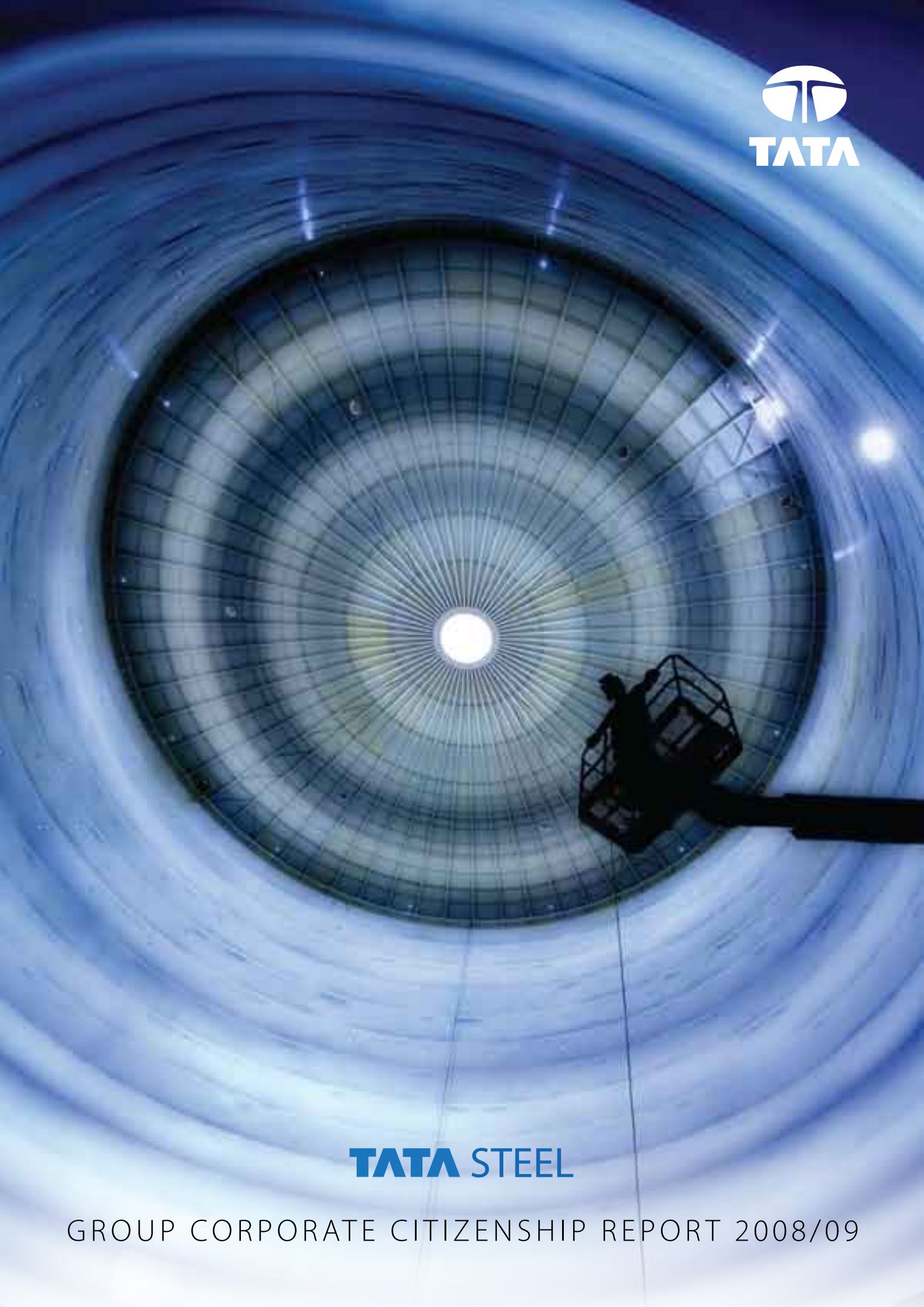

TATA STEEL

# GROUP CORPORATE CITIZENSHIP REPORT 2008/09

Care has been taken to ensure that all the information in this report is accurate, but the Tata Steel Group and its subsidiaries do not accept responsibility for any errors that it may contain.

The report has been prepared with the needs and expectations of all our stakeholders in mind and we welcome feedback, including suggestions that will help us to continue to improve. Please e-mail your comments or questions to corporatecitizenship@tatasteel.com.

**On the front cover:** Inside the gas holder – part of the BOS gas recovery scheme at Port Talbot, UK.
**On the back cover:** Section of offshore wind tower fabricated using products from Tata Steel Europe.

# GROUP CORPORATE CITIZENSHIP REPORT 2008/09



Top: The Fresh Flower pavilion, a steel structure created for the Festival of Architecture in London, 2008.

Middle: ICICI building, India's largest steel-framed building.

Bottom: The inaugural British Triathlon Disabled Championships, sponsored by Corus.


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The Tata Steel Group Corporate Citizenship Report 2008/09 was produced on behalf of the Tata Steel Group by Group Communications in conjunction with superscript.uk.com.

## Production capacity*

### Europe

Teesside 3.4 mtpa
Rotherham 0.6 mtpa
Scunthorpe 4.2 mtpa
Port Talbot 4.8 mtpa

IJmuiden 7.6 mtpa

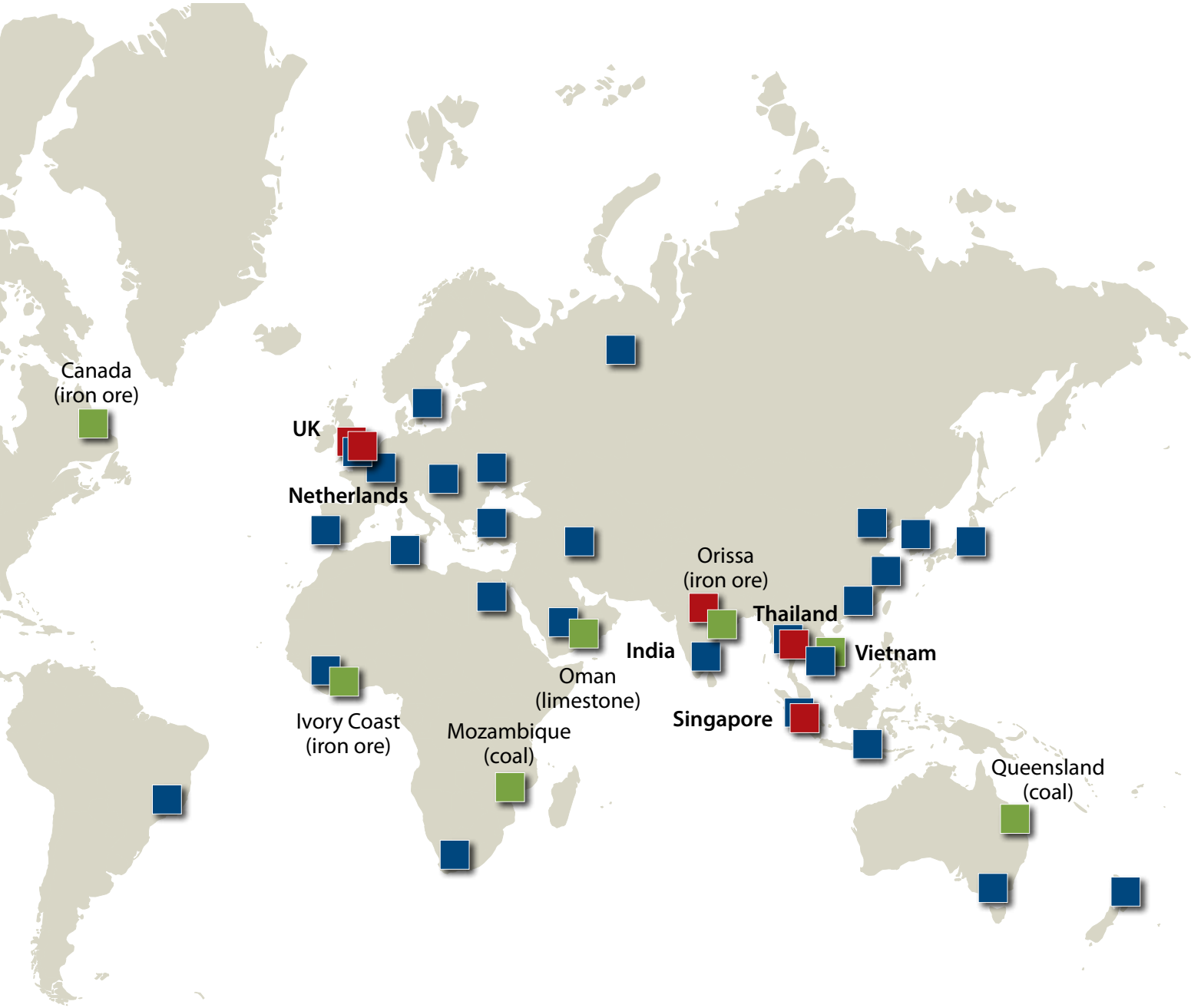
### Asia

Jamshedpur
6.8 mtpa

Thailand 1.7 mtpa

Singapore 0.8 mtpa

mtpa = million tonnes per year
* As at 31 March 2009.



