health, Safety and Environment Committee.

Management control and compliance

Our first priority is to remain fully compliant with the conditions of our environmental permits and with any other legal requirements that apply within the jurisdictions in which we operate. When a breach does occur, we investigate it rigorously and transparently in order to establish the root cause and identify corrective actions to ensure it is not repeated.

We aim to minimise our environmental impact wherever practicable and cost-effective to do so, and a substantial proportion of our capital investment in recent years has been on initiatives to improve our energy efficiency and reduce our emissions of carbon dioxide or achieve other environmental benefits.

In April 2009, Tata Steel was fined €20,000 (US$27,000) in relation to a number of environmental breaches that occurred between 2003 and 2007 at our IJmuiden steelmaking facility in the Netherlands. With that exception, we were not subject to any other fines or convictions in relation to the environmental aspects of our activities during the year under review.

We reported last year that we had filed an appeal to the Administrative Law Division of the Council of the State (Raad van State) against the setting of stringent new emission limits at the sinter plant in IJmuiden. A final ruling was made in December 2009 requiring us to install an environmental abatement system at a cost of some €98 million (US$132 million).

In India, the Jharkhand State Pollution Control Board (JSPCB) convened a public hearing in June 2009 to obtain the opinion of the community within and around our steelmaking facility in Jamshedpur relating to the proposed capacity expansion at that site.

The community wholeheartedly supported the proposed expansion and, based on this opinion, JSPCB forwarded the public hearing proceedings to the Ministry of Environment and Forests in New Delhi. Formal clearance for the expansion project was received from the Government in May 2010.

Climate change strategy

The Tata Steel Group vision is to become the global steel benchmark for both value creation and corporate citizenship. Among the specific goals we set ourselves in pursuit of this vision was a target to reduce our carbon dioxide (CO_2) emissions to less than 1.7 tonnes per tonne of crude steel by 2012. We also reported last year on a longer-term target to reduce our CO_2 emissions to less than 1.5 tonnes for every tonne of crude steel produced by 2020.

The targets were based upon an internal scope for reporting CO_2 emissions. To provide international comparability, we have now moved towards a World Steel Association (worldsteel) scope for reporting, under which reported emissions appear to be somewhat higher than when using the internal scope. As an indicator, the vision target of 1.7 tonnes per tonne of crude steel based on the internal reporting scope equates to 1.9 tonnes using the worldsteel approach. Similarly, the 1.5 tonnes per tonne crude steel target for 2020 equates to 1.7 tonnes per tonne.

The unprecedented global financial crisis that started in 2008 had a profound impact on the steel sector. Tata Steel responded swiftly and decisively, cutting European production by idling blast furnaces to align production with demand. While production rates recovered to some extent towards the end of the reporting period, the year was still characterised by reduced output and this had an impact on our CO_2 intensity, particularly in Europe. With increasing numbers of shutdowns and start-ups, a greater amount of energy is consumed (and more CO_2 emitted) per tonne of liquid steel produced.

Another action we took to weather the economic storm was to reduce our capital expenditure programme by re-phasing and deferring some of our initiatives. This prudent and necessary action has meant that some of our planned investments in CO_2 reduction have had to be deferred, but we remain committed to making these improvements as soon as economic conditions allow.

Taking both the introduction of the worldsteel reporting scope and the profound impact of the economic downturn into account, we have accepted that our 2012 vision target is no longer attainable. For this reason, we are currently carrying out a root and branch review of our emission reduction targets, involving extremely detailed assessments of the reduction potential at all our steelmaking facilities. Based on this, we plan to review our targets during 2011.

Despite these constraints, we continued throughout the year to invest substantial effort and resources in relation to the five strategic priorities that underpin our vision with regard to climate change. These priorities remain:

- To continue to achieve emission reductions
- To invest in longer-term breakthrough technologies for producing low-carbon steels
- To develop new products and services that generate lower CO_2 emissions through the life cycle
- To actively engage our entire workforce in this challenge, and
- To lead by example within the global steel industry.

Regulatory framework

Tata Steel, along with the rest of the European steel industry, is required to participate in the EU Emissions Trading Scheme (EU ETS). Phase II of the scheme began on 1 January 2008, and during 2010 we emitted fewer tonnes of CO_2 than our total allocation of emission allowances. It is very difficult to isolate the effect that emissions reduction schemes had on overall performance because of the drop in production due to the global economic downturn. At normal production levels, we would expect to be in balance or slightly short of our allowances overall.

The steel industry in Europe, along with various other sectors of industry, faces further tightening of emission allowance allocations from 2013, when the EU ETS enters its third phase (Phase III). The European Commission has identified the iron and steel sector, among others, as an energy-intensive sector that is exposed to international competition. As such, it is recognised that without free allocation of emission allowances to steel companies in the EU, there is a risk of a shift in global production trends towards countries applying a lower level of carbon constraint – something often referred to as 'carbon leakage'.

The precise arrangements to be used for allocation to internationally exposed sectors in general, and the steel sector in particular, are still unclear at this time. Through the European Confederation of Iron and Steel Industries (Eurofer), we have been actively engaged in a technical dialogue with the Commission over the benchmark level upon which allocations will be based.

Carbon reporting

The World Steel Association (worldsteel) represents 180 major steel producers, steel industry associations and steel research institutes from across the globe. In 2007, worldsteel formulated a climate change policy that introduced a structured framework for the collection and reporting of CO_2 emission data.

The framework provides a globally consistent methodology designed to ensure that steel plants around the world report emissions on a comparable basis – something that had not been possible previously. More information about the reporting methodology can be found at www.worldsteel.org/climatechange.

Table 1 on page 15 shows the total combined CO_2 emissions from our integrated steelworks at Jamshedpur in India, IJmuiden in the Netherlands, and Port Talbot, Scunthorpe and Teesside in the UK . It also shows direct CO_2 emissions and CO_2 intensity. Within the worldsteel framework, all CO_2 emission data is reported based on crude steel production. The Teesside plant was mothballed towards the end of February 2010.

Why is carbon dioxide (CO_2) produced during steelmaking?

Iron is the main component of steel and CO_2 is an unavoidable by-product of its production. Carbon, in the form of coke, coal and oil, is used as a chemical reductant in the blast furnace iron-making process. The carbon combines with oxygen in the ore to form carbon monoxide (CO) and CO_2, to produce iron. The CO is then itself converted to CO_2 when gas produced in the blast furnace is combusted elsewhere in the steelworks to reheat steel in order to carry out further processing of it.

There is a close correlation between energy consumption and CO_2 emissions performance. Table 2 shows the energy intensity from our steelmaking operations. The data is split to show the respective intensities of our blast furnace (BF) route and electric arc furnace (EAF) route of steelmaking. We operate five integrated steelworks with blast furnaces worldwide – in the UK, the Netherlands and India – and five EAF steelworks – in the UK, Singapore and Thailand.

Tata Steel signed a Climate Change Agreement with the UK government to achieve reductions in energy consumption equivalent to 15.8% by the end of 2010 compared to the 1997 level, and we remain on course to achieve this. In the Netherlands, we have signed a voluntary agreement with the Dutch government to achieve a year-on-year improvement in energy efficiency at our facility in IJmuiden, through both our processes and products.

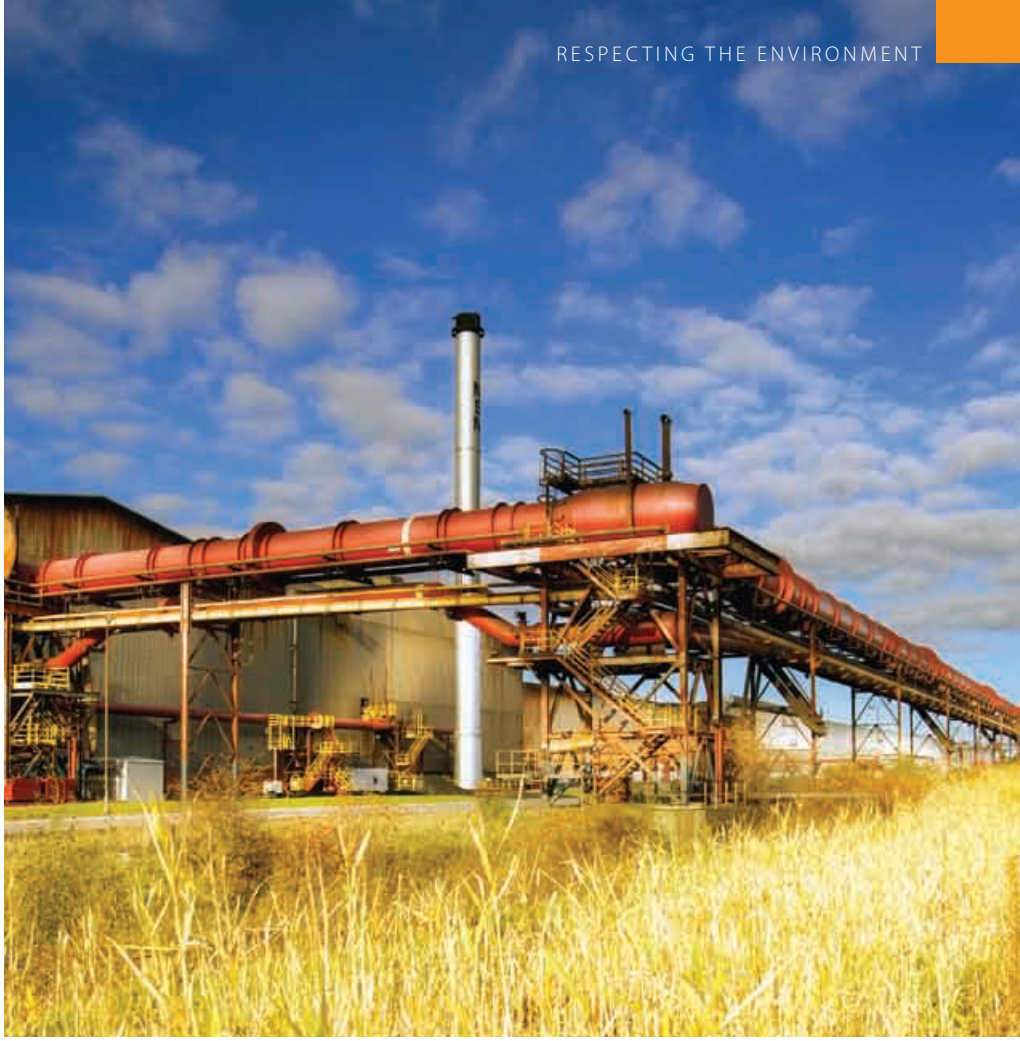
Monitoring and benchmarking

We established an R&D project team in 2008 to look at how we could provide a systematic basis for identifying and evaluating opportunities for further emissions reductions throughout the Tata Steel Group. After two years, the project has led to a company-wide monitoring and benchmarking system for CO_2 emissions and energy consumption that is unique in the steel industry.

The system uses an in-house developed software tool, MoniCA, and is based on common definitions, boundaries and best practices, enabling benchmarking of facilities. Currently, 23 of our manufacturing sites in Europe participate, and have recently been joined by our Jamshedpur site in India. The R&D project team benchmarks the CO_2 emission performance of each site in detail annually, which has indicated that the average CO_2 emission of Tata Steel's steelmaking sites is in the top 25% of the steel industry globally.

Energy optimisation and reducing emissions

Our integrated steelworks are already very efficient and, although the opportunities for further emissions reductions are becoming progressively smaller, we continue to pursue them in a systematic manner. Each of our steelmaking sites has established a dedicated energy optimisation resource. A central Energy



The medium section mill at Scunthorpe, UK.

TABLE 1: CO_2 emissions from integrated steelmaking

	2009/10	2008/09	2007/08
CO_2 intensity Tonnes CO_2 per tonne of crude steel	2.14	2.11	2.05
Total CO_2 emissions (Scope 1, 2 and 3) Million tonnes	44.0	43.7	48.5
Direct CO_2 emissions (Scope 1) Million tonnes	37.3	38.4	41.1
Crude steel production* Million tonnes	20.6	20.7	23.7

*Blast furnace route only.
KPIs are as per the 'World Steel Methodology'.

TABLE 2: Energy intensity in the steelmaking process (gigajoules per tonne of crude steel)

	2009/10	2008/09	2007/08
Blast furnace (BF) route	23.85	23.74	22.70
Electric arc furnace (EAF) route*	10.94	10.10	10.42
Crude steel production Million tonnes BF route EAF route	 20.6 2.6	 20.7 2.6	 23.7 3.2

*The reason for the apparent increase in energy intensity is attributable to the commissioning of a mini blast furnace at one of our EAF facilities in Thailand. From next year, we will report emissions from this unit separately.

Efficiency and Climate Change Task Team, formed initially in Europe in 2008, supports the experts at each of our sites worldwide. The team's original remit was to deliver technical support to the businesses, facilitate knowledge sharing, and monitor overall progress against targets. During 2009/10, its remit evolved and it now plays an important role in supporting each business in the assessment of potential abatement opportunities.

A number of large-scale energy efficiency and emissions reduction projects have recently been commissioned and numerous other schemes are in progress. For example:

- The efficiency of our Indian operations is already being improved through the ambitious capacity expansion projects now under way at Jamshedpur steelworks, where multiple small blast furnaces are being replaced by fewer high-capacity furnaces. Advances in technology have been and will continue to be exploited to achieve further carbon savings, through higher rates of coal injection, blast furnace top gas turbines for electricity generation, recovery of waste heat to minimise fuel usage, establishment of thin slab casting and rolling to negate reheating energy, and optimising blast furnace slag granulation so that it can be used in the concrete sector. The expansion will see crude steel production capacity increased to 9.7 million tonnes by 2011 – almost a doubling of output in just a four-year period. In May 2009, we commissioned a highly efficient 120MW power generation unit, Power House #6, which will consume surplus coke oven gas, blast furnace gas and BOS (basic oxygen steelmaking) gas.
- In April 2010, we commissioned a £60 million (US$91 million) energy efficiency scheme at our Port Talbot steelmaking facility in the UK. This investment has already begun to reduce the site's CO_2 emissions through the re-use of gases from the BOS plant. The recovered BOS gas is being used to generate an extra 15MW of power – 10% of the facility's total electricity needs. This in turn is allowing the higher quality coke oven gas to be utilised more effectively in the hot strip mill, reducing natural gas consumption at the mill by approximately 60%. Overall, the scheme will reduce CO_2 emissions from the steelworks by 297,000 tonnes per year, which in turn will reduce the total carbon footprint of our European operations by 1% – equivalent to the national emission reduction target for Wales.
- At our EAF steelworks, we aim to position our performance as closely as possible to the theoretical best practice. In Thailand, optimising the heating profile of the arc furnaces has resulted in an 8% reduction in CO_2 intensity. Further reductions have been achieved from improved production planning – reducing the need to reheat steel in furnaces for rolling and thereby consuming less fuel. Feasibility studies are also under way at our EAF operations in Thailand and Singapore to switch from heavy fuel oil to natural gas for the furnaces and to install waste heat recovery systems.

We have also implemented a number of other initiatives to facilitate sharing of best practices across the Group. We continued to hold regular meetings of our Energy Optimisation Platform (EOP) for integrated steelmaking plants and during the year under review we extended the EOP concept to include our EAF operations in South East Asia, as well as launching a similar group for our downstream operations in Europe.

One example of the improvements being made at our smaller sites is the energy efficiency programme initiated by Tata Colors Tafarnaubach at the end of 2008. The first phase of the programme involved the installation of variable speed drives on the oven recirculation fans. During 2010, a waste heat recovery system was implemented to utilise heat from the thermal oxidation of exhaust gas in process tanks and provide space heating across the rest of the site. In its first year, the system contributed to a reduction in CO_2 emissions of 3,550 tonnes – a substantial amount in relation to the total energy consumption of this downstream operation.

The Energy Efficiency and Climate Change Task Team facilitated a workshop in Rotherham in February 2010 that was attended by more than 60 staff from across our Speciality Steels and Bar businesses. The event helped to raise awareness of energy efficiency across the businesses and has served as a springboard for identifying and implementing additional energy efficiency improvements.

Orb works, Newport, UK, where employees, their families and community members have planted 111 trees – one for every year the company has been in existence.

Expanding production at Jamshedpur without increasing environmental impact

Tata Steel has made a commitment that the expansion of its integrated steelworks at Jamshedpur – from a capacity of 6.8 million tonnes per annum (mtpa) in 2008 to 9.7mtpa by the end of 2011 – will have a minimal impact on the environment. The expansion involves the construction and commissioning of numerous state-of-the-art operating units, including Blast Furnace I with a capacity of 3.05mtpa, a new 6mtpa pellet plant, two 0.7mtpa coke oven batteries, a 2.4mtpa steelmaking plant, a 120MW power station and two new lime kilns.

We are deploying a number of strategies to fulfil this environmental commitment. All new plants will be equipped with process integrated and end-of-pipe emissions control systems. The coke ovens, for example, will have high pressure liquor aspiration systems, leak-proof oven doors and charging and pushing emission control devices, and the pellet plant will be fitted with electrostatic precipitators and bag filters to control particulate emissions to air. All 29 new stacks associated with the expansion and upgrading will be fitted with pollution control devices designed to achieve stringent emission levels based on steel industry best practice.

We are also implementing advanced continuous monitoring facilities across the entire Jamshedpur steelworks to give us a better understanding of emissions and enable us to respond more rapidly in the event of a loss of environmental control.

Innovation

Our research and development teams are constantly pursuing new ideas to further reduce our CO_2 emissions. For example, they have identified a process with the potential to generate low-cost hydrogen from the heat of molten slag. If it proves to be successful on a commercial scale, this process will significantly reduce fossil fuel consumption at our steelworks. Our researchers have also discovered how to use nanoparticles in an aqueous medium – termed 'CoolFast' – to create high-performance coolants, and so reduce both water and energy consumption.

Through continuing product innovations, we also offer our customers solutions to reduce CO_2 emissions throughout the life cycle of the materials we supply. Examples of how our products can help in addressing the challenge of climate change are included in the *Improving through innovation* section of this report.

We are also committed to reducing the carbon footprint of every tonne of product we deliver to our customers. At our Shotton site in North Wales, for example, we have initiated a project called 'Zero Carbon Shotton'. The ongoing goal is to reduce the carbon footprint of the product itself and of the site as a whole – and at the same time lower our production costs through more efficient energy use. The energy reduction programme at Shotton has already led to the replacement of a paintline incinerator, modifications to oven systems, the introduction of high-efficiency space lighting and motors with variable speed drives, and the implementation of a comprehensive energy monitoring system.

The next step in the 'Zero Carbon Shotton' project is construction, now under way, of a 10MW renewable energy generation unit, which will produce pellets from domestic refuse that will then be used to generate electricity. Even before the benefits of this innovative power generation scheme have been factored in, the carbon footprint of products manufactured at the site has been reduced by almost 25% compared with 2006.

Employee engagement

Encouraged by internal climate change awareness campaigns and highly motivated climate champions, our employees around the world continue to show a great deal of personal commitment to reducing their own carbon footprint, at work and at home. Employees have been establishing their own energy and environment committees – such as 'Clean, Green and Safe' in Singapore, 'Green Team' in Canada and the 'YmGreen' initiative in the Netherlands.

During the early part of 2010, we launched an online resource for our employees in Europe, providing useful information about the steps that can be taken to save energy and cut emissions both at home and in the workplace.

Tata Steel in India marked World Environment Day on 5 June 2009. The theme was 'Your Planet needs you! Unite to Combat Climate Change.' A number of events were organised in Jamshedpur, from film screenings to oath taking ceremonies. The Orissa Greenfield Project also marked the occasion with an awareness-raising quiz and a tree planting scheme in which 10,000 saplings were planted across the project site.

At our West Bokaro mining division, we held a Green Month during June 2009, with a theme of 'Save Energy' and a programme of events promoting environmental protection and the fight against global warming. West Bokaro is the first coal mine in India to have achieved certification of its environmental management system to the ISO14001 standard.

Looking to the future

The laws of thermodynamics dictate that the scope for achieving further substantial CO_2 emission reductions from conventional iron and steelmaking processes is limited. The production of hot metal via the blast furnace route must therefore be placed on a completely new technological path if a step change in emissions is to be achieved. Tata Steel in Europe is a leading member of ULCOS (Ultra-Low CO_2 Steelmaking) - a pioneering partnership of 48 companies and organisations from 15 European countries that is engaged in a €59 million (US$79 million) cooperative research initiative to achieve such a step change. The ultimate and ambitious aim of the ULCOS project, which began in 2004 and is supported by the European Commission, is to reduce CO_2 emissions per tonne of steel produced by at least 50% by 2050.

Phase I of the project identified several potential breakthrough technologies. Among the most promising were the top gas recycling blast furnace, HIsarna (a direct smelting technique), and advanced direct reduction – all of which would need to be combined with carbon capture and storage to achieve their full emissions reduction potential.

The ULCOS core members and the European Commission have agreed to embark on Phase II of the project, which will further explore the breakthrough technologies identified and aim to demonstrate their feasibility under large-scale, industrial production conditions. ULCOS II will run from 2010 to 2015 and, if successful, the technologies could potentially be rolled out some 15 to 20 years from now.

Tata Steel is playing a leading role in ULCOS, and work began in 2009/10 on the construction of a HIsarna pilot plant at the company's IJmuiden steelworks in the Netherlands. For more information, visit www.ulcos.org.

As well as actively participating in the ULCOS project, we are also continuing to pursue other long-term projects that have the potential to dramatically reduce CO_2 emissions. In the UK, our integrated steelworks at Scunthorpe is particularly well located for CO_2 sequestration and we are members of the Carbon Capture and Storage Partnership for Yorkshire and the Humber. The partnership consists of companies interested in establishing a CO_2 network in the region to exploit the carbon storage potential of depleted North Sea oil and gas fields. We are also involved in early scoping work in the Netherlands, where it may be possible to safely and cost-effectively seal huge volumes of CO_2 deep inside disused oil and gas fields off the Dutch coast.

Air quality

Tata Steel's other most significant releases to air besides CO_2 are particulate material (including fine particulate such as PM10), sulphur dioxide (SO_2) and oxides of nitrogen (NO_x).

Measurement and modelling around our steelmaking facilities helps us to understand our contribution to airborne levels of pollutants. With the exception of PM10, air quality limits are currently being met in the areas around all of our major facilities.

The Strip Products UK site at Port Talbot, Wales, seen from Margam Sands.

TABLE 3: **Emissions to air from steelmaking and downstream non-steelmaking facilities (thousand tonnes per year)**

	2009/10	2008/09	2007/08
Particulates	23	21	24
Oxides of nitrogen (NO and NO_2 as NO_2)	25	27	29
Sulphur dioxide (SO_2)	33	35	36

In the case of PM10, point source and diffuse releases from our integrated steelworks can make a significant contribution to airborne concentrations. This can be a cause for public complaint, and air quality management areas have been declared in the vicinity of our operations at Port Talbot and Scunthorpe in the UK. Air quality management also continues to be a priority at our IJmuiden steelworks in the Netherlands. We continue to work closely with the environmental authorities at all our main sites to better understand and minimise the impact of our operations on local air quality.

An Air Quality Strategy Group has been established for our European operations to share good practices, identify and coordinate improvement activities, and direct a strategic R&D programme focused on increasing our understanding of the sources and effects of particulate emissions, and identifying the best means of abating them. Each of our European integrated steelworks has developed an emission reduction strategy for diffuse emissions of PM10, which sets out our short, medium and long-term improvement measures. Progress is reviewed on an annual basis.

Bergen – closing a site responsibly

In July 2008, changing business conditions led to the shutting down of our plant in Bergen, Norway, and a closure team was established to prepare the site for future use. The main environmental challenge was a small piece of land (120m x 100m) next to the plant, owned by the company and known as Bellona Park. In the 1970s and 80s Bellona had drawn attention to this patch of land which had become contaminated over many decades.

We excluded this land from the main sale and investigated the best way for a company in the 21st century to deal with the legacy of the previous one. We investigated two options for the land. One was to remove all the waste for incineration. With the closest incinerators in Finland, however, that would involve moving an estimated 30,000 tonnes of contaminated material by truck - difficult practically, costly financially, and dubious environmentally. We chose instead to seal off the area with a flexible membrane across the contaminated land, to add topsoil and plant and landscape the area.

Now Bellona Park has been made safe, with a new landscape, over 100 new trees, a small stream and a path through it for citizens to enjoy. The land has been handed over to the local council along with two other pieces of land, one with a football field and one providing access to the fjord shore. In recognition of our responsible approach in addressing this problem, we received an award in 2010 from Vestlandet Faglig Forum HMS, the Norwegian regional health, environment and safety forum.

At our integrated steelworks in Jamshedpur, India, we have established a programme to ensure that particulate emissions do not increase when the major expansion project is completed in 2011. More details are provided in the text box on page 17.

Table 3 shows our total mass emissions to air for particulates, oxides of nitrogen, and sulphur dioxide from steelmaking and downstream non-steelmaking facilities. The data relate only to those manufacturing facilities where emissions to air exceed the reporting threshold (see the *Performance summary* see page 48). It is still too early in the process of reporting Group-level data to establish any performance trends, particularly as production levels during the past two years have been deeply affected by the recession – especially in Europe.

TABLE 4: Emissions to water from steelmaking and downstream non-steelmaking downstream facilities (thousand tonnes per year)

	2009/10	2008/09	2007/08
Hydrocarbons	133	283	173
Suspended solids*	1.9	2.6	2.6

*It should be noted that the suspended solids data for 2008/09 and 2007/08 have been corrected retrospectively to remove the effect of our quarries and mines from the scope of this indicator.

In response to a Dutch television programme in May 2008, the Dutch Minister for Housing, Spatial Planning and Environment (VROM) ordered an investigation into the correlation between Tata Steel's activities at IJmuiden and public health in the surrounding areas. The report on the investigation was presented to the Dutch Parliament on 1 October 2009.

The report presented a well-balanced assessment of the health issues and their possible causes. An important finding was that no conclusions could be drawn on the causes of cancer found in the areas surrounding the IJmuiden steelworks, and that the incidence of cancer corresponds to the Dutch national average.

While not directly related to the VROM investigation, we have begun construction at our IJmuiden site of an advanced bag filtration and gas reactor system for improved emissions control at the sinter plant. This €98 million (US$132 million) investment will achieve further reductions in particulate and heavy metals emissions from the plant.

Reducing the impact of road haulage operations in the UK

Over 1,000 loads of Tata Steel products are delivered by road each day in the UK and Ireland. In 2006, we entered into a new contract with transport and logistics company TDG to provide steel distribution services across the UK. Prior to the contract, distribution was managed and operated at local level with no overall visibility of load movements. As well as safety and service improvements, another important objective of the new contract was to reduce empty miles – the miles travelled by unloaded vehicles on return journeys.

We set up a joint project with TDG to evaluate where savings could be made. As part of this, we worked with Concept Trailers, a leading manufacturer based in Ireland, to develop a new multi-purpose trailer capable of safely transporting different product types, from pipes to sections to coils. We then analysed many routes across all Tata Steel operations to establish where the new trailer design could be deployed most effectively. An 18-month trial with three of the multi-purpose trailers began in March 2009.

The trial proved a huge success. The total miles travelled by the three trailers so far during the trial is 233,000, of which only 12,100 miles (5.2%) was empty mileage – a saving of 41,000 miles against the current industry average. We now plan to introduce a fleet of the new trailers which will eliminate a million wasted miles each year on steel distribution, saving around 500,000 litres of diesel and reducing CO_2 emissions by 1,325 tonnes. For more information about this initiative, visit www.millionmilesbetter.com.

Water quality

Most of the water we extract is used for non-contact cooling and is returned directly to the watercourses from which it is taken with no deterioration in quality. We employ a wide range of techniques to reduce our consumption and to prevent pollution.

To minimise the impact of our process effluents, we have installed a complex range of biological, chemical and physical effluent treatment technologies, and have systems in place to monitor their effectiveness and to evaluate cost-effective opportunities for enhancing our treatment capability.

One way that we can reduce risks to natural watercourses is by systematically substituting hazardous substances used within our manufacturing processes with safer alternatives. At our Orb site in South Wales, we implemented a project that, by the end of 2009, completely eliminated acid pickling on the site's two thermal flattening

Coal blending yard at IJmuiden, the Netherlands.

lines by introducing an alternative mechanical cleaning system for steel strip prior to thermal flattening. The new system has significantly reduced the risk to the local surface water and groundwater environment, while also reducing energy consumption associated with heating the pickling bath.

Table 4 on page 20 shows total mass emissions to water for suspended solids and hydrocarbons from steelmaking and downstream non-steelmaking facilities across the Tata Steel Group. The data relate only to those manufacturing facilities where the emissions to water exceed the reporting threshold (see *Performance Summary* on page 48).

Although it is still too soon after our Group-wide reporting systems were established to draw detailed conclusions from the data, the substantially lower emission of hydrocarbons during the year under review reflects a significant improvement from the previous year.

Relatively large volumes of water are used in the making of steel, but most of this is returned to the source. The precise volume of fresh water consumed is difficult to quantify because our sites often cover large land areas and capture substantial amounts of rainwater. The Group is very conscious, however, that fresh water is a finite and increasingly valuable resource, and is working to develop a water foot-printing tool that will provide a more accurate measure of fresh water consumed per tonne of steel produced. This will enable us to target additional water saving schemes where they are most needed.

Material efficiency

Integrated steelmaking technology requires large amounts of virgin and increasingly costly raw materials such as iron ore and coal. It is vital, therefore, that we continue to optimise our consumption of these raw materials, by minimising waste and ensuring that our by-products meet tight quality control requirements so that they can be used in other industry sectors.

Our most significant by-product, in terms of volume, is blast furnace slag. This has now become a valuable raw material for the concrete industry, where it is used as a clinker substitute, thus reducing mineral extraction and CO_2 emissions at the same time. Steelmaking slags are used extensively in civil engineering and agricultural applications, and tar and benzole from our coke-making processes are used within the chemicals industry. Data on the useful consumption of these by-products are presented in Table 5 on page 23.

We are continually looking for new ways to make productive use of the materials generated by our processes, and our participation in the worldsteel By-Products Management Project will identify further opportunities for their efficient recovery, re-use or recycling.

We have found many productive uses for the by-products of our coal mining operations in India. Mined material is processed to produce clean coal suitable for coke making at our Jamshedpur integrated steelworks. The fraction known as middlings is used for power generation, both at the steelworks power plant and also at a Tata Power installation in Jojobera. The coarse washeries rejects are used in fluidised bed boilers at the West Bokaro power station, while tailings are sold for use in the manufacture of building bricks.

Raw material security is a cornerstone of our business strategy, and our goal is to increase our self-sufficiency to 100% in India and 50% in Europe. This will involve acquisition of virgin sites for coking coal and iron ore, but also development of new techniques to improve our beneficiation of low-grade minerals, fines from mineral processing and other residual materials.

We already apply advanced techniques at all our integrated steelworks to extract valuable components such as iron and carbon, by re-using most of our residual materials through sinter plants, BOS plants and coke ovens. During the year under review, over seven

Benga and Tete coal project, Mozambique.

million tonnes of residual materials were internally re-used through our processes, replacing primary raw materials and reducing our overall CO_2 emissions.