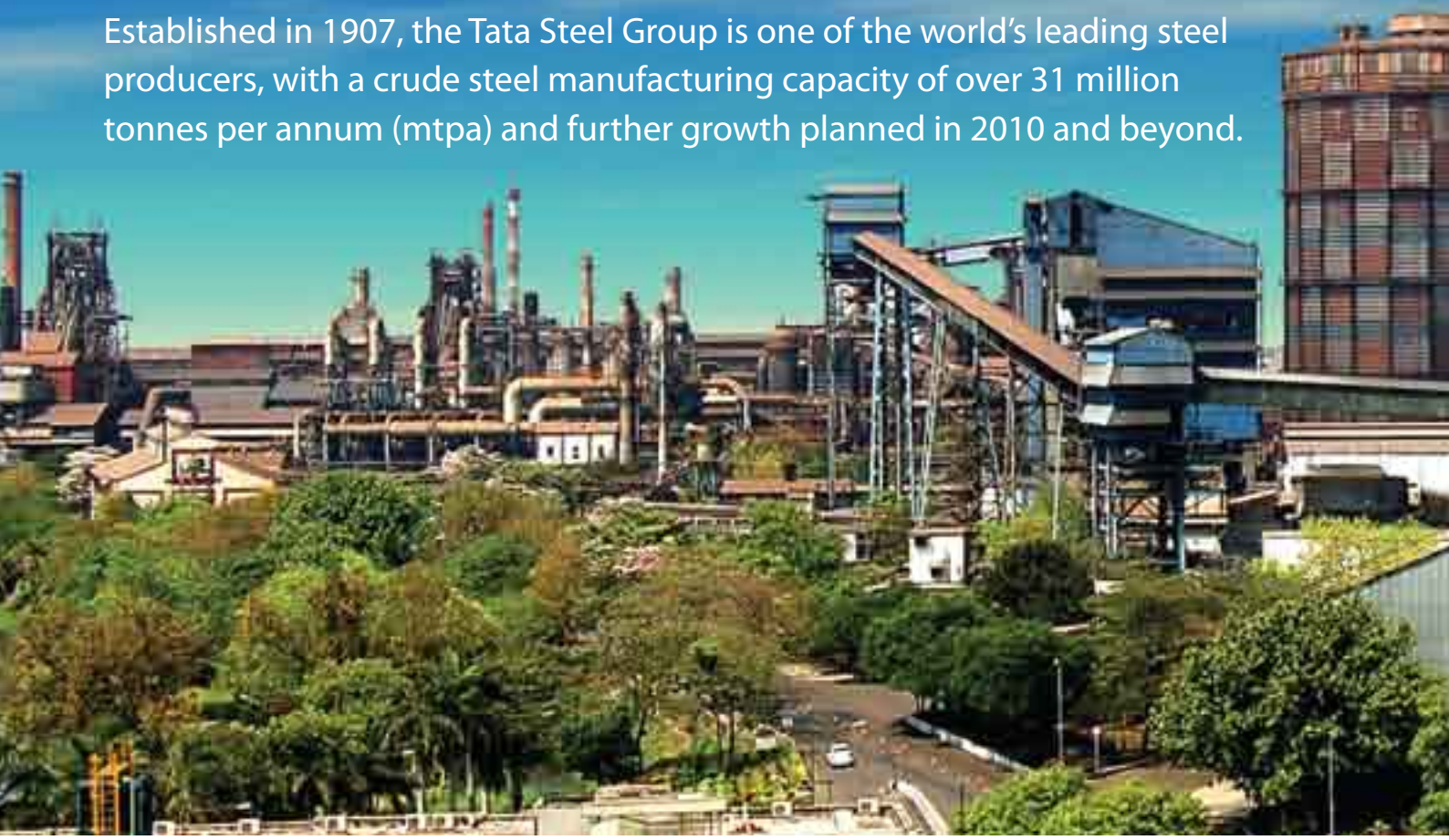

Steelmaking operations

Mining assets and greenfield projects

Regional distribution and commercial centres

# The Tata Steel Group

Established in 1907, the Tata Steel Group is one of the world's leading steel producers, with a crude steel manufacturing capacity of over 31 million tonnes per annum (mtpa) and further growth planned in 2010 and beyond.



*"This is to certify that Tata Steel Limited India has achieved outstanding performance by practising Total Quality Management utilising statistical concepts and methodology based on the company's excellent business philosophy and leadership as demonstrated by its senior management."*

**Certificate of award of the Deming Application Prize for excellence in Total Quality Management, 2008.**

A Fortune 500 company, the Group is the world's second-most geographically diversified steel producer, employing over 80,000* people across five continents in nearly 50 countries and serving a global customer base through its manufacturing operations in Europe, India and South East Asia.

## India

Tata Steel has a 6.8 mtpa crude steel production plant and finishing mills at Jamshedpur as well as a significant presence through its Tubes, Bearings, Wire, Ferro Alloys & Minerals divisions and Tata Growth Shop, which develops and manufactures specialist, high-precision industrial equipment. Capacity at Jamshedpur is being expanded to 9.7 mtpa by 2011.

Tata Steel is developing three new steelworks on greenfield sites in the states of Orissa, Jharkhand and Chhattisgarh, which will provide an additional capacity of 23 mtpa. The 6 mtpa integrated greenfield steel plant

* As at 31 March 2009.

The Tata steelworks at Jamshedpur, India.

project at Kalinganagar in the Jajpur district of Orissa is under construction.
www.tatasteel.com

## Europe

Tata Steel Europe Limited (which comprises Corus, acquired in 2007) is the second-largest steel producer in Europe, with a crude steel production capacity of over 20 mtpa* from five steelworks at Port Talbot, Rotherham, Scunthorpe and Teesside in the UK, and IJmuiden in the Netherlands. IJmuiden is the Group's largest steelmaking facility with a crude steel production capacity of 7.6 mtpa.

Tata Steel Europe has additional manufacturing operations in the UK, the Netherlands, Germany, France and Sweden, backed by a global network of sales offices and service centres, employing some 40,000* people worldwide.

In February 2009, Tata Steel Europe completed the disposal of its aluminium operations with the sale of its remaining primary smelting facilities at Delfzijl in the Netherlands and Voerde in Germany. In January 2009, the proposed sale of a majority stake in Teesside Cast Products to Marcegaglia SpA and Dongkuk Steel Mill Company Limited was announced and a non-binding Memorandum of Understanding entered into. This agreement was subsequently terminated.
www.corusgroup.com

## South East Asia

NatSteel Holdings is one of the largest steel producers in the Asia Pacific region. With headquarters in Singapore, it has more than 3,200 employees in Singapore, China, Thailand, Vietnam and Australia. It has a production capacity of 0.8 mtpa and delivers around 2 mtpa of high quality steel products for the construction industry. NatSteel has associate steel companies in Malaysia and the Philippines.
www.natsteel.com.sg

Tata Steel Thailand, which is 67.9% owned by the Group, has its headquarters in Bangkok and is the largest producer of long steel products in Thailand, with a manufacturing capacity of 1.7 mtpa. It is currently constructing a mini blast furnace with an annual production capacity of 0.5 mtpa.
www.tatasteelthailand.com

## New operations

A new ferro-chrome plant is in operation at Richards Bay, South Africa. In Vietnam, a greenfield development is underway in Ha Tinh province to build a 4.5 mtpa steel complex.

## Raw materials

Tata Steel owns and operates iron ore, coking coal and chrome ore mines in India and has signed an agreement with Steel Authority of India Limited to establish a 50:50 joint venture coal mining company. The Group continues to strengthen raw material supply security for its global operations through joint ventures in Thailand, Australia, Mozambique, West Africa, Oman and Canada.

* As at 31 March 2009.

# Vice chairman's statement

## Welcome to the Tata Steel Group's first global corporate citizenship report.

In India, Tata has been recognised as a driving force in corporate responsibility for over a century. As our business has grown internationally, people in many other countries have come to know what we represent.

Our stated purpose is to improve the quality of life of the communities we serve through leadership in major economic sectors – including, in the case of the Tata Steel Group, the global steel industry.

That vision was first articulated by the group's founder, J.N. Tata, and it still drives our activities, policies and ambitions today. It means being responsible and responsive at all times to our employees, to the citizens of the communities and the countries in which we work, and to the local and global environment.

### Sustainability

The principle of sustainable development involves using natural resources in a way that enables economic activity to flourish and people's living standards to improve – but without jeopardising the ability of future generations to enjoy the same benefits.

The Tata Steel Group makes a major contribution to sustainable development: through the 80,000 people we employ and the families this supports; through the wealth we create for all our stakeholders; through our investment in philanthropic activities to benefit society; through considerate and positive interaction with the communities of which we are part; and through the inherent social and environmental benefits of our products. We strive constantly to improve the sustainability of both our manufacturing processes and our finished materials.

B. Muthuraman, vice chairman, Tata Steel.

This commitment was recognised recently by the global consultancy company, Nielsen, which identified Tata Motors and Tata Steel as among the companies most admired by stakeholders for their corporate social responsibility (CSR) initiatives.

The Tata Steel Group is equally committed to respecting and safeguarding the natural environment and the biodiversity of areas in which it operates.

One project that has aroused considerable attention is our joint venture to construct a deepwater port at Dhamra on the eastern coast of India. Greenpeace and other environmental activists have voiced concerns about the project's potential impact on the olive ridley turtle. The project has received all necessary clearances, given after prolonged and thorough enquiry into all aspects of environmental impact. Full details are on page 34.

### Climate change

There is probably no greater challenge facing all of us on this planet than climate change.

Is the Tata Steel Group really concerned about climate change? It is indeed, because the global steel industry's $CO_2$ emissions are significant, and climate change could ultimately threaten our own manufacturing activities. But we also believe we have an important role to play in addressing the problem, because our high-strength steels and design solutions make it possible to produce lighter, more fuel-efficient vehicles and more energy-efficient buildings.

We have already halved the energy needed to make a tonne of steel over the last 40 years. We have now set ourselves a target of further reducing our $CO_2$ emissions by at least 20% within the next decade.

Our strategy for achieving this ambitious goal has five main elements:

- Reducing emissions through improvements to current processes such as the Port Talbot BOS plant gas recovery scheme.
- Investing in longer-term breakthrough technologies to bring about a step change in emissions per tonne of steel through, for example, our role in ULCOS (Ultra-low $CO_2$ steelmaking).
- Developing new products and services that result in lower emissions through the life cycle, such as, Advanced High-Strength Steels (AHSS); Confidex Sustain®, the cradle-to-cradle carbon-neutral building envelope; and high-efficiency electrical steels.
- Engaging all our employees in meeting the challenge.
- Leading by example within the global steel sector.