Some waste from our operations is unavoidable, and our aim is to ensure that as much as possible of this waste material can be re-used, recycled or recovered by third parties. At our integrated steelworks at Port Talbot in the UK, we launched a project towards the end of 2008 to reduce our waste disposals to landfill. A multi-disciplinary project team was tasked with addressing the chemical and technological constraints to maximising the re-use of iron and flux-containing residues that arise during integrated steelmaking. By applying a number of innovative recovery processes, ranging from thermal desorption of oil to the establishment of a state-of-the-art waste slag recovery facility, waste to landfill at the site was reduced by over 50% within a year. By redirecting valuable materials back into the steelmaking process, raw material consumption and CO_2 emissions have also been reduced.

The project has proved so successful, in fact, that permission has been granted by the authorities to start extracting existing landfilled materials so that the useful constituents of these can be recycled back into the process.

In another example of applying a systematic approach to reducing waste disposal, Tata Steel Tubes at Hartlepool in the north east of England established a recovery project that has resulted in only 7% of all waste from the site now being landfilled, compared to 90% previously.

Table 6 provides a breakdown of materials re-used, recycled, recovered or sent for disposal from all Tata Steel Group facilities, including the quarries and mines. It can be seen that landfill is the main method used when disposal is the only cost-effective alternative.

Biodiversity

Our sites contain a surprisingly rich variety of wildlife species, many of which are afforded the highest level of legal protection, and we respect the habitats both within and around our facilities. A number of our employees in Europe have undergone specialist training to obtain the various licences required to handle and help to safeguard protected species.

In the UK, we became a founder member of both the Teesside and Humber branches of the Industry and Nature Conservation Association (INCA) more than 20 years ago. Since then, we have worked closely with other industries, volunteers and INCA to improve our understanding of the biodiversity in and around our steelworks. Every year, for example, employees at the Scunthorpe site join INCA to maintain two nesting areas in the raw material stocking area prior to the arrival of sand martins from their wintering grounds in Africa.

Under the Group's reclamation and afforestation policy, mine and quarry sites are thoroughly and sensitively restored to create suitable habitats. More than 280 hectares of former mineral workings have been restored to date. At our Noamundi mine in India, we have planted some 1.8 million saplings of 43 species including sal, teak, arjum, imli and jamun over the last 20 years. Through the Tata Steel Rural Development Society, we also actively engage with local communities to promote the sustainable use of the forest as a source of livelihood.

Many of our sites now monitor and benchmark the habitats and species present, and maintain action plans to encourage further biodiversity within designated non-operational areas. We welcome and encourage the involvement of our employees, local wildlife groups, schools and voluntary bodies in these activities, and are proud of what has been accomplished to date.

The Mount Nimba Strict Nature Reserve covers more than 15,000 hectares on the border of Guinea and Côte d'Ivoire in Africa, and possesses unusually rich flora and fauna, including unique endemic species such as viviparous toads. This World Heritage site was listed as being in danger in 1994, due partly to the issue of iron ore mining concessions. In line with the World Heritage Committee's request, Tata Steel has undertaken not to carry out any mining that would damage the outstanding universal value of the nature reserve.

Responsible procurement

Interest in the responsible procurement of raw materials has risen greatly in recent years, and Tata Steel is at the forefront of steel industry efforts to formulate best practice in this area.

All of our external iron ore suppliers have management systems certified to ISO 14001. We have also checked to confirm that they have in place systems for managing resources effectively, restoring areas affected by mines, and preserving biodiversity. All of our iron ore suppliers have implemented health and safety management systems. Our principal iron ore supplier, Vale, has introduced a wide range of initiatives to contribute to the protection of biodiversity and the elimination of poverty in the areas of Brazil where its operations are located.

For our business in India, we source 100% of our iron ore and approximately 70% of our coal from captive supplies owned by Tata Steel. Direct ownership of raw materials mines provides us with even greater control in ensuring that the highest standards of environmental protection are maintained.

In summer 2010, Tata Steel Colors became the first steel sector operation to achieve certification to the UK Building Research Establishment sustainability standard, BES6001. This certifies that Tata Steel is a responsible supplier according to detailed criteria applying both to the management of the facilities in North Wales but also to the way it drives sustainability back through the supply chain, starting with the mines where the iron ore is originally sourced. We plan to expand BES6001 certification to cover other Tata Steel businesses supplying the construction sector in Europe.

Producer responsibility and product stewardship

Working closely with a variety of partners, we are continuing to develop chromium-free passivation coatings for our European tinplate and hot-dip galvanised material, and all our electrical grade steels produced in Europe

are now chrome-free. In India, Galvano™ has been brought to market, providing lead-free galvanised steel for our engineering customers.

In Europe, we are working on an updated range of safety data sheets for all of our main products and by-products. While these are not required by law for most of our products, we believe it is a responsible approach to provide our customers, and indeed anyone who uses our products, with information on their safe use.

We understand that the characteristics of our products and the information we provide to customers can have a profound effect on their environmental performance throughout their use and end-of-life phases. In Europe, our researchers are recognised as leading experts in the field of whole life-cycle assessment. They have developed CLEAR, a tool capable of analysing the environmental impact of our products in use within the construction sector. Life-cycle inventory data is available for 88% of the products manufactured in Europe by Tata Steel.

In partnership with our customers, we have also published 49 environmental product declarations (EPDs) covering the whole life of construction products. Additionally, we publish a series of guidance documents to advise the market on best practice for end-of-life solutions.

TABLE 5: By-product utilisation (thousand tonnes per year) by steelmaking and downstream non-steelmaking facilities.

	2009/10	2008/09	2007/08
Blast furnace slag	5,254	5,370	5,623
BOS slag	2,134	2,316	2,701
EAF slag	306	361	381
Tar and benzole	297	364	382
Other*	184	119	127

*It should be noted that the by-products data for 2008/09 and 2007/08 have been corrected retrospectively to remove the effect of our quarries and mines from the scope of this indicator.

TABLE 6: Waste materials management (thousand tonnes per year) by steelmaking and downstream non-steelmaking facilities.

	2009/10	2008/09	2007/08
Re-used, recycled or recovered by third parties	527	472	501
Disposed of to landfill	815	910	1,186
Disposed of through other routes	62	77	112

Dhamra Port project

Since 2004, Tata Steel has been participating in a project to construct a port on the eastern coast of India. The site, located to the north of the mouth of the river Dhamra in the Bhadrak district of Orissa, is being developed by the Dhamra Port Company Limited (DPCL), a joint venture between Tata Steel and Larsen & Toubro (L&T). When commissioned, Dhamra Port will be India's deepest port, capable of handling super capesize vessels. Its close proximity to India's mineral heartland will benefit the country's steel, power and mining industries.

Greenpeace and other environmental activists have voiced concerns about the project's potential impact on the olive ridley turtle. This rare and endangered species has nesting grounds at Gahirmatha, about 15km from the port development site. From the start of its involvement in the project, Tata Steel has engaged continuously with conservationists, scientific organisations and NGOs to hear their views and to address their concerns.

We are taking all reasonable steps to ensure the turtles suffer no adverse effects from the port development. This has included appointment of the International Union for Conservation of Nature (IUCN) – one of the world's most respected environmental advisory groups – as environmental advisers to the port development.

Construction in progress at Dhamra Port.

IUCN has reviewed and assessed the potential impacts of the development on the turtles. We have committed to adopt all its recommendations without exception, including the use of protective deflectors on dredgers and lighting techniques to minimise sky glow that could disorientate newborn turtles as they make their way from the beach to the sea.

For further information on the measures recommended, visit www.iucn.org.

Caring for communities

Providing healthcare in Bankati village, India.

Every major business has an impact on the communities and societies in which it operates.

Our philosophy is based on that of the founder of the Tata Group, Jamsetji Tata, who believed passionately that a company should play a significant and beneficial role within the local community and society in general. Since its foundation more than a century ago, the Tata Steel Group has retained that legacy and strives to make a positive social contribution, as well as a major economic one, wherever it conducts business.

Changes to our business

In a rapidly changing and intensely competitive global marketplace, successful companies must constantly adapt and develop in order to meet the expectations of their customers. Whenever changes are called for at our operating locations, we always endeavour to manage them responsibly and considerately so that the economic, social and personal impacts are minimised and handled sensitively for all stakeholders.

A major change to the Group's manufacturing activities occurred in early 2010, with the partial mothballing of the Teesside Cast Products (TCP) plant in the UK which resulted in the loss of approximately 1,000 jobs.

This drastic action had become inevitable when, in April 2009, a consortium of four international customers illegally terminated their binding 10-year contract to buy almost 80% of the plant's steel output. Over the following nine months, we kept the plant operating while we pursued all possible solutions that would secure TCP's long-term future.

However, no viable partner was found. With TCP incurring a loss of some £150 million (US$227 million) in the first six months of the financial year, it was clearly no longer sustainable to continue slab production, and both the Redcar blast furnace and Lackenby steelmaking plant were mothballed.

Mothballing is not the same as permanent closure: we continue to invest very substantial financial and human resources to maintain these facilities so that they can be restarted safely and relatively quickly if a viable, long-term solution can be identified.

Through its subsidiary, UK Steel Enterprise, Tata Steel made available an £8.3 million (US$12 million) support package to local Teesside communities. A considerable number of job vacancies, including scope for TCP employees to secure new employment elsewhere in the Group, were identified in collaboration with the trade unions. A support service for affected employees was established in conjunction with local agencies, and we offered redundancy packages – wherever possible voluntary – that were significantly more generous than the statutory minimum.

In February 2011 Tata Steel signed an agreement to sell TCP assets to Sahaviriya Steel Industries UK Limited, a subsidiary of Thailand's largest steel producer. We intend to retain a major presence in Teesside, employing more than 1,800 people at our operations in Hartlepool, Skinningrove, Teesside Beam Mill and Teesside Technology Centre.

We also continue to work closely with the trade unions, external agencies and government to find opportunities that will retain valuable skills and jobs in the area.

Greenfield development

Whenever we plan to extend our activities into a new location, we endeavour to bring tangible benefits to the local community as well as to the national interest as a whole. A thorough assessment is made from the outset to ensure that our presence will indeed bring sustainable economic benefits to all our stakeholders, and that the environment will not be adversely affected by our proposed operations.

We seek to be as inclusive as possible, within the limits of business requirements and applicable laws, in ensuring that local people have every opportunity to participate in these new operations.

Our resettlement and rehabilitation programme in India, known as 'Tata Steel Parivar' (Tata Steel Family), goes well beyond the standard benefits set out in the government's resettlement and rehabilitation policy. Generous financial compensation is offered to people asked to move from their homes. The aim of our programme, however, is not just to achieve a fair compensation and resettlement scheme: we are very mindful that relocation of communities has profound socio-economic and psychological implications, and we believe it is of the utmost importance that people affected by our growth projects have the reassurance that their lives will be better as a consequence.

Indigenous communities

The interests of indigenous communities are considered very carefully in the development of our greenfield projects. From the early planning stages, we engage with local communities to discuss their expectations and needs. Where required, in keeping with our philosophy of inclusive growth, we develop programmes to improve healthcare and the employability of individuals from communities that currently lack access to good facilities and opportunities.

Tata Steel India helps to preserve and promote the cultures of tribal peoples through its Tribal Cultural Society. Among the initiatives currently promoted by the society are: the Tribal Cultural Centre, which celebrates the ethnic traditions of the tribal communities in Jharkhand; the annual Kati tournament (Kati is a traditional game played in the tribal villages of Jharkhand and Orissa); the Artisans' Hub, a project to support tribal artisans skilled in stone carving and bamboo craft and provide them with a stable monthly income; and the Gram Shree Mela – an annual fair organised in collaboration with the Council for Advancement of People's Action and Rural Technology (CAPART) that gives rural craftsmen and women the opportunity to showcase their products.

The 2010 Gram Shree Mela featured more than 270 stalls with artefacts from 22 Indian states, resulting in record sales of almost Rs. 9.3 million (US$207,000).

Supporting new businesses within UK steel regions

UK Steel Enterprise is a wholly-owned subsidiary of Tata Steel, established to improve the economies of those areas of the UK most affected by changes in the steel industry. Since 1975, it has helped to create nearly 70,000 new jobs and support more than 4,500 small businesses.

For anyone in those regions with a sound business idea and the commitment to make it work, UK Steel Enterprise can help by providing information and advice as well as loans and investment for start-up and expanding businesses. It also supports community projects.

UK Steel Enterprise is now self-funding, as much of the £72 million (US$83 million) invested in it by Tata Steel since 1975 to help fledgling businesses find their feet has been derived from income generated by the payback of loans and the rent from small businesses using its innovation and business centres. This money does not go back to Tata Steel Europe, but is reinvested in new enterprises.

Among the many businesses that UK Steel Enterprise helped to establish or continue their successful growth during the year under review were a heating and plumbing company in Redcar that is now expanding into the renewable energy market, Glasgow-based Safehinge Ltd, which has developed an award-winning, child-safe door hinge system , and a supplies company (EnPlus Solutions, pictured above) in Tees Valley that provides recyclable and compostable products.

Following the partial mothballing of Teesside Cast Products, UK Steel Enterprise launched a Regeneration Fund designed specifically to assist local start-up and fledgling businesses. Within the first three months, loans and grants were provided to some 65 new businesses. About half of these were created by former employees or contractor staff whose jobs had been lost as a result of the mothballing.

Disaster relief

The Tata Relief Committee (TRC) is a voluntary organisation that was established in India 35 years ago to provide emergency assistance to people – often among the poorest of the poor – whose lives have been devastated by natural disasters. Working in close cooperation with state governments, the TRC draws on resources and employee volunteers from across the Tata Group of Companies and the Tata trusts.

In May 2009, Cyclone Aila devastated the Sundarban region of West Bengal, leaving more than four million people homeless. The TRC moved as rapidly as possible to deliver aid to the region, including tarpaulins, medical supplies, food and other essentials. Tata Steel and the TRC also responded quickly when severe storms destroyed or damaged the homes of hundreds of villagers in Ranchi, Jharkhand.

Through our NatSteel companies, we also provided aid during the year to victims of the Samoan tsunami, the Qinghai earthquake in south-west China, and the floods in the Quang Binh province of Vietnam.

In December 2009, NatSteel donated SG$240,000 (approx. US$160,000) to the Society for the Physically Disabled to fund education programmes over two years.

Health and welfare

The Tata Steel Group believes that investing in the health and welfare of local communities and society generally is part of its duty as a corporate citizen, as well as being in its long-term interest. We provide preventive and curative healthcare facilities in operating areas where local facilities are limited.

Mother and child health

The concept of healthy mother and healthy baby is one of the cornerstones of Tata Steel's healthcare provision. Through investments in maternal and neonatal programmes, we protect and improve the health of thousands of women and children each year.

During the year under review, our healthcare services in India immunised 8,444 children, handled 8,222 antenatal cases and provided family planning advice and assistance to 11,071 couples.

Adolescent health

The primary objective of our adolescent and youth health programmes in India is to provide young people with medical support and the opportunity to acquire accurate information, to seek and receive counselling in times of need, and to live safe, healthy and responsible lives. More than 53,000 adolescents benefited from these programmes in 2009/10.

Lifeline Express

The Lifeline Express – the world's first hospital on rails – brings much-needed medical services to remote rural areas using the Indian railway network. The services include on-the-spot diagnostic, medication and advanced surgical treatment for orthopaedic, ear, nose, throat and eye ailments. During 2009/10, the Lifeline Express conducted over 700 surgeries and treated more than 4,000 patients.

Comprehensive health screening

In South East Asia, NatSteel has introduced a comprehensive programme of health screening and awareness. It encourages and enables employees and their families to adopt healthy lifestyles, and covers a wide range of issues including weight management, hypertension, high cholesterol, and smoking cessation.