### Health and safety

Our aim is to be truly world class in ensuring the health, safety and wellbeing of our employees and onsite contractors.

While our lost-time injury frequency rate is improving, it is totally unacceptable that eight people died as a result of accidents on our sites in 2008/09, despite our determination to create a zero harm environment and culture. We are committed to doing everything we possibly can to ensure our workplaces are safe, and every incident and near-miss is investigated thoroughly to see what lessons can be learned for the future.

We are also encouraging our employees to adopt a healthier lifestyle. As one example: in 2008, we opened a Vitality Centre at our IJmuiden site in cooperation with a health insurance company and a health and safety services provider. This is now providing a considerable number of employees, identified during their regular medical check-ups as having potential health risks, with a tailored exercise and guidance programme.

Queen Beatrix of the Netherlands honoured Tata Steel Europe with a visit to IJmuiden on the occasion of the plant's 90th anniversary, when she officially opened the new Cold Rolling Mill 22.

### Ethical behaviour

Everyone associated with the Tata Steel Group, including our board of directors, employees, contractors and suppliers, is required to maintain high ethical standards at all times.

During the year under review, a comprehensive new Tata Code of Conduct was launched to reflect the increasingly global nature of our activities. The Code, along with posters and other communication materials, has been translated into numerous languages to ensure all our employees, contractors and suppliers worldwide are fully aware of its contents and our commitment to the highest corporate standards.

### Involvement in our communities

Community involvement is a characteristic of all Tata Steel Group sites around the world. It can take the form of financial support, provision of materials, or – perhaps most important of all – the time, skills and enthusiasm of our employees. We contribute to a very wide range of social, cultural, educational, sporting, charitable and emergency assistance programmes.

You will find many examples in this report, but just to mention a few:

- The work of the Tata Steel Rural Development Society in India.
- Personal time spent by senior executives in running charitable trusts and societies.
- The Tata Millennium Scholarship programme for higher education.
- The work over 30 years of UK Steel Enterprise, a wholly-owned subsidiary of Tata Steel Europe.
- Donations made in aid of victims of the earthquake in Sichuan province, China.
- Our sponsorship of Telstar and AZ football clubs in the Netherlands.
- A 'Stop Global Warming' tree planting initiative in Thailand.

### Customer relationships

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 applications that are responsive to their needs.

The needs of our customers and society as a whole drive our R&D programmes, in which more than 1,000 people are engaged at our research centres in Europe and India. In early 2009, for example, we signed an agreement with the German steel and technology company, Salzgitter, to extend and intensify our joint development work on High Strength and Ductility (HSD®) steels.

These advanced steels will have many applications. In the automotive sector, they will lead to safer, lighter and cleaner vehicles by improving crash resistance, reducing mass, and enhancing the engineering design of electrical and hybrid vehicles.

### Employer of choice

The Tata Steel Group invests heavily in all aspects of its business, but we know that our investment in people is the single most important factor in ensuring our long-term success.

We were not immune from the harsh effects of the global recession during 2008/09, and the severe fall in demand for steel products made job losses unavoidable, particularly in Europe. The company did everything possible to manage this difficult situation honestly and sensitively, and to achieve the necessary reductions through voluntary redundancies while ensuring that critical skills were retained. A comprehensive range of redundancy benefits and outplacement support services were provided to those who left the company.

The enduring principle is that our global workforce is without question our most valuable asset, and we continue to invest in attracting and nurturing talent, and developing the skills and capabilities of our employees. Through both buoyant and difficult economic times, we seek to be recognised as an employer of choice in all the countries where we operate throughout the world.

I truly believe that the Tata Steel Group represents a state of mind as much as it does a large steel company and industrial corporation. Our philosophy and principles, even more than our products, are what define us.

We are:

- A member of the Tata Group that is owned two thirds by public philanthropic trusts – something unique in a world that is increasingly characterised by private ownership and concentration of wealth in the hands of relatively few individuals.
- A company that believes society is not just another stakeholder in the business but is the very purpose of its existence, and that has practised 'inclusive growth' from long before the concept was adopted by the corporate world.
- A company with a work culture and ethics that are welcomed and respected in all parts of the world.
- A company that has had over 80 years of uninterrupted industrial peace created by an outstanding workforce which shares a special spirit of teamwork, adaptability, and personal growth and development.

This report provides a window on how the Tata Steel Group conducts its business, and contains many specific examples of how we endeavoured to act as good corporate citizens during the past financial year. I hope you find it interesting and encouraging, and any comments you may have will be welcomed in our continuing quest for improvement.

**B. Muthuraman**
Vice chairman, Tata Steel.

# The founding vision

**The Tata Steel Group is part of the Tata Group. Since its formation by Jamsetji Nusserwanji Tata in 1868, the Tata Group has consistently been run according to the principle that the wealth it creates should be returned to society.**

*"…we started on sound and straightforward business principles, considering the interests of the shareholders our own, and the health and welfare of the employees the sure foundation of our prosperity."*

**Jamsetji N. Tata (Founder, 1839-1904)**

J.N. Tata statue in Jamshedpur, India.

### Founding principles

The origins of the Tata Group, the parent company of Tata Steel, date back to 1868, when Jamsetji Tata founded a textile trading company in India. Later, he used the wealth generated for other pioneering industrial and philanthropic ventures, including the formation of an iron and steel company and the creation of Jamshedpur, the city at the centre of our Indian steelmaking activities, and now home to over one million people.

Since those early times, the Tata Group has been run according to the principle that the wealth it creates should benefit society. Today, two-thirds of the equity of Tata Group's holding company, Tata Sons, is held by philanthropic trusts. These have, over the decades, benefited a vast range of medical, academic, social and cultural projects and institutions.

The Group's stated aim 'to improve the quality of life of the communities we serve' is demonstrated constantly by our businesses around the world through their contributions to the communities of which they are part.

We believe this long-held Tata philosophy evokes trust and a sense of common purpose among our employees, our customers, our investors and our neighbouring communities. The Tata name is a unique asset representing leadership with trust, and this is our chosen route to sustained growth and long-term success.

### Core values

Five core values underpin the growth and business direction of the Tata Steel Group and define the way we conduct our business:

- **Trusteeship:** The wealth generated by Jamsetji Tata and his sons is held in trust for the people, exclusively for their benefit. What comes from the people goes back to the people many times over.
- **Integrity:** We conduct our business fairly, with honesty and transparency. Everything we do must stand the test of public scrutiny.
- **Respect for the individual:** We are caring and show respect, compassion and humanity for our colleagues and customers around the world. We promote equal opportunities.
- **Credibility:** We demonstrate responsibility towards employees, customers, business partners, communities and the environment, enhancing shareholder value.
- **Excellence:** We 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. We encourage innovation.

**Vision**

Our aspirations for the future reflect the same principles that have shaped our performance and progress for more than a century.

The Tata Steel Group's vision is to be the global steel industry benchmark for value creation and corporate citizenship.

We will reach this exceptional level of excellence through:

- Our **people** – by fostering teamwork, nurturing talent, enhancing leadership capability and working together with pace, pride and passion
- Our **offer** – by becoming the supplier of choice, delivering premium products and services, and creating value in close partnership with our customers
- Our **innovation** – by developing leading-edge solutions in technology, processes and products
- Our **conduct** – by providing a safe and healthy workplace, respecting the environment, caring for our communities and demonstrating high ethical standards.

**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 1.7 tonnes per tonne of liquid 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 are moving towards using the recently-devised World Steel Association (worldsteel) scope. As an indicator, 1.7 is the approximate equivalent of 1.9 under the worldsteel scope.

Above: Caring for communities – distributing mosquito nets in India.

Below: Nurturing talent – the Training Centre, IJmuiden, the Netherlands.

Left: Supplier of choice – delivering premium products and services.

# What does corporate citizenship mean to us?

Corporate citizenship means conducting business with responsibility, integrity and respect. This includes ensuring a safe, healthy and fair workplace, protecting the environment, caring for communities and maintaining high ethical standards wherever we operate.

*We are delighted that our efforts in being a responsible corporate citizen have been endorsed with inclusion of our company's name in the Dow Jones Sustainability Index. We are indeed proud to be ranked amongst the top ten per cent of leading global companies who meet the criteria of fulfilling their long-term economic targets along with achieving their environmental and social goals.*

**H.M. Nerurkar, managing director, Tata Steel Limited.**

### Group strategy and vision

In early 2008, the Tata Steel Group announced its vision to be the world benchmark in both value creation and corporate citizenship.

On value creation, the Group set a target to increase the return on invested capital (ROIC) of its existing assets to 30% by 2012 and to generate selective growth. To meet this target, the strategy is twofold:

(i) To increase the quality of earnings of existing assets, the Group will pursue the optimisation of its European assets, restructuring those that are of low profitability, and realising sustainable additional benefits through continuous improvement and synergies, while delivering outstanding products and services to our customers.

(ii) To generate selective growth, the Group will expand its capacity and secure access to raw materials. Capacity in India will be significantly increased through expansion of our current operations in Jamshedpur and construction of greenfield projects in Orissa, Jharkhand and Chhattisgarh. Raw material investment opportunities will also be pursued.

### Providing a safe place to work

Health and safety remains the Group's first priority, with clear objectives set and constantly monitored for health, process safety and occupational safety, including a target to improve lost time injury frequency to 0.4 or better by 2012. The Group takes an integrated and systematic approach to managing health and safety, which recognises that success can only be achieved by the visible commitment of leadership throughout the organisation and the personal engagement of all employees. Our health and safety systems globally have been developed with guidance from DuPont – recognised as world leaders in workplace safety and operational excellence.