HIV/AIDS

An estimated 2.5 million people in India are currently living with HIV/AIDS. The high levels of economic and industrial activity in Jamshedpur and at other operating locations in Jharkhand and Orissa present an increased risk of the disease spreading via migrant and transport workers.

Tata Steel's award-winning HIV/AIDS initiative includes preventive, promotional and curative measures to prevent infection and development of the disease. In addition to a general awareness programme for employees and the local communities, counselling and treatment, a van fitted with sound and projection equipment tours remote areas of Jharkhand to stage outdoor plays twice a day to highlight the risks of HIV/AIDS and how to avoid them. In total, 1,178 awareness programmes were conducted within India in the past year.

Drug and alcohol abuse

Community drug and alcohol abuse is 30% higher in the towns of Port Talbot and Newport than in the rest of Wales – and, in turn, is 30% higher in Wales than in the rest of the UK. Tata Steel has joined forces with the Gwent Alcohol Project, West Glamorgan Council on Alcohol and Drugs Abuse, the Community Union and key contractors to address the issue. (see *A Safe and Healthy Workplace*, page 12).

In September 2009, we organised a competition involving all schools in the Port Talbot area. Pupils were invited to create a poem, short story or picture expressing how drugs or alcohol can affect lives and society. More than 200 entries were submitted, with the winning pupils receiving music vouchers

and their schools receiving funds for additional sports equipment.

In November 2009, a conference jointly sponsored by the Welsh Assembly Government and Tata Steel was held at the Liberty Stadium in Swansea to launch the government's new policy on substance abuse in the workplace, which cites our approach as a guide to excellence on this difficult issue.

Building beyond Borders

NatSteel's social programme, Building Beyond Borders, was created in 2007 to provide support for underprivileged elderly and young people. We pledged to contribute 1 million Singapore dollars (US$650,000) towards chosen community initiatives over the subsequent three years.

A charity fun fair at the annual NatSteel Family Day raised money for the Society for the Physically Disabled. We donated almost SG$60,000 (approximately US$20,000) for the purchase of a minibus which is being used by employee volunteers to take students of Fernvale Gardens School out for life skills lessons.

Education

Education is a basic human right, and one that is vital to personal and societal development. Tata Steel in India supports the right to free and compulsory education for all children up to the age of at least 14, and also contributes to initiatives aimed at improving literacy levels among adults. The Tata Steel Group actively supports the study of science generally, both to advance understanding of steel technology and to foster development of qualified people for our industry in future years.

In India, Tata Steel provides financial support to a number of primary schools close to its operating sites and to families who would otherwise not be able to afford the school fees for their children.

In South Africa, we have pledged R50,000 (US$5,275) for a period of three years to Brackenham primary school, situated about five kilometres from our plant in Richards Bay, to help towards the cost of schooling for children whose parents are unable to pay the full cost on their own. Additional funds are being used to renovate and maintain the school. In the poor rural area of Mandlanzini we have sponsored the school fees of 50 orphans and provided office equipment to Kati primary school. At Floraton primary school, which educates orphans and disadvantaged children in Aquadene, part of the city of uMhlathuze, we have provided much-needed funds for structural repairs and maintenance, helping to make the school a safer and more comfortable environment for learning.

During the year under review, Tata Steel Thailand continued its 'Grow Smart with Tata Steel' initiative, which aims to promote learning and self-development among young people living in remote areas by nurturing their interest in reading, expanding their knowledge and capabilities, and taking these as a key to help their families and communities.

In South Africa, we offered support for the children of Kati Primary School, Richards Bay, South Africa, an area of extreme poverty.

The Trijanga Township

Wide all-weather roads, round-the-clock power supply, piped water and drainage systems, permanent eco-management and planned greenery are amenities that even some of the modern townships in India do not have. But the Trijanga Township established by Tata Steel Parivar for the people displaced by the new greenfield project at Kalinganagar in Jaipur has all of these and more.

Each relocated family has been given a 0.1-acre plot of land and funding for house construction, as well as employment. All basic amenities such as water and electricity supply, communal space, a community centre, grain storage facility, children's recreation park, public toilets, welfare office, pre-schools and healthcare are provided, together with all-weather roads, street lighting, drainage, sewage and refuse collection.

Tata Steel has also started an innovative scholarship scheme for children of relocated families. The Tata Steel Parivar scholarship programme fully funds their professional education, enabling them to become doctors, engineers, technicians and managers. To date, 39 children within the Trijanga Township have received scholarship assistance. Two other townships are to be established in the Kalinganagar area.

The company has now established 'book corners' in over 60 schools in 13 Thai provinces, and has set a target of creating similar book corners in 400 schools by 2014. It also provided English classes to schools near the plant, offered plant tours to college students and held a 'Tata Steel Football Academy' in local schools.

In the UK, engineers from the Scunthorpe steelworks have been working for many months with Study United, a learning centre based at Scunthorpe United football club, and local educationalists to create a unique sports-themed, learning programme - with the goal of raising aspirations and interest in science, technology, engineering and maths among young people. The Tata Steel Goal Challenge is now being introduced in primary schools throughout North Lincolnshire as an exciting and highly interactive classroom resource, and school groups will also be able to attend special sessions at the Study United centre.

Tata Steel employees in York are also helping to inspire the next generation of Britain's scientists and engineers with a series of innovative workshops. Engineers from the company's Rail Infrastructure Services department, which has offices in the centre of York, are working with local schools to bring the science curriculum to life and inspire youngsters about the importance of science and its attractions as a career.

Scholarships and bursaries

Each year, Tata Steel awards scholarships to promote the talent and knowledge of students from Scheduled Castes and Scheduled Tribes in India by encouraging and assisting them to study beyond elementary level. The Jyoti Fellowship was originally initiated in 1974, and this year scholarships to the value of Rs. 2.06 million (approximately US$45,000) were awarded to 240 students at high school level and over 300 at college or university level. The Moodie Endowment, which encourages youths in various districts of Jharkhand and West Bengal to pursue science studies, awards more than 100 grants annually worth a total of Rs. 1.2 million (approximately US$27,000). Through the Tribal Cultural Society, Tata Steel also provides coaching to help students prepare for a wide variety of vocational examinations.

NatSteel, together with the NatSteel Employees' Union, holds a joint bursary and merit awards presentation. Since the inception of this award in 1991, nearly 1,000 recipients have, in total, received more than half a million Singapore dollars (US$325,000).

The NatSteel Scholarship and Study award programmes are given to outstanding students in local universities, helping to attract candidates with excellent academic results and leadership potential. NatSteel Scholars are bonded to work for the company for the equivalent duration of their course sponsorship. All scholars change their job at least twice in the first four years of their career to broaden their work experience and develop their knowledge of NatSteel's business.

Dr Harry Bhadeshia, the first Tata Steel Professor of Metallurgy, Cambridge University.

NatSteel Vietnam also has an extensive scholarship and awards programme, with a particular focus on assisting students from poorer communities and those with physical disabilities.

Academic

The first Tata Steel Professor of Metallurgy is Dr Harry Bhadeshia, a world-renowned expert on the physical metallurgy of steels. The endowment of this Chair at Cambridge University was inaugurated in November 2008, and is a mark of the shared commitment of both the University and the Tata Steel Group to world-leading research in the field of metallurgy.

Back to the future

As a boy growing up in Port Talbot, Chris O'Brien often looked over to the steelworks and wondered about the impact of its emissions on the community. After gaining a degree in marine biology, Chris joined Tata Steel in 2007 as a graduate environmental engineer. His job involves monitoring emissions from the works and helping to educate employees about environmental awareness.

Chris recently went back to the community, running workshops for a local primary school on climate change. 'The children are the ones that are going to see the changes in the next 80 years, and they will also be the engineers and policy makers of the future,' he said.

Tata Steel employees competed in a triathlon as part of our corporate partnership with the British Triathlon Federation.

Vocational skills and enterprise development

The overall demand for unskilled and semi-skilled labour is declining in both developed and developing countries. Even where agriculture is the main economic activity, trends such as globalisation mean that simple subsistence farming is becoming less viable. We work together with local people in a number of rural and urban areas to harness available resources and skills in order to create new opportunities for sustainable livelihoods.

In South Africa, our Enterprise Development programme helps rural women to acquire business skills. For example, it has provided four industrial sewing machines to enable the women of the Mandlanzini area to create a profitable and sustainable business.

Recognising that lack of technical skills is the biggest challenge facing South Africa, Tata Steel KZN has set up a 'Learnership' programme for training local maths and science matriculates. Since 2006, it has trained 91 young men and women as operators and apprentices, and a third group of 31 learners was selected and began their training in March 2010.

A shortage of skilled workers and technicians is also a problem in the Netherlands, and Tata Steel is one of the sponsors of the Techno Challenge – a long-term project to promote interest among schoolchildren in technology and its attractiveness as a career choice. In 2010, Tata Steel launched its annual design award for students of elementary schools participating in the Techno Challenge project, who were invited to design a better version of an existing steel product or to create an entirely new one. The winners received a Kawasaki mountain bike for their idea.

Sponsorship

The Tata Steel Group supports an extremely wide range of cultural, social, educational and sporting activities that benefit local communities and society in general. As well as contributing financially, we often assist in organising community activities and offering our expertise and resources.

Sports

The Group recognises the value of sports in promoting health and helping to improve confidence, teamwork and interpersonal skills. We actively encourage and support sporting activities, both through sponsorship of events and by making more facilities available to more people wherever we operate.

In the UK, we are the corporate partner of the British Triathlon Federation, encouraging the development of triathletes from grassroots level through to potential Olympic champions. Over 3,600 schoolchildren tackled the three triathlon disciplines of swimming, cycling and running during Corus Kids of Steel events in London, Corby, Teesside and Scunthorpe in the past year, when we also sponsored the first British Disabled Triathlon. Triathlon is now the UK's fastest growing sport, and these popular community events guarantee the children lots of fun, exercise and a medal for everyone.

The annual Corus Chess Tournament in Wijk aan Zee, the Netherlands, is one the world's leading chess tournaments. The 2010 event – the 72nd – attracted players and spectators from many countries, as well as extensive media coverage and an average 75,000 internet hits a day.

The annual sponsored chess tournament in the Netherlands.

Mr B Muthuraman, vice chairman, Tata Steel, at the official opening of the Telstar football club's refurbished Tata Steel Stadium in the Netherlands in August 2009.

'Sharing Love with Elders' - donating supplies and leading activities for older people in the community in Thailand.

We also organised, for the fourth time, a simultaneous chess event within the Dutch Houses of Parliament for current and former MPs, journalists and civil servants.

Since its inception in 1987, the Tata Football Academy in India has been developing and training young footballers in a scientific way, and it has an outstanding record of producing players for the Indian national team. During the reporting year, the talented Academy cadets beat the experienced, high-profile East Bengal team 3-0 in the IFA Shield, and 17 of the cadets represented India at various levels. All 18 of the cadets who completed their four-year programme at the Tata Football Academy this year secured excellent contracts with clubs in the professional I-League.

Tata Steel also sponsors numerous sporting facilities for its employees, their families and local communities, and has established very successful academies and training centres in a number of other sports including athletics, archery, boxing, tennis and handball.

Caring and volunteering

Tata Steel has given employees at the Scunthorpe steelworks in the UK thousands of pounds to spend in the community since the introduction of its Ambassador Awards in 2003. Under the scheme, employees who carry out voluntary work in the community are able to apply for a £250 (US$379) award to support their organisation. Over 125 employees have successfully applied for an Ambassador award to date, meaning that more than £30,000 (US$45,444) has been donated to their chosen community initiatives. One of the beneficiaries during the last year was the 1st Hibaldstow and Scawby Scout Group: supply chain manager Alan Smith and manufacturing manager Paul Kelly received a combined award of £500 (US$757), enabling them to replace the scout group's ageing canvas tents with five much-needed lightweight versions.

In London, employees gave time, money and redundant office equipment to a community farm, a support centre and a school.

Also in Scunthorpe, some 40 Science, Technology, Engineering and Maths (STEM) Ambassadors are helping to inspire the next generation of British scientists and engineers by sharing their time and knowledge with hundreds of young schoolchildren. The STEM Ambassadors are presenting interactive educational programmes to assist school teachers in bringing the national curriculum to life. From building hovercrafts to designing miniature Formula 1 cars, the employees demonstrate in exciting and practical ways just how vital science and technology are in our everyday lives, and how rewarding they can be as a career.

A group of 14 Tata Steel graduate trainees from Rotherham and Scunthorpe helped to refurbish a local community centre this year, using their spare time to paint, plaster and repair the building. They raised some of the money for the project by climbing Britain's three highest mountains and running in a half marathon, and received additional support from Tata Steel's economic development organisation, UK Steel Enterprise.

Tata Steel Thailand and its employees also play a positive and practical role within the community. During the year, vocational training was provided to local residents in making detergents, a workshop was conducted on safe motorcycling, construction materials were donated to local schools, temples and other groups, a free mobile medical clinic was set up, and a community campaign was organised to help prevent the spread of the swine 'flu virus. Particular effort is made to help less privileged members of the community, including the elderly and infirm, the blind and orphans.

In India, too, many employees reach out to assist the underprivileged. Five employees from the works division in Jamshedpur are providing primary education classes in the

evening for infants from the very poorest living areas. Twenty two HR employees have volunteered to conduct a mapping project covering 23 remote villages in Jharkhand, with the aim of identifying what interventions are needed in terms of literacy and economic conditions to transform them into 'model villages' within three to five years.

Employee volunteers are also providing vocational training in masonry, carpentry and site safety to members of the local community, which will enable them to improve their economic status while also raising awareness about a range of social issues including home and road safety, health and sanitation, HIV/AIDS and the environment.

Green thinking

As well as endeavouring to minimise our own environmental impact, we encourage our employees and neighbours to explore how they can reduce their personal impact on the environment. We aim to promote awareness of issues like climate change, recycling, sustainable energy and the importance of forests.

One of our UK subsidiaries, Orb Electrical Steels in Newport, held a tree planting event last December, when employees, their families and community members planted 111 trees – one for every year the company has been in existence.

Tata Steel Thailand held a number of environmental events during the year including tree planting around its sites and in local forests, donating 240 steel structures to be used as coral reefs on Koh Lan Island, organising a 'Save Our Earth' project.

In India's remote rural communities, firewood is a major source of fuel for heating and cooking. This results in widespread felling of trees and high carbon emissions, causing both environmental and health problems. Most villages are now connected to the electricity grid through the Rajiv Gandhi Electrification Programme, but the supply is often erratic.

Tata Steel is introducing renewable energy to these areas as a source of inexpensive and dependable power. During the year, we installed an additional 141 biogas plants, 40 solar street lights and 150 solar home lights, benefiting residents in five more villages. We also planted more than 120,000 saplings in a number of communities.

Agriculture programmes

The Tata Steel Rural Development Society (TSRDS) is undertaking several projects in the states of Jharkhand and Orissa to improve agricultural productivity and so raise the living standards of poor farmers and their families. A survey covering 23 villages involved in these improvement programmes revealed the following very positive results:

- Improved crop yields resulting in an average 150% increase in income per household within the last three years.
- Every household having year-round food security for 12 months from the base of 5-6 months, with many now having a surplus that can be sold.
- Lower migration due to improved food security.
- Additional income means that almost all children in these villages are now going to school.
- A measurable improvement in health within these communities.

Changing lives

Nityanand Mahato, a farmer in Jharkhand, could grow rice for only one season per year, which was not enough to meet his needs. Now he has an additional and sustainable source of income. With the help of India's National Horticulture Mission, he planted over 400 cashew plants and cultivated them with guidance from the Tata Steel Rural Development Society. His cashew crop generates an income well above the average in this area, which benefits his family and provides a model for others to follow.

Waste land development

A large proportion of land (approximately 9%) in the state of Jharkhand is considered to be waste land. The Tata Steel Rural Development Society, in collaboration with the National Horticulture Mission, has embarked on a five-year project in the East Singhbhum district to bring waste land into productive use. During 2009/10, an additional 2,075 acres were regenerated within the district and are now being used to grow cashew nuts and mangoes.

Creating value

Creating economic value for the benefit of all our stakeholders.

The Tata Steel Group's management approach combines a disciplined financial planning and management system with a focus on the long term. We believe this is the best way of ensuring that our economic performance is enhanced in a sustainable manner and in the interests of all our stakeholders.

Economic performance

Our primary measure of economic value creation is Return on Invested Capital (ROIC). In order to maximise ROIC, we are continuously seeking to optimise our assets and invest in initiatives to create additional economic value through growth in capacity, innovation in technology and operations, and improvements in efficiency, integration and marketing.

The global economic downturn continued to have a significant impact on the Group's business. In steel we saw demand dropping in many end-user segments in the first half of 2009/10. The Eurozone economy contracted by 27% in the 12 months to December 2009. Demand for steel declined by 24% in Europe in 2009/10. In India, demand conditions remained relatively stable while the South East Asian economies also witnessed a demand contraction in 2009.

The Group has taken steps to maintain its economic competitiveness. The highest priority is expanding steel manufacturing capacity in India and ensuring raw material security for our European operations which do not have captive iron ore and coal resources.

We continue to try to ensure during these challenging times that we have the strategy and the people to emerge as a more competitive steel manufacturer with a strong global presence and the capability to continue to help our customers succeed.

In the face of recessionary conditions, the Tata Steel Group continued to deliver strong results to the benefit of all its stakeholders in 2009/10:

- Our global steel deliveries totalled 24.3 million tonnes (2008/09: 28.5 million tonnes)
- Our turnover was US$22,796 million (2008/09: US$32,800 million)
- Our earnings before interest, taxes, depreciation and amortisation (EBITDA) totalled US$2,079 million (2008/09: US$4,118 million) with the second half of the year being more than 13 times higher than the first half of the year.
- Our return on invested capital (ROIC) was 8% (2008/09: 21%)
- Our capital investment including research and development was US$1.59 billion (2008/09: US$1.84 billion).

In conducting its business around the world, the economic value distributed (EVD) to the Group's stakeholders during the year totalled $23.28 billion (2008/09: US$27.9 billion). The distribution of this economic value is shown in Table 7.

Quality and business excellence

Quality is vital to the success of our business. Our products and services must consistently be of the highest quality in order to create value for our stakeholders, and to uphold our reputation. ISO 9001, the world's most established and comprehensive quality management framework, is applied throughout the Tata Steel Group. It is reinforced through a culture of continuous improvement in everything we do.

Accelerating improvement

The Group Performance Improvement Committee drives improvement on a continual and accelerated basis. Performance Improvement Teams (PITs) are now in place across our business worldwide for iron-making, steelmaking, rolling, maintenance, distribution service centres and building systems.
PITs successes in 2009/10 include:

- Increased iron-based recycling
- Longer vessel life in steelmaking
- Increased caster speed at Jamshedpur
- Increased hot rolled coil weight performance
- Reduced weld breaks in cold rolling
- Increased yield and reduced zinc in galvanising
- Reduced strip breaks in tinplate at Trostre, Wales

Business excellence

All Tata companies apply the Tata Business Excellence Model (TBEM). This unique methodology helps organisations identify, understand and manage the effectiveness of their processes. The aim is to create strategic direction and drive business improvement, ensuring our businesses keep pace with the very best global business practice.

Based on a model created in the United States, TBEM was developed by Tata Steel in the early 1990s. Since then, it has evolved and spread globally throughout the 96 Tata companies. Now Tata Quality Management Services, an in-house organisation, collects and shares assessment results from around the Tata Group.

Each Tata company is assessed by trained experts from other organisations within the Tata Group.

TABLE 7: Economic value distributed to society

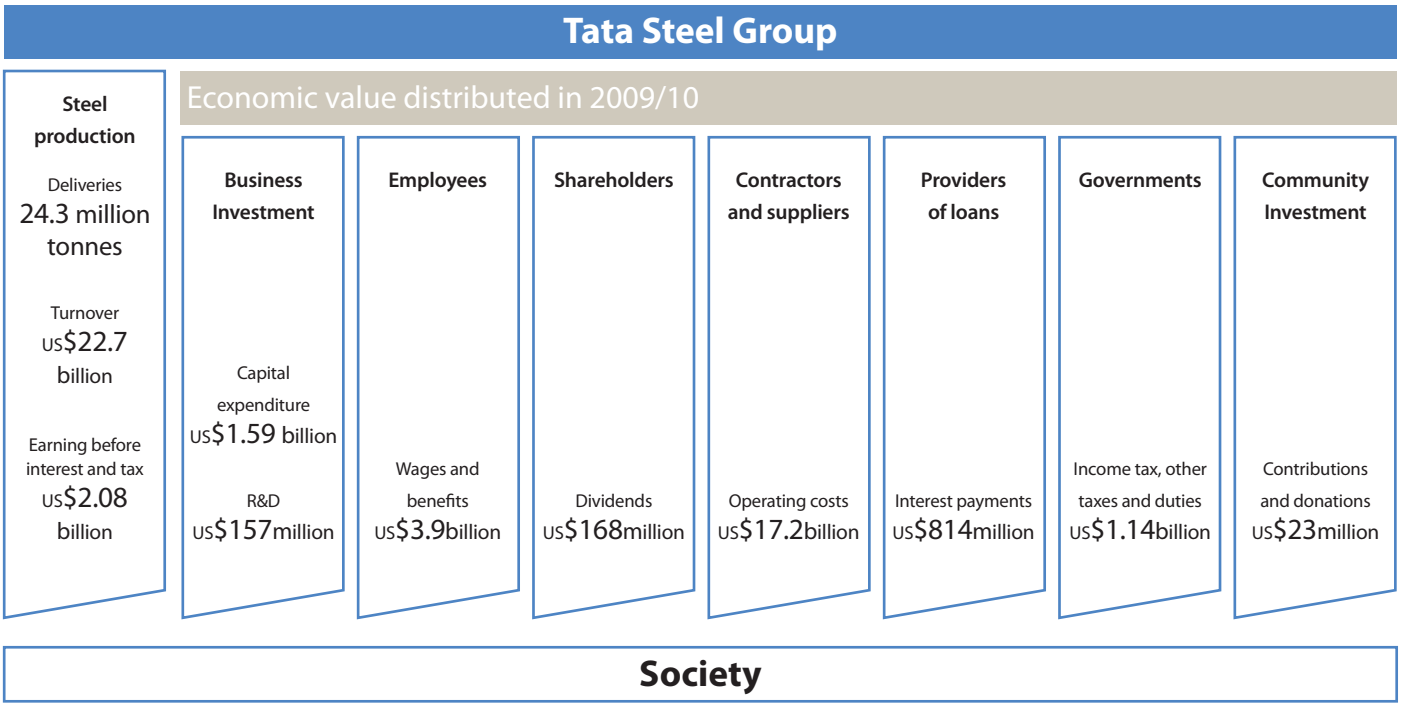


TABLE 8: Regional distribution breakdown of economic value (US$ millions)

Stakeholder group	Tata Steel India	Tata Steel Europe	NatSteel Holdings	Tata Steel Thailand	Tata Steel Group*
Employee wages and benefits	526	3,191	84	19	3,901
Shareholder dividends	168	-	-	-	168
Contractors and suppliers	2,943	12,071	1,181	680	17,234
Interest payments to loan providers	440	391	10	9	814
Government taxes	973	88	5	7	1,139
Community investments and donations	23	-	0.3	0.2	23
Economic value distributed	5,072	15,740	1,280	715	23,282

*Tata Steel Group numbers include subsidiaries, joint ventures and consolidation adjustments.
Conversion rate 1 USD = Rs. 44.9175

Ethical behaviour

Ethical behaviour is intrinsic to the way we conduct our business and is part of our legacy from the founder of the Tata Group, Jamsetji Tata, who believed that business must operate in a way that respects the rights of all its stakeholders and creates an overall benefit for society.

Tata Steel Limited is a public limited company with 801,932 shareholders as at 31 March 2010 – the vast majority individuals. Tata Sons Limited is the largest single shareholder, with a shareholding of just over 29%. Around two thirds of all profits received by Tata Sons from this shareholding are invested in philanthropic activities to benefit society, through the Sir Dorabji Tata Trust, Sir Ratan Tata Trust and other trusts.

Corporate governance

The Tata Steel Group aspires to be the global steel industry benchmark for value creation and corporate citizenship, and seeks to expand its activities around the world. The Board of Tata Steel considers itself to be the trustee of its shareholders, and has robust systems in place to deliver its responsibilities for creating and protecting shareholder value, while also ensuring that the interests of other stakeholders in the business are safeguarded and in many instances advanced.

As part of its ambitious growth strategy, Tata Steel believes in adopting the best practices in terms of corporate governance that have been and continue to be developed across different geographies. It conducts all aspects of its business with full transparency and accountability. This encompasses the principle of sustainability, and the Board rigorously monitors the Group's compliance with all environmental, safety and health regulations and its performance in relation to corporate citizenship.

Risk management

The Group regularly reviews and updates its risk management system to address the complex risks faced across our global business. Our risk management process is assured through the Group's corporate assurance and risk management function with reporting to the Group chief financial officer and reports and recommendations made to the audit committee of the Board.

The risk management process has identified and taken steps to counter and mitigate risk in:

- Industry cyclicality
- Raw materials security and price volatility
- Growth strategy
- Health, safety and environment
- Technology
- Pensions
- Regulatory and compliance
- Financing

A detailed analysis of how we have managed risk in these areas can be found in the Tata Steel Group Annual Report 2009/10, pp90-92.

As part of the regular risk management review in 2009/10 a specific review was undertaken of the Tata Steel in Europe anti-fraud programme. The review compared recognised best practices with current practices, using a controls assessment grid based on the internationally recognised COSO control framework. Recommendations for improvements were made and a programme agreed for implementation, this includes an ongoing review of current processes in light of new UK anti-bribery legislation expected to be introduced in 2011.

Business Ethics and our code of conduct

We do not tolerate corrupt or fraudulent practices. We expect honesty, integrity and transparency in all aspects of our business from our employees, contractors and other business counterparts.

Our ethical principles are clearly and unambiguously articulated in the Tata Code of Conduct, to which all Tata Group companies subscribe. Originally written in 1998, the Code was updated in 2008 to better reflect changing expectations within society and the increasingly global scale of the Group's activities.

In Europe, it has been introduced at management level and we are consulting with employee representatives on its wider application.

The updated Tata Code of Conduct addresses current issues of concern for global business, with more guidance and direction on such issues as integrity, sustainability, competition and excellence, as well as fraud, bribery, corruption and conflicts of interest.

Once fully implemented, all employees will have a personal responsibility to uphold the high standards of corporate and personal behavior set out in the Tata Code, which extends to our contractors and vendors who must agree to respect its principles. Joint ventures controlled by the Tata Steel Group are also required to adopt a written code of conduct that is consistent with the Tata Code.

Our Code of Conduct is implemented through a four-pillar concept:

1. Leadership

Respect for the Code has to be led from the top. Senior managers must act as role models through their own behaviour and set high ethical expectations of all their employees.

2. Systems and process

A structure exists at Board level to address ethical issues, such as whistle-blower concerns or matters relating to the interests of shareholders.

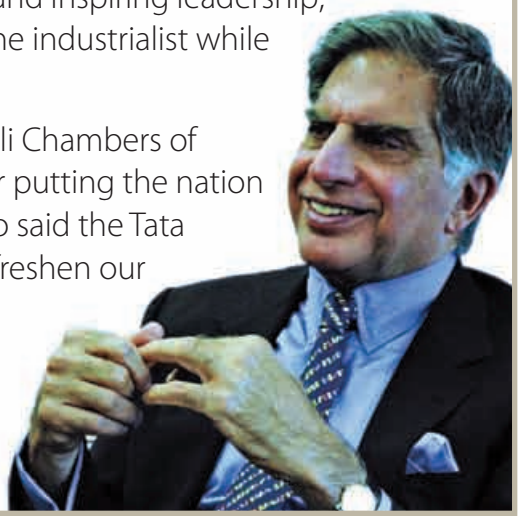
In India, Tata Steel has a central forum for ethics which meets quarterly and holds detailed discussions on the implementation of the Code, measured against the four-pillar concept. The forum has proved to be highly effective in ensuring that aligned systems and processes are in place to manage business ethics and compliance, while also reflecting local circumstances and requirements.

All new employees are informed during their induction about our expectations of ethical behaviour and the requirements of the Code of Conduct. In India, existing employees were also asked to sign up to the revised Code of Conduct during the

MUMBAI: Ratan Tata is the 'personification of honesty, integrity and inspiring leadership', is how Maharashtra Governor K. Sankaranarayanan described the industrialist while conferring him with the Businessman of the Decade Award.

After giving the award on behalf of the Federation of Indo-Israeli Chambers of Commerce here Friday night, Sankaranarayanan praised Tata for putting the nation first and upholding ethics and trusteeship in businesses. He also said the Tata Group touched the life of every Indian in some way: 'The Tatas freshen our mornings with their tea, they bring taste to our food with their salt. It would not be an exaggeration to say that the Tata Group touches the life of every Indian in one way or the other.'

The Economic Times, India, 7 August 2010



year under review, and it has rolled out to senior management throughout Europe.

Confidential reporting system
A whistle-blower system is in place to encourage employees to raise any concerns they may have in the knowledge that they are safe to do so and will have guaranteed anonymity. All concerns raised are promptly and thoroughly investigated and appropriate actions taken. The availability of whistle-blowing lines is being continuously reviewed and extended throughout our operations.

Regular reports of whistle-blowing cases and any other fraud and corruption cases being investigated throughout the Tata Steel Europe Group are submitted to the audit committee of the Board for review.

3. Training and awareness
All Tata Steel Group companies produced communication programmes during the year to raise awareness and provide guidance on the revised Code to employees and other stakeholders. It has been translated into many national and local languages around the world. For employees in our Indian operations, we have established dedicated sections on the intranet and held training and awareness sessions within our regular engagement forums such as the Joint Departmental Councils.

For our employees within our Tata Steel Europe businesses a programme of face-to-face training sessions, incorporating the principles of the Code and interactive case studies, was launched and is continuing.

Every year in India, Tata Steel marks July as Ethics Month, with a special programme of activities designed to underline the importance of ethical conduct among employees and contractors.

4. Measurement
We monitor the total number of concerns raised through our ethics management system, and also conduct periodic surveys to assess the awareness and perception of ethical behaviour among employees.

Human rights

The Tata Steel Group is proud of its long-standing reputation as a fair and caring employer, and respects all human rights both within and outside the workplace. The Tata Code of Conduct stipulates that all employees have a personal responsibility to help preserve the human rights of everyone at work and in the wider community.

In India, we have integrated human rights into our workplaces, for both employees and contractors, in partnership with Social Accountability International, the human rights organisation and the guardian of the SA8000 standard.

We achieved SA8000 certification for the Jamshedpur steelworks in 2005 and were recertified in 2007. Our chrome mining operation in Sukinda is the first mine worldwide to be SA8000 certified.

We do not permit any forced, compulsory or child labour. All employees in India and Thailand must be aged at least 18, and we comply with minimum age laws in all other countries of operation. We also respect the right to freedom of association and collective bargaining, and work closely with trade unions to ensure a fair deal for our employees.

We respect and protect the rights of indigenous communities wherever we operate – this is particularly important in establishing new operations in developing countries. In addition to respecting legal rights, we also give careful consideration to social, cultural and economic rights. In keeping with our policy of inclusive growth, we aim to help indigenous communities to reach the standards set out in the Human Development Index (the summary measure of human development published by the United Nations Development Programme). Through our Tribal Cultural Society in India, for example, we enable indigenous groups to benefit from economic opportunities generated by Tata Steel, while at the same time respecting and supporting the social norms and cultural practices that are a vital part of their communities.