### Respecting the environment

The Group wishes to be part of the solution to climate change and has set a target to reduce its carbon footprint to less than 1.7 tonnes of carbon dioxide ($CO_2$) per tonne of liquid steel[1] by 2012 through a combination of process improvements, breakthrough technologies and development of new, more energy-efficient products and services. Specific measures to achieve our challenging emissions target include:

- Major investments in basic oxygen steelmaking (BOS) gas recovery and back pressure valves at Port Talbot, UK and in a new ladle furnace at IJmuiden, the Netherlands;
- Burden optimisation – for example, through switching to pellet feed, increasing scrap ratio, reducing slag volume and increasing coal injection; and
- Smaller investments and 'good house-keeping' measures at sites, such as yield improvements, lighting efficiency and variable speed drives.

Steel products are essential to modern life and have significant benefits for the environment – for example, they are used in affordable and energy-efficient modular homes, and in lighter, stronger and safer transport systems. Steel is also 100% recyclable.

Through our research and development programmes, we are continuing to create new products that provide additional environmental and social benefits.
A number of brief case studies highlighting the environmental and societal advantages of our products in the construction, transport, packaging and energy markets are included in the *Sustainable Solutions* section (pages 38-45).

### Making a positive contribution to society

We make a significant contribution to society in a variety of ways: through the employment we provide and the tax revenues we generate; through the dependable products we develop and manufacture; and also through the ways we seek to interact positively with local communities and be a good corporate citizen. As a major international business, we maintain active and open dialogues with all our main stakeholders – customers, suppliers, employees, trades unions, investors, local communities, the media and the general public. We engage with each of these stakeholder groups in a variety of ways, examples of which can be found throughout this report.

Left: Stuart Suter, environmental technician, monitoring water quality in reedbeds, Port Talbot, UK.

1 1.9 t/tls under worldsteel scope. See footnote on page 9.

### Responsible procurement

There is growing interest in the concept of responsible procurement, and Tata Steel Europe is playing a leadership role in a number of multi-stakeholder initiatives to further define and quantify what responsible procurement means, in both a steel industry and a construction sector context. This initiative has brought together people representing all the links in the constructional steel supply chain. We have also contributed, through the Construction Products Association and the UK Building Research Establishment (BRE), to developing a sustainability standard on responsible procurement of construction products.

In India we work closely with Social Accountability International, applying their SA8000 standards to our procurement. Checks and measures ensure that our contractors and suppliers respect human rights in accordance with International Labour Organisation conventions, the United Nations Convention on the Rights of the Child and the Universal Declaration of Human Rights.

As a major company, we have the capability and the responsibility to ensure that our suppliers share our level of commitment to safeguarding the environment. In support of this principle, we use an internet-based supplier assessment tool to assist in screening prospective suppliers and to monitor and encourage continuous improvement of our existing suppliers' environmental performance.

### Product stewardship

We also recognise that our responsibility for managing environmental impact goes beyond manufacturing. The characteristics of our products, and the information that we provide to customers, can have a profound effect on the environmental performance and impact of our products during and at the end of their useful lives.

The sustainability of a building in terms of its material usage, construction, occupation and end-of-life is becoming an ever-more important consideration. We have produced a series of guidance documents to inform the market on best practice for the end-of-life of buildings clad with steel.

Using life-cycle assessment, we have quantified the whole-life performance of a number of our products and published environmental product declarations for construction products in partnership with our customers.

### Caring for communities

As a major employer in many regions around the world, we recognise that our operations significantly affect the communities in which we are located. We endeavour to play a

Freight terminal, Port Talbot, UK.

Presenting a cheque to the Society for the Physically Disabled, Singapore.


HIV/AIDS awareness session, Samarpita, Orissa, India.

very positive and responsive role in each of these communities. We contribute to many economic, environmental, social, educational and cultural initiatives by providing financial support and – equally importantly – by encouraging and supporting our employees' involvement in such local initiatives.
We recognise that their collective skills and enthusiasm can make a difference in our communities as well as in our operations.

At the end of March 2009, the Group employed over 80,000 people and helped sustain many thousands more jobs in contractor and supplier companies.

We believe we have a corporate responsibility to stimulate wider economic development, where appropriate, in regions where we have a significant presence.
For example, in the late 1990s, we decided to allocate around 100 hectares of our site in IJmuiden to boost regional economic development, and several dozen small and medium-sized companies are now established in the IJmond Business Park.

**Demonstrating high ethical standards**
Integrity and honesty are at the heart of our business dealings. We are introducing a new Tata Steel Group Code of Conduct that sets out a clear and detailed framework for the conduct of our business generally and the strengthening of our business integrity processes in particular.

We do not tolerate corrupt or fraudulent practices and demand transparency, integrity and honesty at all times from our employees, contractors and business partners. The tone is set through the commitment made by our most senior management and is integrated into the induction of new employees.

We take an integrated approach to managing the diverse risks which could affect our business. Potential risks are identified through techniques such as auditing, near-miss reporting and risk assessments. The process of minimising and managing risks is built into our management and reporting systems.
Our internal audit programme, our policies and our standards provide the structure for a robust compliance culture.

Internal assurance is achieved through an audit process designed to maintain rigorous controls and ensure completeness and accuracy of information. External assurance is maintained through our financial auditors, through accredited certifiers in relation to standards such as ISO 9001 and ISO 14001 and through the assurance of key HSE data in this report by Environmental Resources Management (ERM).

# Creating value

## Creating economic value for the benefit of all our stakeholders.

The Tata Steel Group's management approach combines a very disciplined financial planning and management system with a focus on the long term, rather than on short-term opportunism. We believe this approach 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 investing in numerous initiatives to create additional economic value through growth in capacity, innovation in technology and operations, and improvements in efficiency, integration and marketing.

The severity of the global economic downturn had a significant impact on the Group's business in the second half of the reporting period. Demand for steel declined by 26% in Europe in the third quarter compared to the previous year, and by the fourth quarter it had fallen by 57% in the UK and 44% in Europe compared with the previous year. Our Indian operations experienced a less dramatic fall in demand of 11% in the third quarter, with some encouraging signs of recovery emerging by the end of the year.

The Group has taken necessary steps to maintain its economic competitiveness in the face of this dramatic worldwide slump in demand through major initiatives in cost reduction, process improvement and production rationalisation. The highest priority is being focused on 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. It is regrettable but unavoidable that the need to restructure our manufacturing capacity in Europe has meant the loss of a significant number of jobs.

So from an economic viewpoint, this is an exceptionally challenging time for virtually all major industrial enterprises, but we are confident that we have the strategy and the people to emerge from it as a more competitive steel manufacturer with a stronger global presence and an enhanced capability in producing advanced steel products for our customers.

Despite the severe downturn, the Tata Steel Group still managed to deliver some outstanding economic results in 2008/09, to the benefit of all its stakeholders:

- Our global **steel deliveries** totalled 28.5 million tonnes (2007/08: 31.7 million tonnes)
- Our **turnover** reached a record US$29 billion (2007-08: US$26 billion)
- Our **earnings before interest and taxes** (EBIT) totalled US$2.79 billion (2007/08: US$2.78 billion)
- Our **return on invested capital (ROIC).** was 21% (2007/08: 20%)
- Our **capital investment including research and development** was US$1.84 billion (2007/08: US$1.78 billion).

In conducting its business around the world, the economic value distributed (EVD) to the Group's stakeholders during the year totalled US$27.9 billion (2007/08: US$23.9 billion). The distribution of this economic value is shown in table 1.

### 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.

*The Deming Application Prize*

Our commitment to quality was recognised in November 2008 with the award to Tata Steel India of the Deming Application Prize for outstanding performance in Total Quality Management (TQM). It is the first time this award has been granted to a steel company outside Japan, and the citation acknowledged 'the company's excellent business philosophy and leadership as demonstrated by senior management.'

The prime minister of Vietnam, Nguyen Tan Dung, visits Jamshedpur, India. Tata Steel has signed a deal to develop a cold rolling mill complex in Vietnam.

**Table 1** Economic value distributed to society

## Tata Steel Group

**Steel production**

Deliveries
**28.5million tonnes**

Turnover
$**29billion**

Earning before interest and tax
**$2.8billion**

### Economic value distributed in 2008/09

**Business Investment**
Capital expenditure
**$1.66billion**
R&D
**$184million**

**Employees**
Wages and benefits
**$3.53billion**

**Shareholders**
Dividends
**$251million**

**Contractors and suppliers**
Operating costs
**$22.21 billion**

**Providers of loans**
Interest payments
**$760million**

**Governments**
Income tax, other taxes and duties
**$1.13billion**

**Community Investment**
Contributions and donations
**$30million**

## Society

**Table 2** 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 | 453 | 2,935 | 72 | 16 | 3,534 |
| Shareholder dividends | 251 | – | – | 17 | 251 |
| Contractors and suppliers | 2,561 | 17,225 | 2,571 | 699 | 22,208 |
| Interest payments to loan providers | 299 | 432 | 16 | 8 | 760 |
| Government taxes | 1,054 | 17 | 10 | 8 | 1,131 |
| Community investments and donations | 15 | 15 | 0.26 | 0.10 | 30 |
| Economic value distributed (US$ millions) | 4,633 | 20,624 | 2,669 | 748 | 27,914 |

* Tata Steel Group numbers include other subsidiaries, joint ventures and consolidation adjustments.
Conversion rate 1 USD = Rs. 50.87

*It is because we have taken the first firm and sure steps towards quality movement and because a large number of people in the entire organisation are involved that we are being given this prestigious award. Our efforts to challenge the Deming Prize and the questions the Deming examiners asked us during the assessment process made us realise that we now have a tool and a system with which we can improve everything we do on a continuous and predictable basis.*

**B. Muthuraman, vice chairman, Tata Steel**

*Accelerating improvement*

With the integration of our European operations acquired in 2007, and continuing a journey towards TQM that began in the late 1980s, the Group established a Performance Improvement Committee to drive improvement on a continual and accelerated basis. Performance Improvement Teams are now in place across our business worldwide for iron-making, steelmaking, rolling, maintenance, distribution service centres and building systems. Each has identified its top three to seven key performance indicators (KPIs). Since July 2008, performance against these KPIs has been tracked and compared across sites.