Ethical tin sourcing

Our European packaging business produces tinplate for a global market. We include ethical sourcing protocols in our tin supplier contracts and make a constant effort to have reliable and auditable information concerning the origin of the acquired minerals so we can avoid the use of conflict minerals. We are cooperating in the tin supply chain with the International Tin Research Institute (ITRI) and are also involved in activities led by the Dutch Sustainable Trade Initiative (IDH). We also work with NGOs such as the Dutch Friends of the Earth.

The training centre, IJmuiden, the Netherlands.

Employer of choice

Tata Steel has always been a pioneering and enlightened employer.

Core principles

Long before its human resources policy was formally written down in 2001, the company's employment philosophy and practices were based on the recognition that its people are the primary source of its competitiveness.

The core principles enshrined in that policy, and now applied across the Tata Steel Group worldwide, are: equality of opportunity, continuing personal development, fairness, mutual trust and teamwork. These principles are underpinned by the five Tata Group core values: integrity, understanding, excellence, unity and responsibility.

Recruitment and retention

The Tata Steel Group believes that being the best possible employer helps to recruit and retain the best employees. As at 31 March 2010, the Group employed over 80,000 people worldwide.

Broken down by the organisations that make up the Tata Steel Group, employee numbers at this date were as follows: Indian operations, 34,918; European operations (worldwide, 47 countries) 40,860; NatSteel Holdings (operations in Singapore, Australia, China, Malaysia, Philippines, Vietnam, Thailand) 3,629; Tata Steel Thailand, 1,375.

While our worldwide recruitment level was lower this year as a result of the global downturn, we believe it is vitally important to our long-term vision that the Group continues – through both high and low points in the economic cycle – to recruit new talent and to nurture and motivate our existing talent.

Our objective is to ensure that the Tata Steel management trainee programme in India, the Tata Steel graduate programme in Europe, and the NatSteel scholarship and study award programme all attract and offer exciting career options to young engineers and managers from the very best universities and colleges. In addition to its graduate intake, the Group continued to recruit apprentices as well as experienced middle and senior management staff to meet current needs and develop our strength for the future.

In India, teambuilding events for graduate engineers take place in the foothills of the Himalayas. Teams spend three or four days living in hostile conditions, being challenged to survive in low temperatures and at high altitudes. The strong relationships formed during this exercise last throughout their careers.

Retaining talented employees is also critically important, and the Group recognises that the best way of earning employee loyalty is by providing them with good and challenging jobs, with opportunities for development and progression, and with competitive compensation and benefits schemes.

It is a fundamental principle of the Tata Steel Group that all our employees are compensated fairly. Benchmarking surveys are conducted annually in each of our major employment locations to ensure that pay and benefits packages remain attractive and competitive.

In India, we provide free medical services through our own hospital in Jamshedpur and also support educational programmes for employees and their families. The range of benefits provided goes far beyond the legal requirement to include subsidised housing, utilities and other allowances, as well as special reward and recognition programmes.

In China, NatSteel Holdings received the Xiamen City Government's Top Employer Award for the second year running in 2009. The award recognises and encourages high standards in employment and environmental policies.

When employees leave the company – either through resignation or retirement – they are invited to participate in an exit interview, and their feedback is a source of information to improve the workplace.

All aspects associated with the mothballing of Teesside Cast Products have been high on our agenda to ensure that we minimise the number of hard redundancies and retain key skills which would be required to restart the iron and steelmaking operations.

Maintaining a steady course

Despite the present economic turbulence, Tata Steel in Europe intends to continue to strive to reach its aim of being an employer of choice by:

- Demonstrating its unwavering commitment to health and safety.
- Maintaining a long-term perspective on apprentice and graduate recruitment.
- Demonstrating the benefits of its culture of innovation and improvement by delivering value creation and cost reductions.
- Building and maintaining positive employee relations with employee representatives and trade unions in order to reduce employment costs and minimise redundancies.
- Taking a sensitive moral approach in its management of redundancies and their impact on the communities in which they occur.
- Working with governments and other agencies in support not only of its own workforce but those of its customers and manufacturing as a whole. This is done to support the industry and demonstrate its central role to society and its contribution to the countries in which the Group operates.

Training and development

As our business continues to evolve, we encourage and enable all our people to develop and grow with it. The Tata Steel Group continues to invest in and improve its managerial and technical capabilities through internal development and training of its employees across Europe, India and South East Asia.

India

To bridge functional skill gaps, both today and as we face future business challenges, we have begun a scheme called 'Directed Learning Initiatives' in India. The aim is to create a pool of experts across the various technical areas of our business. The programme also encompasses managerial skills by incorporating a series of training modules developed in conjunction with leading management institutes.

In order to further expand and enhance the technical capabilities of our employees in India, we have embarked on a pilot programme in line with the Technical Competency Assessment System. Depending on the results of this pilot, we expect to introduce the programme throughout the business.

Another innovation to promote skills enhancement is e-Learning, whereby employees can access and complete training courses online via their departmental e-Learning Centres.

Our corporate management trainee programme has been redesigned to include special six-month modules in the areas of engineering and projects, total quality management, and safety. The revised programme will provide a better foundation for new graduates and prepare them for their future assignments in any part of our global business.

Europe

In Europe, we received financial aid from the Welsh Assembly, UK Government and European Union to ensure that training could continue during this extremely difficult economic time. Apprentice and craft engineering training has been particularly active across Europe, including at a new training school for apprentices in the North East of England. Programmes for middle managers

A top employer award for NatSteel Holdings in Xiamen, China.

Apprentices from Scunthorpe, UK, at their 'graduation' ceremony.

and first line management continued, remodelled based on company needs in the new climate.

The focus of work is on developing and proving safety critical competencies across the division. Safety-critical competencies in manufacturing, engineering and process technology areas will be revisited to ensure compliance with consistent competence models. This will be achieved within a framework of a new competency assurance policy with appropriate infrastructure support.

Since 2008 more than 1,800 people have completed safety excellence training through the Felt Leadership Programme. The total cost of the training, including lost work hours, came to over £2 million (US$3.03). The programme is unique as it gives our employees responsibility for managing their own safety improvements by concentrating on their leadership behaviours. In October 2009 the company received a UK National Training Award for the programme. National Training Awards are only presented to companies demonstrating exceptional achievement made through training and development. There is only one winner in each category so to beat off other large multinational companies in the category of 'collaboration and partnerships' makes the award highly satisfying.

Driving Performance and the Tata Steel Academy

Work commenced on the development and introduction of a new performance management model called Driving Performance. The aim of the model is to raise performance and drive culture change, aligned to the Tata values. To transform ourselves into a world-class organisation it is important that we diligently assess the strengths, the potential and the opportunities for improvement for every single one of our people and act positively on that assessment. This is the first time that a shared model has been introduced across all geographies. More than 1,000 senior managers received training in the values and competencies at the heart of the Driving Performance model. Work is continuing to roll this out to other employees over the coming months and years.

To complement the recent introduction of Driving Performance, we are committed to the development of a Steel Academy that will enable both the organisation and the individual employees within it to assess and develop their capabilities. The Academy will be organised into faculties, the first two of which in the areas of sales and finance are leading the way. Our vision is to enable our people to understand the required standards of competence both for the roles they are currently undertaking and also for any future roles they may aspire to.

A structured menu of targeted training solutions is being developed to assist the transformation of business functions into professions. Functional excellence will be supported by standard leadership and personal effectiveness programmes while standard curricula at all levels will ensure consistency in learning standards.

Tata Business Excellence Model

The underlying philosophy to build the Tata Business Excellence Model (TBEM) as a way of life across the company has been endorsed. The launch of TBEM so far has been well received across Europe. During 2009/10 courses were introduced for both potential TBEM assessors and those wishing to learn about the model.

Cross-company

The year under review saw a continuation in the number of managers transferring between our operations in India, Europe and South East Asia to facilitate cross-pollination of ideas, practices and expertise, as well as providing these managers with international experience.

At work in Jamshedpur, India.

At the executive level, increased emphasis is being placed on 'on-the-job learning' through participation in cross-functional taskforces, role enhancements and improvement initiatives, and by encouraging executives to undertake special projects that have clear performance metrics and deliverables. A number of our senior executives were also selected to attend leadership development programmes at some of the world's foremost business institutions.

An inclusive and diverse workforce

We believe as a matter of principle that diversity within the workforce greatly enhances our overall capabilities. In all our global operating locations, we pride ourselves on being an equal opportunity employer and do not discriminate on the basis of race, caste, religion, colour, ancestry, gender, marital status, sexual orientation, age, nationality, ethnic origin or disability. Employee policies and practices are administered in a manner that ensures all decisions relating to promotion, compensation and any other forms of reward and recognition are based entirely on merit.

Any alleged violation of the equal opportunity policies is investigated and acted on through a formal grievance process and where concerns are valid, appropriate action is taken.

In India, we are pioneering a special initiative known as 'Tejaswini' ('spirited woman') to help transform the lives of less well-educated and underprivileged female employees. Women who previously had no skills are now being trained to operate and maintain mobile equipment, and to become welders and fitters. With continuous support and guidance provided by our business leaders, human resources and the union, a growing number of participants have been able to progress in careers that they could not have aspired to previously.

Open and continuing dialogue

Clear, honest, two-way communication between management and employees at all levels is intrinsic to the culture of the Tata Steel Group. In India, the joint consultation system has been in place for more than 50 years and has matured in scope from a purely consultative mode to a partnership mode. Any issues relating to the progress, plans and prospects of the business are discussed openly and with a sense of shared purpose among senior management and employee representatives.

Mutual trust based on openness and transparency is equally ingrained in the performance culture of our European operations. Consultation processes continue to follow well-established practices, though the volume of consultation increased significantly in the second half of the year as the impact of the global downturn on our business became more acute.

Our European Works Council meets on a regular basis, and we have consultative structures and processes at country and business unit levels. In the UK, an information and consultation agreement with national unions provides a framework for consultation on strategic issues and for regular updates on business performance.

Employee communications forums including union and shop floor representatives assist in improving the cascade of key business messages and campaigns at all levels of the organisation.

In addition to day-to-day business communication, we are constantly seeking to improve our systems to provide effective and responsive two-way communication.

Building upon the engagement tools already developed and deployed extensively through 2009, a series of employee surveys on engagement are planned, culminating in a full engagement survey in 2011. The outcomes of the survey will form the basis of employee engagement action plans for each area.

In Europe we have also established guidelines on how to conduct an employee survey, which is required at least every other year, and to include some 20 core questions so that responses and satisfaction levels can be compared across our operations. Going forward we intend to introduce questions relating specifically to the five Tata core values.

The battle for talent

Unfortunately, due to the economic situation in Europe, the number of new places offered to graduates and apprentices in 2009/10 was considerably lower than in previous years.

Many newly qualified graduates found themselves unable to find employment after their studies. Although full-time graduate positions were not available, where possible a period of work experience (placement or internship) for technical or engineering students was offered in its place – some of which were supported by government schemes or subsidies.

Sefali, loco driver, raw material management division, Jamshedpur, India.

The UK government also tightened up regulations for immigration, making it more difficult for students and experienced individuals from overseas to take up employment within the country. This looks set to be an issue going forward and discussions with government are continuing.

Despite the poor market conditions, for the second year running Tata Services Ltd, Mumbai, ran the Tata Crucible Business Quiz in the UK. One hundred and forty students from 15 universities attended the event at Imperial College London in November. The quiz is a major event in Asia, having run in India for the past five years and in Singapore twice. It is designed to test students' business knowledge and introduce them to the Tata family of businesses. The top two winning teams were invited to compete in the world finals in Mumbai in early 2010. The event provided a great opportunity for talented students and Tata employees to meet.

Dave Hanlon, principal scientist, steel metallurgy (right) and Maurice van Giezen, automotive marketing manager, who worked together to develop our advanced high-strength steel, DP 800 HyPerform®.

What we offer our customers

Our aim is to work exceptionally closely with our customers to develop and deliver products and solutions that will help them create additional value and sustainable growth.

In 2010, Tata Steel in Europe began to refocus its operations around the market sectors it serves.

Our key market sectors are:

- Automotive
- Construction
- Energy and power
- Lifting and excavating
- Rail
- Packaging
- Industry portfolio (which includes aerospace, consumer goods, defence, engineering and shipbuilding).

Automotive

Our advanced high-strength steels (AHSS) have already helped reduce the weight of an average car by 60kg. Lighter cars consume less fuel and so emit less CO_2. Life-cycle assessments by the World Steel Association (worldsteel) show that for every 1kg of AHSS used, 8kg of CO_2 is saved over the life of the vehicle. This equates to a total reduction of 2.2 tonnes of CO_2 for an average car today, more than offsetting the total CO_2 emitted in the manufacture of the AHSS.

Construction

Steel buildings are inherently highly adaptable and offer great scope for sustainable innovation. Steel's relative lightness means buildings can easily be extended. Steel structures can be unbolted, reconnected, modified, repaired, re-used and recycled.

Steel construction generates very little waste, and what there is can be fully recycled. Onsite steel construction is clean, dust-free, comparatively quiet, and requires relatively small volumes of materials. Prefabrication of building units and modules is increasingly being used, and steel is ideal. Factory manufacture ensures high quality under controlled conditions and is also safer, faster and more efficient than site working. It also reduces site construction times, minimising the impact on surrounding communities.

Steel's lightness compared to other structural materials can be exploited to create resource-efficient structures and buildings. Our tubular steel sections, available in a wide range of round, rectangular and square forms, have a higher strength to weight ratio than conventional sections, enhancing design flexibility and structural efficiency, and reducing costs. In India, our Tata Structura brand has allowed architects and engineers to challenge the conventions of traditional building design. Tata Structura was used in construction of the stadiums for the 2010 Commonwealth Games in Delhi and has also been used in the modernisation of many of India's airports.

Most of the carbon dioxide (CO_2) generated by a building is a result of the energy consumed during its occupation. Our cladding systems provide thermally efficient building envelopes that achieve high levels of thermal insulation and air tightness.

Tata Steel Colors has become the first steel company to be certified to BES 6001 Responsible Sourcing standard for construction. The certification is for Colorcoat® products manufactured at Shotton in Wales. A new and improved range of Colorcoat®

Cogent Power

Cogent Power Inc., Tata Steel's electrical steels business in Canada, has developed a more efficient and reliable distribution transformer core that is helping their North American utility customers meet growing demands for efficiency. Working strategically with one of their major customers, Camtran Inc., the Cogent team revived plans originally initiated in the nineties to develop a manufacturing process for amorphous cores. Together, they designed a highly successful distribution transformer, securing a long-term contract with BC Hydro and enabling Camtran to expand its product offer. The results are a market-beating core and sales that have grown from 20mt in 2008 to 1,300mt in 2010, as well as strong differentiation in a mature market.

products was launched in 2009/10, and can reduce lighting requirements, support renewable technologies and facilitate water harvesting.

In Singapore, offsite fabrication of our construction products such as wire mesh and reinforcement bars helps to minimise site material wastage and improve working conditions and safety on construction sites as well as reducing congestion in the crowded city environment.

Steel plays a significant part in meeting the sustainable energy challenge.

In rural India, Tata Steel was the first to introduce a dependable and transparent distribution network to supply millions of people with a quality-assured and affordable galvanised roofing material called Tata Shaktee.

Energy and power

Meeting the world's ever-growing need for energy in a sustainable way is a huge challenge that requires innovative thinking and contributions from many industries. Steel continues to play a significant part in addressing that challenge.

Electrical

Electrical steels are increasingly being incorporated into renewable energy technologies, and we are working with our customers to develop more energy-efficient transformers and electrical steel grades for traction motors in hybrid vehicles and wave power generators.

Oil and gas

Extracting oil and gas from ever-deeper offshore fields demands continuous improvement in our linepipe technology. In securing a £200 million (US$303 million) contract to supply over 55km of pipeline for Total's Laggan and Tormore fields off the Shetland Islands, our mills are producing hundreds of thousands of tonnes of pipes, manufactured to a degree of precision measured in points of millimetres.

Solar

We have developed an advanced structural support system for mounting solar panels. Working in partnership with Screwfast Foundations Ltd, one of Europe's leading foundation designers, we can offer customers a turnkey solution from design and manufacture through to installation, enabling the rapid and cost-efficient completion of solar PV systems.

Lifting and excavating

The world's primary industries, from agriculture to mining, need robust and powerful equipment to keep them moving. And the bulk of the components for cranes, forklift trucks, earthmoving, harvesting and lifting machinery is made of steel.

Our Special Profiles plant in Skinningrove in the UK typically supplies around 100kt of track shoe long bar each year to Caterpillar, the world's leading manufacturer of heavy construction and earth moving machinery, in the UK, USA, Brazil, Canada and China. In late 2008, with global demand dropping sharply, we proposed a radical supply chain solution to enable Caterpillar to react quickly as global demand dropped.

Key elements included optimised container loading and lead time reduction, feedstock rationalisation, and a new stock facility in the USA capable of offering 24 hour delivery.

The benefits for Caterpillar included inventory savings of several million dollars. For us, it meant a significant reduction in working capital and a closer customer relationship.

In India, Tata Agrico, pioneers in traditional agricultural equipment, successfully entered the fast growing Indian hand tools market in 2009. This was followed by its first step in the mechanised farm equipment sector with the launch of a rotary tiller.

HyPerform

Development on our Dual Phase (DP) 800 HyPerform® advanced high-strength steel began four years ago, and in 2009 this product became the first of its kind to reach the market. Created in close collaboration with our customers, its exceptional combination of strength, formability and weldability enables it to compete with a more expensive type of steel known as TRIP for lightweight crash-resistant automotive parts.

'Nowadays, quality alone is not enough and that is why we need to keep talking with automotive designers,' explained Maurice van Giezen automotive marketing manager. 'We have an ongoing and very productive dialogue with virtually all the major names.'

BMW's Dr. Johann Högerl said: 'DP800 HyPerform offers the mechanical properties we were looking for and reliable manufacturing methods. The continuing collaboration and close contacts between Tata Steel and BMW were instrumental in ensuring the successful completion of HyPerform's development.'

DP 800 HyPerform® was awarded the European Tata Innovation Award in 2009.

Rail

Rail is one of the most energy-efficient and sustainable forms of transport. Tata Steel has a long history of supplying high-quality track infrastructure, and offers a wide range of other components in this sector.

In Hayange, France, we have committed to invest €35 million (US$47 million) in our plant. This has helped us secure a €350 million (US$470 million) long-term contract with French railway operator SNCF to make 108-metre rails for the renewal and maintenance of the French railway network, while also securing jobs for the workforce in an economically-depressed region of France.

Packaging

We work closely with our customers to continue to optimise the design and manufacturing process for steel packaging. Our expertise in simulating material behaviour using computer models allows us to identify material gains – for example by reducing the weight of aerosol can ends by up to 30% – which can generate significant added value for the customer.

Packaging recycling

Steel is 100% recyclable and its magnetic properties make it easy to separate from the post-consumer waste stream. Globally, more than two out of every three steel cans are recycled after use – preventing 13 million tonnes of CO_2 being released into the atmosphere. This exceeds recycling rates for plastic and aluminium, the two most common alternative packaging materials. In the Netherlands, more than 85% of all steel packaging is recycled – much of it at our IJmuiden site, which turns the steel waste into new high-quality steel through its basic oxygen steelmaking process.

In the UK, we have a dedicated team responsible for managing compliance with packaging recycling regulations, and we are the country's largest issuer of steel Packaging Recovery Notes (PRNs). The Tata Steel Packaging Recycling team plays a central role in steel recycling within the UK, helping to fund recycling infrastructure, working with schools and via our educational resource website SCRIB to help raise awareness, and participating in nationwide recycling awareness campaigns such as 'Every Can Counts'. In 2009, the UK surpassed its national steel packaging recycling target of 54.6% and reached 58.16%. Members of the team also visited 25 schools in the UK in the past year to spread the recycling message.

Customised cut and bent solutions at NatSteel, Singapore.

Industry and portfolio

Tata Steel offers a wide variety of specialist products and services to industry and other areas of our portfolio, including aerospace, defence and consumer goods.

We continue to innovate in the field of defence and public security. Bi-Steel, a patented construction material with outstanding strength, is used to create blast protection structures and perimeter security barriers to protect against terrorist bomb attack. It is deployed in airports and around government buildings, and can be clad to blend in with the built environment.

The high integrity specialist steels produced in our Speciality Steels mills are used in major commercial and military aerospace projects around the world.

Improving through innovation

Steel continues to make a growing and sustainable contribution to improving living standards.

Steel is not only strong, durable and versatile, but it is re-usable and 100% recyclable. Much of the steel in use today will be re-used and recycled many times in the future, and more than 40% of the world's current production of 'new' steel is made from recycled steel.

Innovation in automotive

Almost all of the 52 million or so cars made each year around the world have a steel-intensive body. So steel has a vital role to play in achieving the 95% recyclability target required by the European Union End-of-Life Vehicles Directive from 2015 onwards.

Tata Steel has developed a number of tools and techniques to help its customers reduce material and energy wastage, including VA/VE Value Analysis/Value Engineering. Our software tool, Forming to Strength®, optimises the use of steel in components. Our advanced computer-aided engineering tool, In-Form™, is an innovative simulation technique that helps to minimise material and energy wastage and save on start-up costs.

Our nickel-plated steels, with their superior corrosion resistance, are used for fuel lines in low-emissions vehicles designed to run on biofuels or a mixture of gasoline and ethanol or methanol.

MagiZinc®, a hot-dip galvanised steel to which small amounts of aluminium and magnesium have been added, offers at least four times more protection against corrosion than conventional galvanised steel for the same coating thickness.

In May 2009, we launched our branded 'zero spangled' (lead-free) galvanised sheet and coils, Galvano, in India.

Tata Steel is participating in the World Steel Association's multi-million dollar 'Future Steel Vehicle' project to develop auto body concepts for alternative powertrains such as advanced hybrid, electric and fuel cell systems.

Innovation in construction

Steel roofing and cladding systems are being used to refurbish existing buildings to meet increasingly demanding legislative standards.

Installed as an additional skin on a building's southerly elevation, SolarWall® features a perforated transpired solar collector that uses the power of the sun to introduce naturally-warmed fresh air into buildings. It can be installed in new buildings or retro-fitted onto existing buildings, offering a cost-effective way of reducing carbon emissions while cutting heating bills by up to 50%.

Living Steel

Tata Steel is a member of Living Steel, a worldwide collaborative programme to stimulate innovative and responsible housing design and construction. As unprecedented urban population growth has placed pressure on infrastructure, communities and the

Engineering expertise in action.

Restello, a radical steel apartment project in Kolkata, India.

quality of people's lives, this has heightened the need for more efficient and responsible housing design. International architecture competitions and demonstration projects have generated global interest in the Living Steel programme, which has already featured schemes in India, Poland, Brazil, China, the UK and Russia.

Restello is a radical steel apartment project in Kolkata, India, designed by UK architect Piercy Conner, winner of the Living Steel International Architecture Competition in 2006. The project went to market early in 2010, and consists of 12 luxury apartments that use steel as the main building material and a design that incorporates elements of traditional Indian architecture and innovative sustainable practices.

The double layered 'skin' of the building consists of a permeable outer layer of perforated steel screens and an inner layer of floor to ceiling glazing. Along the front of the apartments and between these two layers lies the additional feature of double storey terracing. In the high moisture content of the Kolkata climate, the steel will act as an effective barrier to both sun and rain, maximising natural light and maintaining external views. In using steel to construct the Restello project, the architect expects to save the new homeowners time, energy and money when it comes to long-term maintenance.

The steel used in the building is of a high grade, manufactured to international standards with Tata Bluescope Steel and Tata Steel. Galvanised and painted steels are used for corrosion protection and to ensure a long life for the apartments.

Energy-neutral buildings

We have led the market in the UK and continental Europe with our Confidex Sustain® carbon neutral building envelope concept. For every 1kg of CO_2 emitted by the pre-finished steel, cladding, fixings and insulation, Tata Steel has pledged to offset 1kg in climate-friendly projects overseas through The CarbonNeutral Company. To date, we have offset over 1,150,000 square metres of building envelope which equates to 29,120 tonnes of CO_2, and our EPD (Environmental Product Declaration) model for Confidex Sustain has been recognised by BREEAM, the UK's Building Research Establishment Environmental Assessment Method.

Products and innovations from our Netherlands-based construction centre aim to demonstrate that buildings can save or generate enough energy to compensate for their construction. These include Thermo Active ceilings and floors – strong thin walls and low ceilings using the metal's conductivity to help regulate heating and cooling. Comfort Vite, a 'heating wall' which eliminates the need for unsightly radiators through the use of a steel profile embedded within the wall, offers energy-efficient space heating. A new ceiling system, EMC^2, takes advantage of the conductivity and shape of steel decking to allow heat to be buffered and exchanged, keeping fuel costs low and regulating the internal temperature of a building.

In the UK, Tata Steel is working in partnership with the Welsh Assembly Government and the Low Carbon Research Institute on the creation of the Sustainable Building Envelope Centre to help develop and showcase the latest in heating and energy-saving technologies for buildings

In conjunction with the British Constructional Steelwork Association, we published the first Target Zero Guidance Report in early 2009.

We are working in partnership with the Australian company Dyesol on an exciting emerging photovoltaic technology.

This is the first project of its kind to undertake a detailed comparison of different energy efficiency measures, low or zero carbon (LZC) technologies and allowable solutions in order to identify the most cost-effective means of achieving carbon reduction in schools. Further guides will be published on supermarkets, warehouses, offices and mixed-use retail/residential complexes.

We were also the first to introduce Thermo Mechanically Treated (TMT) rebar, under the brand name Tata Tiscon, in India, where it is now the leading rebar. Tata Tiscon High Ductile and Super Ductile steels offer outstanding structural stability for developments within seismic zones. Their capacity to absorb large amounts of energy and to bend without breaking helps to build stronger, safer developments within earthquake zones. During the year under review, NatSteel Xiamen in China led a series of training sessions for its employees on earthquake resistance to enhance understanding of these premium products.

Innovation in energy and power

Steel is playing an essential role in creating a more sustainable energy mix.

Wind, wave and tidal

We supply a number of specialist products to the growing wind, wave and tidal energy sectors – for example, speciality engineering steels for gears, bolts and bearings for wind turbines, and electrical steels for converting kinetic energy from the wind into electrical energy. Our steel plate is used for wind towers, wave energy converters and tidal power generators.

Innovation in the lifting and excavating sector includes a grade breakthrough in the hardness of heavy duty wear plate.

We have recently unveiled plans for a £31.5 million (US$47.7 million) manufacturing plant in Teesside to produce steel foundation structures for offshore wind turbines. The plant will contribute to the UK government's aim of generating 35 gigawatts of electricity – around 15% of the country's total energy requirements – from offshore wind turbines within the next decade.

Photovoltaics and solar

Tata Steel is working in partnership with the Australian company Dyesol on an exciting emerging photovoltaic technology known as dye solar cell, or DSC, that mimics photosynthesis in plants.

The goal of this ambitious three-year project is to develop, manufacture and market metal roof and wall cladding products with DSC functionality integrated into the strip steel. A dedicated R&D facility, including a pilot production line, has been built at our site in Shotton, Wales.

Kalzip, our specialist aluminium roofing business, has developed AluPlusSolar, an integrated roofing sheet with a flexible thin film laminate containing a highly efficient solar energy technology known as triple junction amorphous silicon photovoltaic.

Lifting and excavating

Our Long Products plants at Dalzell and Clydebridge in Scotland specialise in quench and tempered plate – a particularly hardwearing, high-strength grade used in mining applications. Hardness is measured in 'Brinell' and, until recently, the hardest grade produced by Tata Steel was 400 Brinell and branded as ABRAZO® 400.

Working with a major fabricator of mining and other heavy equipment in Chile, we have successfully developed ABRAZO® 450 wear plate at 450 Brinell hardness. This is a significant breakthrough for us in terms of our offer to the lifting and excavating sector.

Innovation in rail

Our Silent Track® is a world-leading rail noise reduction solution that is helping to cut noise pollution on railways.

Innovation in packaging

Steel packaging is strong, lightweight, and completely protects its contents from light, air and water. Used to package food, it maintains the condition of nutrients without the need for additives and preservatives. It also reduces greenhouse gas emissions over the entire life cycle, particularly when compared to food preparation by freezing, and the long shelf life of canned food reduces waste.

Our innovations in steelmaking and manufacturing technologies focus on the development of ever-lighter steel packaging solutions. These reduce the carbon footprint by using less raw material and energy to produce and transport. The weight of a 33cl beverage can has been reduced by 40% compared to 30 years ago and the average 425ml food can is now 35% lighter than 20 years ago.

Our packaging division is also improving its performance and quality standards through the application of statistical process control – a systematic way of measuring and monitoring all aspects of the manufacturing process to achieve exceptional process stability and move towards the goal of defect-free and consistent materials, thereby minimising waste and maximising efficiency.

Innovation in industrial applications

In July 2009, the Group's Bi-Steel business launched an innovative new system called Quick Link Lite – an interconnecting suite of vehicle barriers that can be installed rapidly and with minimum disruption in crowded locations to provide security against terrorist attack. Quick Link Lite is specifically designed to provide protection from small to medium sized vehicle-borne improvised explosive devices.

Manufacturers of countless products ranging from batteries, electrical appliances and office furniture to bakeware and decorative goods are served by our consumer products range.

Our innovations include a focus on quality in metal substrate for batteries to improve leak protection, corrosion resistance and electrical conductivity, and so help to make the batteries more durable.

Our Motiva® range of pre-finished steel products for domestic appliances are corrosion and heat-resistant to extend the life of white goods such as washing machines and fridges.

Hartlepool Tubes mill

At Tata Steel's Hartlepool 42 inch pipe mill, which manufactures thick-walled linepipe for performance-critical offshore oil and gas applications, computerised fast calculators have been developed to assess mill loading capability, to identify the root causes of problems in dies, and to improve mechanical properties. During the year, the mill produced the thickest 18 inch linepipe with the best-ever recorded roundness and significant improvements in microstructure, hardness and tensile strength.

Envirobond™ adhesive-coated metals are free of hexavalent chromium, helping automotive manufacturers comply with end-of-life vehicle directives.

Innovation in our technology and processes

During the last two years, a number of process improvement teams (PITs) have been operating across the Group to share best practices globally and drive plant performance to world-class benchmarked levels.

Covering raw materials, ironmaking and steelmaking, these teams have generated numerous improvements in areas such as increased iron-based recycling, longer vessel life in steelmaking, increased caster speed at Jamshedpur, increased hot rolled coil weight performance, reduced weld breaks in cold rolling, increased yield and reduced zinc in galvanising, and reduced strip breaks in tinplate at Trostre, Wales.

Motiva® pre-finished steel is corrosion and heat-resistant to extend the life of white goods. Image courtesy Electrolux.

Performance summary

As a measure of our commitment to corporate citizenship, we have selected a number of indicators to monitor and communicate the health, safety and environmental performance of our Group activities. Our efforts to improve performance in these areas, as well as others, are detailed within the relevant sections of this report.