Early successes include:

- High re-use of residual materials at Port Talbot
- Reduction in hot metal manganese at Port Talbot
- Bottom stirring at IJmuiden leading to improved converter life and yield
- Higher usage of Low Cost Carbon Source (LCCS) in the blend at IJmuiden, Port Talbot and Scunthorpe
- Vessel life improvement at Jamshedpur and Scunthorpe
- Blast furnace and coke ovens operating process for lower production levels developed and successfully implemented in Tata Steel Europe operations without compromising equipment.

*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 experts from other organisations within the Tata Group. In 2008, 20 employees from our European operations were trained as assessors. Working alongside Tata colleagues, they carried out assessments in organisations such as Titan Jewellery, Tata Refrigeration and Tata Technologies Limited. TBEM assessment of our European businesses will begin in the second half of 2009 and the entire Tata Steel Europe organisation will be assessed by 2011.

**Capacity expansion**

The expansion of our Jamshedpur plant to increase annual production capacity from 6.8 to 9.7 million tonnes by 2011 is being driven by growing consumer demand for our products. This additional capacity will enable us to supply good quality steel to more customers and to play an even larger role in the construction of public infrastructure in India.

Jamshedpur steelworks, India, by night.

### Improving product quality

The Indian specification – IS:1786 – for reinforcing bars (rebar) has not been significantly revised for 20 years. As a result, customers and manufacturers had settled for the Fe415 grade, while the norm in developed economies is the Fe500 grade rebar, which has superior ductility, bendability and thermal and corrosion resistance. Tata Steel decided to produce and market this higher specification product as a better alternative to Fe415. It took three years, from 2005 to 2008, to convert the Indian industry to Fe500, but the leading companies are now constructing buildings that benefit from the product's superior attributes. Tata Steel is the only rebar manufacturer in India to be accredited by CARES, the UK certification and technical approval body for the construction industry.

Reinforcing bars in India.

## Innovation

Our continuing mission is to produce better steels – and to produce them better. Innovation is one of the four key factors – along with our people, our offer and our conduct – through which the Tata Steel Group is pursuing its vision to be the global steel industry benchmark for value creation and corporate citizenship.

We are continuously seeking to strengthen our competitive position by identifying improvements in technology, processes and products, through a substantial and focused programme of research and development.

More than 1,000 people are employed at the Group's research and development (R&D) centres in Jamshedpur, IJmuiden, Rotherham and Teesside. These centres work on a wide variety of projects funded by the individual business units, as well as a number of strategic 'thrust areas' that are funded corporately.

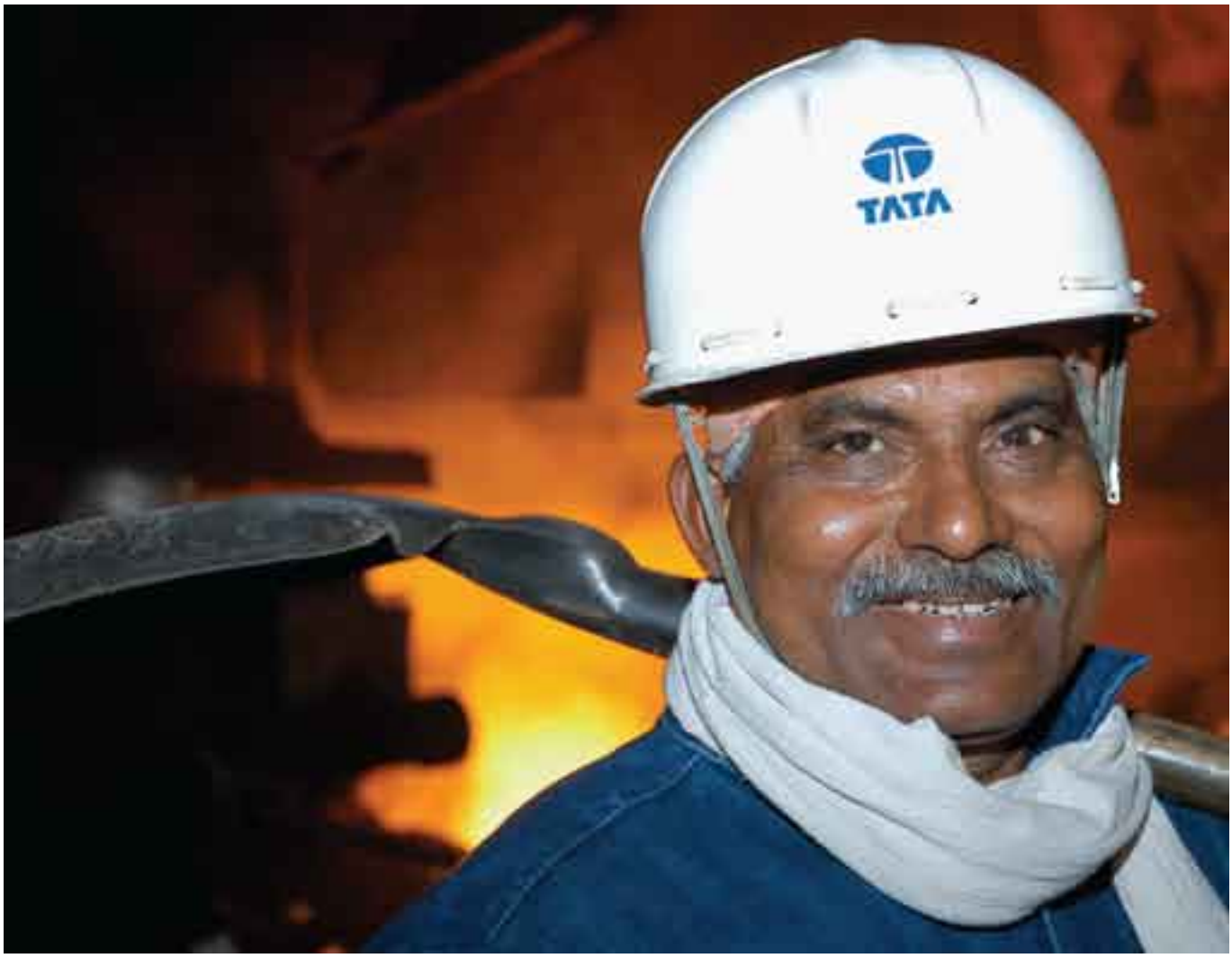
Current R&D thrust areas include:

- **Hydrogen harvesting**
  Commercialising a process developed by Tata Steel researchers that uses the waste heat from molten slag to generate hydrogen, reducing overall fossil fuel consumption and emissions during steelmaking.
- **Photovoltaic coating systems**
  Developing steel products incorporating state-of-the-art thin-film photovoltaic systems to generate solar energy.
- **Economic mineral beneficiation**
  Maximising the use of raw materials available from captive sources.
- **Heavy end of the future**
  Increasing productivity, improving raw material and energy efficiency and reducing carbon dioxide ($CO_2$) emissions.
- **New generation high-strength steels**
  Developing products to meet future demand for high-strength and ductility (HSD) steels.
- **Advanced coatings development**
  Reducing coatings costs while extending the performance and applications range of our coated products.
- **Producing ferro-chrome with less energy**
  Enhancing process technology to use less power and coke in the production of ferro-chrome and stainless steel.
- **Energy-efficient fluids**
  Developing higher performance coolants and fabricants for rolling steel.
- **Pushing the raw materials envelope**
  Lowering the phosphorus content within the converter during steelmaking to improve product quality.

A truly innovative company is one that not only generates exciting new ideas but transforms them into proven, value-adding products and processes. The Tata Steel Group's strategic Intellectual Property (IP) road-mapping and multi-disciplinary review system has created a growing portfolio of IP rights that is both constantly evolving and mature.

The Group's patent portfolio currently comprises over 850 patent applications at various stages between filing and grant, and a similar number of valid patents granting national exclusive rights owned by the respective Group companies. Our IP portfolio also includes some 250 pending trade mark applications, and over 1,500 registered trademarks for premium products such as Tata Shaktee®, MagiZinc® and Colorcoat®.

# Our people




K.P. Das, cast house operator, F blast furnace, Jamshedpur, India.

*"The Company shall be mindful of its social and moral responsibilities to the consumers, employees, shareholders, society and the local community."*

**J.R.D. Tata, chairman, 1938-84**

## Health and safety

### Managing health and safety

We strive to manage our business in a way that ensures a safe, healthy, clean and ergonomic working environment for our employees, contractors and anyone affected by our activities.

We aspire to be the health and safety benchmark for the global steel industry, and have set ourselves the goal of achieving a lost time injury frequency (LTIF) rate of 0.4 or better by 2012. Based on the improvements achieved so far, we believe that this is a realistic target.

Health and safety issues are reviewed at all Tata Steel Group board meetings. Building on the policy adopted in our European operations, a board-level Health, Safety and Environment (HS&E) Committee has been established in the second half of 2009 to provide overall leadership in HS&E matters throughout our global business. Its membership will consist of the top executives from the major business entities and two non-executive directors including the committee's chairperson, while functional HS&E directors will provide advice and support.

Each of the Group's four regional businesses has a well-established and comprehensive health and safety policy, with supporting principles, standards and procedures. Through continued integration, it is envisaged these individual policies will be replaced by one worldwide Tata Steel Group health and safety policy.

**Table 3 Fatalities** Tata Steel Group employees and contractors

| | Tata Steel Europe | Tata Steel India | Tata Steel Thailand | NatSteel Holdings* | Tata Steel Group |
|---|---|---|---|---|---|
| **2008/09** | 1 | 6 | 1 | 0 | 8 |
| **2007/08** | 1 | 8 | 0 | 3 | 12 |

* Data includes all operational activities of NatSteel Holdings.

**Table 4 Lost time injury frequency rate** Tata Steel Group employees and contractors *Number of lost time incidents per million hours worked*

| | Tata Steel Europe | Tata Steel India | Tata Steel Thailand | NatSteel Holdings Singapore* | Tata Steel Group |
|---|---|---|---|---|---|
| **2008/09** | 1.82 | 0.8 | 3.01 | 5.88 | 1.31 |
| **2007/08** | 2.38** | 1.70*** | 2.18 | 10.23 | 2.11 |

* Data only includes operations in Singapore. The business is working towards redefining its systems to measure the LTIF rate across its operations.
** Data retrospectively corrected since reported in 2007/08 Corus Corporate Responsibility Report.
*** LTIF for contractors recorded on day three of absence.

In 2008, we set clear objectives for process safety, occupational safety, and health. These have now been embedded within the health and safety management plans of each business.

## Health and Safety Management System (HSMS)

Tata Steel Europe has expanded and strengthened its Health and Safety Management System (HSMS) with comprehensive tools, standards and procedures to manage action towards these additional objectives.

The HSMS has a structured approach, covering 15 fundamental principles from leadership and accountability to hazard identification, and from management of change to audit and review. The revised framework has been developed with guidance from DuPont safety consultants and draws on best practices from BlueScope Steel, recognised as a safety leader in the steel industry, and also from major international petrochemical companies. The revised HSMS was launched in November 2008 and we expect full implementation across all our European operations by the end of 2009.

In India we are performing a gap analysis of our existing OHSAS 18001 Safety Management System against the new European HSMS. Our ultimate aim is to have a unified framework for effective health and safety management across the Tata Steel Group. Achievement of this aim will take the Group to a new level in health and safety performance, helping us to fulfil our ambition to be the steel industry leader in health and safety.

During the year under review, a Safety Excellence Journey (see case study overleaf) has been initiated across our Asia Pacific operations, implementing the DuPont methodology of safety management to achieve zero fatalities and a LTIF rate of 0.4 by 2012.

## Performance

It is deeply regrettable and unacceptable that eight people lost their lives working for the Tata Steel Group during the year 2008/09 (table 3).

There were six fatalities in our Indian operations; five occurred in separate incidents at the integrated steelworks at Jamshedpur, and one resulted from a roof fall at the Jamadoba colliery in the state of Jharkhand.

In Europe, a contractor was fatally injured during refractory maintenance work in the steelmaking plant at Teesside.

In Thailand, a contractor died as a consequence of an electric shock at Siam Construction Steel Company in Rayong Province.

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

Our key performance indicator for safety is lost time injury frequency (LTIF) rate combined for employees and contractors. The Group's global performance data shows an improvement in LTIF from 2.11 in 2007/08 to 1.31 in 2008/09. The performance for our four business entities – Tata Steel Europe, Tata Steel India, NatSteel Holdings and Tata Steel Thailand – is presented in table 4.

During 2008/09, the LTIF rate within our mining operations improved by 26% compared to 2005/06. More importantly, the fatality rate has reduced significantly. Tragically, however, there was still a fatality at Jamadoba colliery in Jharia in February 2009.

We will continue to improve and extend our systems for managing the safety risks associated with the extraction of raw materials as we expand our global operations to strengthen raw materials self-sufficiency.

Our four business entities share findings from incidents and near-misses. In Europe, a Red Stripe Bulletin system cascades information, findings and recommendations about serious incidents as soon as they become available and requires feedback on actions taken, referred to as 'closing the loop'. This concept is being extended across the Group to improve our overall health and safety performance.

Our businesses around the world can learn from each other in safety as in other aspects of operating excellence. Health and safety teams from across the Group met in 2008 to identify areas where a shared focus would provide the greatest benefit. They included contractor management, process safety and onsite traffic management. Our health and safety expertise and procedures have already been aligned Group-wide in such areas as major equipment removal and dismantling, risk-based inspections of energy infrastructure and developing competence in process safety.

### Safety Excellence Journey

In India, we operate ore mines in Noamundi and Joda, and collieries in West Bokaro and Jharia. The working of raw materials has inherent geological hazards and creates a continuously changing environment, where the safety of operating practices must be rigorously monitored.

We commissioned DuPont to review our safety management practices and identify areas for improvement in order to achieve zero fatalities. This resulted in a programme known as the Safety Excellence Journey and included the introduction of systems for safety observation investigation and incidence analysis, as well as safe working procedures and consequence management for safety violations. One initiative in particular has had a profound effect – the Fatality Risk Control Programme, which systematically identifies all unsafe situations and practices that could potentially result in a fatal incident. In the previous year, 1,168 potentially unsafe situations or acts were identified; in each case, a corrective action plan was agreed, putting in place necessary control measures and a review process to formally close out all actions.

An improved investigation and incidence analysis, system has also realised significant improvements at the collieries in Jharia. To address the strong correlation between working close to the coalface and incident numbers we have invested in equipment to mechanise the working and loading of coal in these high-risk areas.

Colliery in Jharia, India.

## Progress on process safety

Process safety management relates to the operation and maintenance of installations and equipment to prevent major incidents. These are categorised as low frequency but high consequence, such as explosion, fire or the release of potentially dangerous substances like toxic gases and molten metal, which could have a catastrophic effect. We operate a number of high hazard facilities and appreciate the potential consequences of major incident risks to our employees, neighbours and the environment, as well as to our business.

Following the BP Texas City oil refinery explosion in 2005 – and the findings of the independent review led by the former US Secretary of State James Baker that inadequate process safety was the root cause of the accident – we have made process safety management an even higher priority. Our focus 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, we have established a steering group chaired by an executive director and recruited additional process safety experts to enhance our capability in this critical area.

First we had to define what constitutes a high hazard facility, based on the nature of the materials stored and used. A process safety team visited all our European manufacturing facilities to assess their activities and categorise them as green (no hazards), amber (high hazard but in control of the risks) or red (high hazard where further studies and action are urgently required).

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

### High hazard facilities

At our Speciality Steels facility in Stocksbridge, UK, we took immediate action after the process safety team categorised it as a high hazard facility because of the quantities of propane and quenching oil used in its processes. Some elements of the resulting action plan were very simple and cost-effective: for example, upgrading procedures for filling and maintaining the propane storage tank.

Process safety at Stocksbridge, UK.

Kalzip Constant Force fall arrest system.

EU's Seveso II Directive. As a result of the process safety team's visits, a number of our smaller sites were assessed as containing potential risks that had not previously been fully understood. Corrective action plans to implement effective process safety management controls have now been put in place at these sites.

### Progress on occupational safety

Ensuring a safe workplace for our employees, contractors and visitors is a fundamental imperative of corporate citizenship. Our commitment to occupational safety is demonstrated in our policies, and we are constantly striving to reinforce our Group-wide safety culture through leadership, respect and engagement to ensure that people at all levels are encouraged – and feel able – to challenge unsafe behaviour.

Mandatory health and safety standards, developed for each of our four business entities, provide direction on key issues. Safe working procedures are provided where additional guidance is required to ensure full and consistent compliance with a given standard.

During the year under review, we continued to focus on three key Group-wide occupational safety risks, which are a significant source of lost time injuries:

- working at height;
- onsite vehicle movements; and
- contractor safety.

### Working at height

There are numerous risks present when our employees or contractors are required to work at height. Early in the integration process following the acquisition of Corus, we identified significant opportunities for reducing these risks and shared best practices in access systems and fall-arrest equipment. This culminated in our largest European scaffolding contractor, SGB, establishing an operation at the Jamshedpur site in India.

### Onsite vehicle movements

The size and complexity of our operating sites mean that the volume and diversity of onsite traffic is considerable. Particular attention has been given to developing effective systems to manage traffic and reduce the associated risks for road and rail users, pedestrians, and process infrastructure and buildings while vehicles are moving, parking, loading or unloading.

Over 1.8 million tonnes of steel products leave our distribution sites in the UK each year. In 2008, we embarked on a new initiative called LoadSafe, aimed at improving safety during the loading and unloading of vehicles. A team of employees and contractors from our European distribution sites has been working closely with BlueScope Steel, an industry leader in safety, to develop Group-wide guidelines to protect drivers and loaders, including measures for working at height and the creation of exclusion zones around loading areas.

In India, we have taken decisive action to prevent serious incidents associated with crane movements. A crane safety task force was established in 2006 to formulate an improvement plan to eliminate such accidents by 2010/11.

### Eliminating safety hazards

At our Bored Pile Caging business in Singapore, bored pile cages were loaded onto trailers using an overhead crane with spreader beams and chains. An employee was required to work on the trailer, standing on the loaded cages to release the chains. With a daily output of more than 150 cages, the safety risk was high. An innovative solution was called for.

We identified and created a quick-release system for the chains on the spreader beam. Now, a single operator can release all the three chains simultaneously with a simple pull mechanism and – importantly – can do so from ground level, clear of the trailer.

This simple but effective engineering solution has not only eliminated safety hazards, it has increased plant capacity by 50%. The team that came up with the idea received the NatSteel Holdings 2008/09 Safety Innovation Award.

Bored Pile Caging business, Singapore.

### European Good Practice Awards

Following on from their success at the Dutch Good Practice Awards in 2008, our Tubes facility in Maastricht, the Netherlands, won the European Agency for Safety and Health at Work's European Good Practice Award in April 2009. The Tubes plant won the award for introducing a risk assessment card system aimed at encouraging employees to consider the potential safety risks before starting any task. The system has helped to reduce the number of incidents on site, with LTIs falling to zero and the number of employees requiring offsite medical treatment down by more than 75% since 2006.

Maastricht site manufacturing manager Jos Bongaerts (left) discusses safety with Tata Steel Europe CEO Kirby Adams.

### Safety champion programme

The 'On-The-Spot-Recognition' (OTSR) programme was launched in Singapore in March 2009. The programme recognises 'safety champions' among employees and contractors, and rewards them for meeting safety standards and maintaining good health and hygiene practices – for example, the correct use of personal protective equipment, conforming with safe working procedures, maintaining a high standard of housekeeping, reporting potential safety hazards and encouraging others to work safely by personal example.