This report covers Tata Steel Group activities from 1 April 2009 to 31 March 2010, which is the financial year-end. The scope of reporting includes all wholly owned subsidiaries of the Tata Steel Group operating within the ferrous metal and mining sector.

Health and safety data is reported for nearly 100% of all sites. Environment data is reported for our 50 main ferrous metal manufacturing facilities including five integrated steelworks, five electric arc furnace steelworks, and 40 downstream non-steelmaking manufacturing facilities. The detailed scope of reporting for the health and safety and environment data, including instances where data has not been reported, is shown in the performance summary table below.

Environmental Resources Management (ERM) has provided independent assurance as to whether key selected safety and environmental performance data is appropriately reported.

The Tata Steel Group also reports to the World Steel Association on 11 sustainability indicators and to the independent Carbon Disclosure Project on climate change data.

	2009/10	2008/09	2007/08	SCOPE & REPORTING THRESHOLD
HEALTH & SAFETY DATA				
Fatalities (employees and contractors)	5	8	12	[1]
Lost time injury frequency rate (LTIF) [A] Number of lost time incidents per million hours worked Employees and contractors	0.95	1.38	2.11	[1]
ENVIRONMENT DATA				
Carbon dioxide emissions World Steel Association scope in million tonnes CO_2 [B] Direct (Scope 1) emissions Total (Scope 1 + 2+ 3) emissions Carbon intensity in tonnes of CO_2 per tonne of crude steel produced	 37.3 44.0 2.14	 38.4 43.7 2.11	 41.1 48.5 2.05	[2]
Energy intensity World Steel Association scope in GJ per tonne of crude steel [B] Blast furnace route Electric arc furnace route	 23.85 10.94	 23.74 10.10	 22.70 10.42	[3]
Mass emissions to air thousand tonnes [C] Total particulates [D] Oxides of nitrogen (NO and NO_2 as NO_2) Sulphur dioxide (SO_2)	 23 25 33	 21 27 35	 24 29 36	[4] 10 tonnes 100 tonnes 100 tonnes
Mass emissions to water thousand tonnes [C] Hydrocarbons Suspended solids	 133 1.9	 283 2.6	 173 2.6	[4] 0.1 tonnes 1 tonne
Waste thousand tonnes [C] [E] [F] [G] Material disposed of to landfill Material disposed via other routes Material re-used, recycled or recovered by third parties	 815 62 527	 910 77 472	 1,186 112 501	[4]
Material re-used through our processes thousand tonnes [E]	7,062	5,421	5,938	[4]
By-products of our processes used by other sectors thousand tonnes [F] [H] Blast furnace slag Steelmaking slag Electric arc furnace slag Tar and benzole Other	 5,254 2,134 306 297 184	 5,370 2,316 361 364 119	 5,623 2,701 381 382 127	[4]

[A] LTI was previously recorded on day three of absence for TS India during 2007/08. NatSteel Holdings has re-defined its systems to measure LTIF across all its operations in 2009/10. Data for 2008/09 has been retrospectively corrected in this report to include its downstream non-steelmaking operations in Australia, China, Thailand and Vietnam. Data for 2007/08 only includes its operations in Singapore.
[B] World Steel Association scope developed in line with Greenhouse Gas Reporting Protocol and reports only CO_2 Scope 1, Scope 2 and Scope 3 emissions. Full definitions and calculation methodology available at www.worldsteel.org/climatechange
[C] Calculation methodology is based on the UK Environment Agency's Pollution Inventory Reporting Guidance for Ferrous & Non-Ferrous Metals Activities.
[D] TS India has re-defined its systems to measure diffuse particulate emissions from its steelmaking operations in 2009/10. Data for 2008/09 and 2007/08 has been retrospectively corrected in this report to incorporate diffuse particulate.
[E] Data for 2008/09 and 2007/08 has been retrospectively corrected in this report to remove a calculation error.
[F] Material efficiency is reported based on its route to remove national differences in the definitions of waste and by-product.
[G] 48 out of 50 sites have reported. The 2 sites that have not reported the tonnage of material sent for disposal are downstream non-steelmaking facilities and are not material.
[H] Data for 2008/09 and 2007/08 has been retrospectively corrected in this report to remove quarries and mines from scope.
[1] TSG employees and contractors.
[2] TSG integrated steelmaking facilities only
[3] TSG integrated and electric arc furnace steelmaking facilities only
[4] TSG steelmaking facilities and downstream non-steelmaking facilities

Independent assurance report to Tata Steel Group

Tata Steel Group appointed Environmental Resources Management Limited (ERM) to provide independent assurance on selected safety and environmental performance data presented in its 2009/10 Corporate Citizenship Report.

Our brief

Environmental Resources Management Limited (ERM) was asked to provide independent assurance as to whether the following 2009/10 safety and environmental performance data is appropriately reported:

Safety

- Total number of fatalities (employees and contractors)
- Total lost time injury frequency rate (employees and contractors) per million hours worked

Environment

- Direct and total CO_2 emissions (tonnes)
- Carbon intensity (tonnes per tonne of crude steel)
- Energy intensity (GJ per tonne of crude steel)
- Mass emissions to air for particulates, sulphur dioxide (SO_2) and oxides of nitrogen (as NO_2) (tonnes/year)
- Mass emissions to water for hydrocarbons and suspended solids (tonnes/year)
- Total waste materials disposed of to landfill (tonnes)
- Total waste materials disposed via other routes (tonnes)
- Total materials re-used, recycled or recovered by third parties (tonnes)
- Total material re-used through Tata Steel Group processes (tonnes)

Our approach

Standards and criteria used

We delivered our work in accordance with ERM's assurance methodology which is based on the following international assurance and audit standards: ISAE 3000, ISO14064:3, and ISO 19011.

We planned and performed our work to obtain all the information and explanations that we believe were necessary to provide a basis for our assurance conclusions as to whether the reported information and data set out in 'Our brief' was appropriately reported, i.e. that nothing has come to our attention through the course of our work that the data is materially mis-reported (limited assurance).

We used Tata Steel's own definition of the selected HSE KPIs as assessment criteria when undertaking our data systems review work. These are presented in more detail in the Corporate Citizenship Report.

If we had been asked to conclude on whether the selected disclosures are materially accurate, we would have needed to conduct more work at corporate and site levels and to gather further evidence to support our assurance opinion.

The reliability of the reported information and data is subject to inherent uncertainties, given the available methods for determining, calculating or estimating the underlying information. It is important to understand our assurance conclusions in this context.

Our work

A multi-disciplinary team of environment, health and safety and assurance specialists performed work at group level as well as at four selected operational sites as set out below. Our assurance activities included:

- Face-to-face interviews with representatives from Group safety and environmental functions to understand and test the reporting processes and underlying data management systems for the selected data;
- Site visits at four operational sites (Tata Steel in Europe – Port Talbot Integrated Steel Works (ISW), Tata Steel India – Noamundi Iron Ore Mine, Tata Steel Thailand – Siam Construction Steel Company, and NatSteel Holdings – Singapore Electric Arc Furnace) to interview data owners to understand the data measurement, collection, aggregation and reporting processes in place for each of the selected data; and review of relevant supporting documentation;
- Discussion of our assurance findings with management as they arose to provide them with the opportunity to address them prior to finalisation of our work; and
- Review of the presentation of the selected data in the Report related to 'Our brief' to ensure consistency with our findings.

Respective responsibilities and ERM's independence

TSG management is responsible for preparing the Report and for the information in it. ERM's responsibility is to express our assurance conclusions on the agreed brief.

During 2009/10, ERM has not worked with Tata Steel Group on other consulting engagements. ERM conducts strict conflict checks and has confirmed its independence to the Tata Steel Group for this assurance engagement.

Our assurance conclusions

Based on our work undertaken as described above, we conclude that in all material respects Tata Steel has appropriately reported within the various sections of the Report the selected safety and environmental performance data presented above in the 'Our brief' section.

Our key observations and recommendations

Based on our work set out above, and without affecting our conclusions, here are our key comments and recommendations for improvement.

Observations:

- Tata Steel Group has improved its performance in the past year in a number of areas particularly related to reduction in material/waste management, emissions to air and water, and lost time injury frequency rate for employees and contractors.

Recommendations for improvement:

- Tata Steel Group should continue to expand the scope of its environmental data reporting to cover all its significant activities, for example to include data from iron ore and coal mining operations in India.
- Tata Steel should further develop and communicate its policy and approach to accounting and reporting for the Corporate Citizenship impacts from its Joint Ventures.
- Tata Steel should also consider how the corporate citizenship impacts associated with expansion projects, including 'greenfield' developments, should be further reported on in future corporate citizenship reports.

Environmental Resources Management Limited London, UK,
17 March, 2011.

ERM

ERM is an independent global provider of environmental, social and sustainability consulting and assurance services. Over the past four years we have worked with over half of the world's 500 largest companies, in addition to numerous governments, international organisations and NGOs.

Glossary

Afforestation	Planting of new forests on land which has not historically been forest
AHSS	Advanced High Strength Steels, a family of steels used in automotive solutions
Beneficiation	Crushing and separating of ore into valuable substances and waste
BF	Blast furnace
BOS	Basic oxygen steelmaking
BRE	UK Building Research Establishment – an independent research-based consultancy
BREEAM	BRE's Environmental Assessment Methodology for rating the environmental performance of buildings
Carbon intensity	In this report, the amount of CO_2 emitted as a consequence of producing a tonne of crude steel (worldsteel framework)
Carbon leakage	Relocation of manufacturing from more highly regulated areas of the world to less regulated areas in respect of carbon dioxide emissions
Carbon offsetting	The process of investing elsewhere in initiatives that either reduce emissions of greenhouse gases or sequester atmospheric carbon, thereby compensating for one's own emissions
CO_2	Carbon dioxide, a gas released in combustion and other industrial processes, which contributes to the enhanced greenhouse effect
Collective bargaining	A negotiation method between organised employees and their employer(s)
Corporate citizenship	Conducting business with responsibility, integrity and respect; ensuring a safe, healthy and fair workplace, protecting the environment, caring for communities and maintaining high ethical standards
Corus	The former name (until September 2010) of Tata Steel Europe Limited
Crude steel	First cast product suitable for sale or further processing

Diffuse emissions	Those that are not released from a chimney (point source), for example lift-off from stockyards and roads
Downstream non-steelmaking operations	Secondary physical and chemical processes to convert cast steel into steel products by rolling, drawing, forming, annealing, galvanising or coating
EAF	Electric arc furnace
EMS	Environmental management system
Energy intensity	In this report, the amount of energy consumed in order to produce a tonne of crude steel (worldsteel framework)
Environmental Product Declaration	A declaration provided with a product including information such as the product's LCI
Eurofer	Confederation of European Iron and Steel Industries
EVD	Economic value distributed, the monetary value distributed to society as a result of an organisation's activities
Freedom of association	The right to get together for a legal common cause without interference
GHG (Greenhouse gases)	Gases which contribute to global warming, such as CO_2
Global Compact	United Nations strategic policy initiative to promote business commitment to human rights, labour, environment and anti-corruption
Greenfield	Agricultural, forest or undeveloped land being considered for commercial development
Greenhouse Gas Protocol	International tool used for accounting and reporting greenhouse gas emissions
HSMS	Health and safety management system
INCA	Industry and Nature Conservation Association
Indigenous communities	Politically underprivileged communities, who share an ethnic identity different from that of the majority in power, and who have been an ethnic entity in the locality before the present ruling group took power

IOSH	Institute of Occupational Safety and Health
ISO 14001	International environmental management system standard
ISO 9001	International quality management system standard
Key performance Indicators	Parameters which are important indicators of how well we perform
LCA	Life-cycle assessment, a method of identifying the environmental impact of a product throughout its entire life cycle
LCI	Life-cycle inventory, a part of LCA
LTI	Lost time injury – a work-related injury which results in a person being unfit to perform any regular job or restricted work, recorded against the date of the occurrence
LTIF	Lost time injury frequency – the number of lost time incidents per million hours worked
Milieudefensie	Friends of the Earth Netherlands, a non-governmental environmental organisation
MoniCA	CO_2 monitoring and benchmarking system developed by Tata Steel Europe
NO_x	Oxides of nitrogen, compounds that contribute to acidification
NO_2	Nitrogen dioxide, one of the oxides of nitrogen
OHSAS 18001	International occupational health and safety management system standard
Photovoltaics	The technology used to generate electricity from solar energy
PM10	Particulate matter less than 10 microns in diameter
Process safety	The design, operation and maintenance of installations and equipment to prevent major incidents
Product stewardship	The process of taking responsibility for the impact a product has after it has left the factory gate

Responsible procurement	The process of taking responsibility for the sustainability of a supply chain
ROIC	Return on invested capital – a measure of how effectively an organisation uses the money invested in its operations
Scheduled Castes and Scheduled Tribes	Marginalised Indian population groupings, explicitly protected by the Constitution of India
Slags	Secondary products from ironmaking and steelmaking
SO_2	Sulphur dioxide, a compound that contributes to acidification
Social Accountability International	Global standard-setting non-profit human rights organisation
Tata Code of Conduct	Defines the ethical standards to be upheld by Tata companies
Tata Steel Rural Development Society	Runs socio-economic development programmes to enhance the quality of life in rural communities around Tata Steel's operations in India
TBEM	Tata Business Excellence Model, methodology to identify, understand and manage the effectiveness of our business processes
TQM	Total quality management
Tribal Cultural Society	Tata Steel society working for sustainable solutions to the concerns of marginalised communities near Tata Steel operations in India, primarily Scheduled Castes and Scheduled Tribes
Tata Steel Group	The Tata Steel Group comprises of four main business entities: Tata Steel Ltd, Tata Steel Europe Ltd, Tata Steel Thailand and NatSteel Holdings
ULCOS	Ultra-low CO_2 steelmaking European collaborative research project
World Steel Association	Also referred to as worldsteel, a non-profit industry association representing steelmakers worldwide

2009/10 Awards

The *Economic Times* Company of the Year Award

The Best Establishment Award from the President of India, Mrs Pratibha Devi Singh Patil

The Superbrand Award (Tata Tiscon)

The Golden Peacock Global Award

The Energy and Resources Institute CSR Award

The BML Munjal Award for excellence in learning and development

The *Times of India* CSR Award

One of the world's top 10 Most Admired Companies (Industry – Metals) in the *Fortune*/Hay Group annual survey

The Most Admired Knowledge Enterprise (MAKE) Asia Award

Rashtriya Khel Protsahan Puraskar - two awards for nurturing young sporting talent and establishing sports academies of excellence

Ispat Paryavaran Puraskar Special Award

UKTI India Business Award

Safety and Health Excellence Recognition, World Steel Association

Rated one of the world's 100 Most Sustainable Corporations by *Corporate Knights* magazine

The Abheraj Baldota Environment Award, Federation of Indian Mining Industries

Department of Industrial Work CSR Award (Thailand)

CSR Leadership Award in the Orissa State Safety Awards (India)

The Outstanding Award for Employee Relations and Welfare (Thailand)

The National Training Award for the 'Felt Leadership' training programme (UK)

First Employer of Choice (Industry sector) in the Intermediair annual survey (the Netherlands)

National first prize at the Metals, Minerals & Manufacturing Exhibition (India)

Satisfied Customer Product Award from the Fujian Association for Quality (China)

Quality Award for Training Excellence from the Thailand Productivity Institute

The Xiamen City Safe Workplace Enterprise and Top Employer Awards (China)

Good Environmental Governance in the Factory and Enterprise Award (Thailand)

Environmental Achievement Award (Singapore)

The Green Star Award from the Industrial Estate Authority of Thailand

Ministry of Industry Excellence in Manufacture Award for quality, environment and safety management (Thailand)

National Safety Awards to the West Bokara, Jharia and Sukinda mines (India)

The TERI CSR Award (India)

The significant achievement in sustainability certification from CII-ITC Centre of Excellence for Sustainable Development (India)

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