The first OTSR awards are presented to employees Vellaichamy Subbiah and Emon Hossain Barek Mollah.

The task force concluded that action is necessary to improve skills of operators, install audible motion alarms and develop standard procedures for crane inspection to prevent falling objects. Further improvement is needed, but crane-related incidents have reduced by 76% in the reporting period, with no fatalities.

## Contractor safety

Although our combined employee and contractor LTIF rates have been steadily improving, the incident rate remains much higher among contractors. Specific measures have been taken across the Group during the reporting period to address this issue.

In Thailand, all contractors are required to attend a basic safety training course before starting work on site. Our in-house training course has been delivered to 590 contractors. Additional job-specific safety training, for example safe working within confined spaces and fire fighting, has been provided to 91 of those contractors.

In India, the extension of our Safety Excellence Journey to involve contractors has been timely, given the capacity expansion project at Jamshedpur. As well as specifying clear safety criteria for the award of contracts, we have instituted a system to communicate what we require of our contractors for them to meet the Group's safety standards. Orientation and training are now integral elements of contract management, and particular attention is given to contractor safety inductions and work risk assessments.

In Europe, safety improvement initiatives at our sites, while effective in raising employee safety performance, were not leading to comparable improvements in the contractor LTIF rate. A new approach was required, and in 2008 we launched a Contractor Safety Leadership Programme. The programme was kick-started with a workshop, which was attended by the CEOs of our seven principal European contractors. Together they started a process to identify root causes of incidents and opportunities for improvement, to share good practices, and to motivate the broader contractor community to set and maintain high safety performance targets. This renewed commitment is already evident, with a 20% reduction in the number of LTIs recorded for contractors in 2008/09 compared to the previous year.

## Progress on occupational health

The Tata Steel Group is committed to safeguarding and promoting the physical, mental and social well-being of our employees. We believe that health protection should not simply be limited to the use of personal protective equipment, but should also involve eliminating, reducing or isolating hazards. 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

### Addressing health risks

In the Netherlands, we opened our Vitality Centre at IJmuiden in March 2008, in collaboration with our main health and insurance providers. Up to 500 employees were identified during their regular medical check-ups as having potential health risks, and the centre provides each employee with a tailored exercise and health advice programme.

In Thailand we have begun a new initiative to address the increased health risks associated with being overweight. The 'Khon Lhek Rai Poong' programme is run in collaboration with the healthcare centre at Saraburi Hospital to provide individual diet and exercise plans for participating employees to help them achieve their target weight.

Vitality Centre, IJmuiden, the Netherlands.

establishing baseline exposure levels to prioritise our improvement plans and to measure their effect. Hazard identification, risk assessment and control are the keys to ensuring a safe and healthy working environment.

#### 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 site's five main health hazards by 25% year on year.

At IJmuiden in the Netherlands, we have taken positive action to reduce the health hazard associated with diesel fumes. The potentially carcinogenic properties of diesel fumes are well documented, though no statutory exposure limit has been published to date. In close cooperation with the IJmuiden Works Council, we have taken three steps to reduce exposure levels: first, to monitor existing levels at 200 points around the site and establish an exposure limit of 25 milligrams per cubic metre; second, to ensure that all business-owned vehicles are fitted with adequate particle filters; and third, to implement an effective monitoring system to ensure that all vehicles entering site are compliant.

In Singapore we have cleaned up the drainage system and eliminated stagnant water in and around the plant to prevent the breeding of mosquitoes, greatly reducing the risk of our people and the neighbouring community getting dengue and other mosquito-transmitted diseases.

#### Health promotion

Health promotion helps to educate and motivate employees, and their families, on the benefits of maintaining healthier lifestyles. This can help to safeguard against physical and mental illness and prevent existing conditions from becoming worse. All our businesses provide health-screening checks for employees and many operate structured wellness programmes. Our health and wellness initiatives are well-received by employees, and initiatives in India, Singapore and the UK have received awards from prominent external organisations – see listing at the back of this report.

Sometimes it is virtually impossible to avoid illness – during a widespread influenza outbreak for example – which presents a significant risk to business continuity and the health of our employees and contractors. However, it is possible to take measures to mitigate the impact of outbreaks. There have been a number of pandemic flu outbreaks, the most recent being swine flu (H1N1). We have provided basic hygiene advice for flu prevention to all employees and guidance to managers on how to respond when employees report flu-like symptoms.

In Europe we issued guidelines on emergency preparedness for pandemic flu in April 2009, and all sites have ensured that their contingency plans are appropriate to minimise the risk to employees and the business. In Singapore we established a pandemic flu committee when the Ministry of Health raised the flu alert to code orange, and our occupational health unit distributed advice and thermometers to all employees.

## Employer of choice

#### Core principles

Since its establishment in Jamshedpur more than 100 years ago, Tata Steel has been a pioneering and enlightened employer. 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.

## 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 2009, 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: Tata Steel India operations, 34,918; Tata Steel Europe (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 ongoing objective is to ensure that the Tata Steel Management Trainee Programme in India, the Corus 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 career.

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.

## Minimising job losses in an unprecedented downturn

The year under review was truly exceptional for the Tata Steel Group, in which we witnessed the best of times and the worst of times. After achieving numerous production and financial records in the first half, we – along with our competitors and every other global industry – saw a dramatic reversal in the second half.

As demand for steel fell sharply around the world, this inevitably had a major impact on our profitability and required us to reduce our operating costs in order to weather the economic storm and position the Group so it can emerge from the downturn an even stronger and more competitive global steelmaker.

### The battle for graduate talent

In 2008, we took on 110 graduates in the Netherlands and 157 graduates in the UK, almost a third more in the UK than in 2005. Unfortunately, the number of places offered in 2009 will be considerably lower due to the economic situation in Europe.

Our ranking as a graduate employer has risen steadily in the UK, up from 88 to 83 in *The Times* 2008 Top 100 list of graduate employers. In the Netherlands, we remained the highest-ranked industrial company to work for in the 2008 *Intermediair* listing. Global competition for the top graduates is fierce, especially in fields such as engineering where talent is in short supply, and in 2008 we attended 30 careers fairs in the UK. Nearly three-quarters of our recruits in the UK have a technical degree such as mechanical or electrical engineering.

Dutch and UK graduates take a night tour of Port Talbot, UK.

Our operations in India were able to make the necessary adjustments without significant lay-offs and reductions in working hours, and by the end of March 2009, there were encouraging signs that the Indian economy was beginning to recover.

In Europe, however, the effect of the economic crisis has been much more severe, with steel demand collapsing in the fourth quarter by 57% in the UK and 44% in continental Europe from the previous year.

In the early stages of the downturn, Tata Steel Europe quickly implemented a number of initiatives to align its output and cost structure with falling demand. These included cuts in steel production and stock levels, and a rigorous cost reduction and value enhancement programme to make up for the impact of lower production, in which employees throughout the company contributed valuable ideas and shared best practices to generate savings.


Uday Chaturvedi, managing director, Corus Strip Products UK, addresses employees.

As the speed and intensity of the downturn intensified, further production cuts were implemented and a number of payroll savings were also introduced. These included reducing overtime working, adjusting shift patterns, implementing flexible work agreements that allowed the company to temporarily reduce the hours of employees who were experiencing shortages of work, and replacing outside contractors with employees wherever possible.

We also reaffirmed our commitment to ongoing personal development by introducing additional skills training programmes for employees affected by the cuts in production.

Despite generating cost savings of more than £700 million (US$1 billion) through these 'Weathering the Storm' measures, it became clear that a number of the company's less competitive operations and assets in Europe could not survive in their current structure, making job losses unavoidable.

Following a detailed strategic assessment known as 'Fit for the Future', a number of plants and assets were identified for divestment or restructuring. This led to the loss of around 4,000 jobs out of Tata Steel Europe's 40,000-strong workforce.

The company is doing everything possible to handle this difficult but unavoidable situation honestly and sensitively, and is making every effort to achieve the reductions through voluntary redundancies while ensuring that critical skills are retained. We are committed to consulting with employees collectively and individually during the process. A comprehensive range of redundancy benefits and outplacement support services is provided to all those leaving the company.

## Maintaining a steady course

Despite the present economic turbulence, Tata Steel 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.

### Learnership programme

Recognising that the shortage of technical skills is the biggest challenge facing South Africa, we have set up a 'Learnership Programme' for local mathematics and science students. Since 2006, we have trained 91 young men and women to become operators and apprentices. Nearly 30% of the workforce at our ferro-chrome facility in Richards Bay has graduated from the Learnership Programme. This scheme has received wide support from government and unions, and has been hailed as an exemplary programme by COSATU, the largest union in South Africa.


Learnership programme students in Richards Bay, South Africa.

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.

Irke-Marjen Wiersma, trained CI manager, IJmuiden, the Netherlands.

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 ongoing 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.

In Europe, we have introduced the Development Gateways Programme for technical and managerial staff at key stages in their careers. The programme will ensure they have the knowledge and skills needed for the Group to face the challenges and opportunities of the future. Continuous improvement (CI) skills feature prominently in their development, and we have continued to train in-house CI coaches in response to strong demand from all parts of the business.

The year under review saw a significant increase 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 an international experience.

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.

Developing outstanding leadership talent is a key strategic priority. The Joint Tata Steel Group Executive Committee is directly responsible for managing the development and succession plans of executive positions, while plans for the next level of leadership are managed by the businesses' respective Talent Review Committees.

To help nurture the talent of our potential future leaders, a Global Leadership Development Programme has been launched to shape and strengthen our leadership capabilities worldwide. The objective of this ambitious programme is to instil in them a clear and shared understanding of what is needed for the

Tata Steel Group to be recognised as the world's premier steel producer – in terms of vision, values and people as well as technology and financial performance.

### 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 previously they could not have aspired to.

### Open and continuing dialogue

Clear, honest, two-way communication between management and employees at all levels in our organisation 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.

In Norway, despite a proud history dating back nearly 100 years, overcapacity in the European tinplate market made closure of the Packaging Plus plant in Bergen unavoidable. The decision, announced in July 2008, meant the loss of 260 jobs. We put in place a comprehensive social plan to ensure employees understood why the plant had to close and what assistance would be available to help them find and take up job or retirement opportunities. We held an onsite jobs fair with over 50 potential new employers, supported by employment coaches and workshops on CV preparation and interview skills. These initiatives ensured that most of our employees found satisfactory alternatives within 2-3 months – and won the company an award from the region's professional Health Safety and Environment Forum for its handling of the situation.

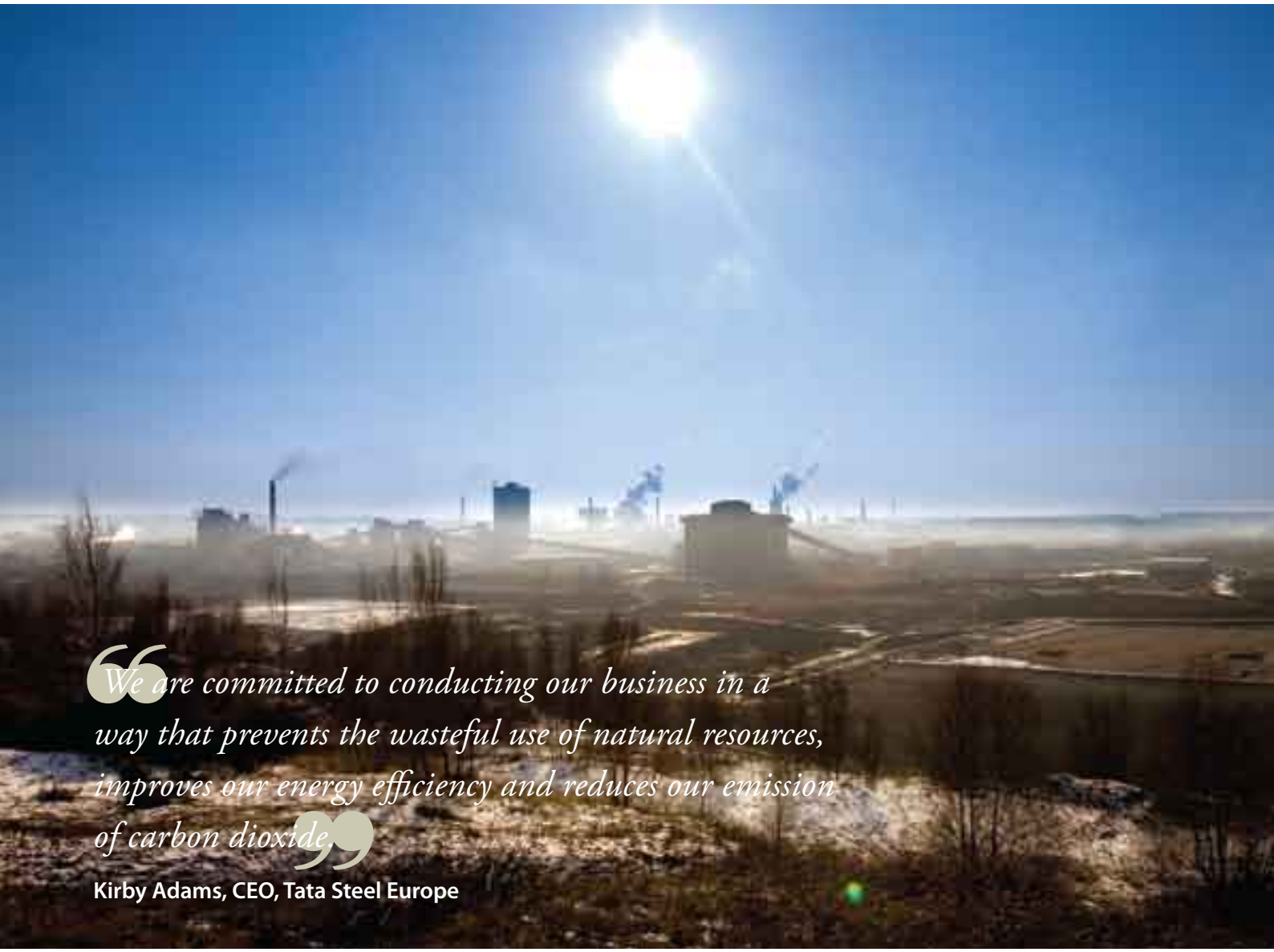
In addition to day-to-day business communication, we are constantly seeking to improve our systems to provide effective and responsive two-way communication.

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.

Shalini Sulakshana, on secondment from Jamshedpur, India, to Scunthorpe, UK.

# Protecting the environment

## Respect for the environment is integral to the way we do business.




Scunthorpe steelworks, UK.

### Management control

Environmental protection is integral to the way we do business. Our environmental performance is reviewed closely and continuously by the Tata Steel Group board of directors. From August 2009, Group-wide leadership in environmental matters will be provided by the board's new Health, Safety and Environment Committee (see *Our People* for further details).

Our environmental management systems provide a clear and effective framework for managing compliance and identifying opportunities for improvement. All our main manufacturing sites are certified as conforming to the international environmental management standard ISO 14001.

We try to reduce our environmental impact wherever it is practicable and cost-effective to do so. During the year under review, a significant proportion of the capital investment made across the Group related to schemes to improve our energy efficiency and reduce our emissions of carbon dioxide ($CO_2$) and particulates to air.

In all our operations around the world, we seek to comply fully with the statutory limits specified within our environmental permits or within national legislation. When a breach does occur, a full investigation is undertaken to identify the root cause and a corrective action plan is implemented to restore compliance and prevent any recurrence.

### Green star

In Thailand, our steelmaking facility in Rayong Province has received a Green Star Award for achieving a high level of environmental governance.

The scheme, launched by the Industrial Estate Authority of Thailand, aims to foster improved collaboration between industry and the community. A project committee, with community representation, oversees the Green Star Project and reviews each company's performance against an agreed pollution reduction plan.

We were not prosecuted or fined in relation to the environmental aspects of our activities during the year under review. However, one incident occurred that resulted in regulatory action being taken against us. The UK Environment Agency issued an enforcement notice at our steelmaking facility in Teesside with respect to the release of fuel oil into the River Tees. A Red Stripe Bulletin, circulated to all sites, communicated the findings of the initial investigation and included a number of recommendations to prevent a similar incident occurring.

In December 2008, we 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 within a revised environmental permit at our steelmaking facility in IJmuiden. To achieve compliance, substantial investment would be required to install an environmental abatement system that goes beyond the current European Union regulatory requirements for emission control, while it is important to maintain a level playing field. A ruling is expected in the second half of 2009.

### Climate change strategy

In 2008, we announced our Tata Steel Group Vision to become the global steel benchmark for both value creation and corporate citizenship. Among the specific goals we have set ourselves in pursuit of this vision is to reduce our carbon dioxide ($CO_2$) emissions to less than 1.7 tonnes per tonne of liquid steel by 2012.[1]

CLIMATE ACTION Member worldsteel ASSOCIATION

Our long-term climate change vision goes further, setting a target to reduce $CO_2$ emissions to less than 1.5 tonnes for every tonne of liquid steel produced by 2020.[2]

We have set five strategic priorities to realise our challenging vision:

- 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*

Along with the rest of the European steel industry, we are required to participate in the EU Emissions Trading Scheme (EU ETS). Phase II of the scheme began on 1 January 2008, and during 2009 we experienced an overall surplus in allowances (that is, we were emitting fewer tonnes of $CO_2$ than our total allowances), principally as a result of reduced production due to the global economic downturn. At normal production levels we would expect to be in balance or slightly short of allowances overall.

The European Commission has confirmed its view that the iron and steel sector, among others, is an energy-intensive industry exposed to international competition, and there would be substantial risk of carbon leakage in Phase III if emission allowances had to be bought. Through the European Confederation of Iron and Steel Industries (Eurofer), we have been actively engaged in lobbying the Commission. As a result of this dialogue, the steel industry will be granted 100% free allowances up to a benchmark level in Phase III and will have no obligatory auctioning.

In December 2009, the United Nations Framework Convention on Climate Change (UNFCCC) will meet in Copenhagen to try to agree a new climate change treaty to follow on from Kyoto, which ends in 2012. Through the World Steel Association (worldsteel), we have continued to work closely with other global steelmakers in preparation for the Copenhagen summit,

**Table 5** $CO_2$ emissions from integrated steelmaking

| | 2008/09 | 2007/08 |
|---|---|---|
| **Total $CO_2$ emissions** Million tonnes | 43.7 | 48.5 |
| **Direct $CO_2$ emissions** Million tonnes | 38.4 | 41.1 |
| **$CO_2$ intensity** Tonnes $CO_2$ per tonne of crude steel | 2.11 | 2.05 |
| **Crude steel production*** Million tonnes | 20.7 | 23.7 |

Divide by 0.979 to convert crude steel production to liquid steel production.
* Blast furnace route only.

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.

1 1.9 t/tls under the worldsteel scope (see page 9).
2 1.7 t/tls under worldsteel scope.

### Clean Development Mechanism (CDM)

Under the Kyoto Protocol, the CDM allows emission reduction projects in developing countries to earn a credit per tonne of $CO_2$ abated, which can then be traded or sold. For more information, visit www.unfccc.int

Tata Steel in Jamshedpur has five projects operating under the CDM, which collectively will abate nearly 1.2 million tonnes of $CO_2$ per year. Three of these projects have already been completed and ongoing projects include a top gas recovery turbine at 'G' blast furnace for power generation and the retrofit of coke dry quenching at the coke ovens.

To date, two waste heat recovery schemes have been successfully installed to generate electricity from process gases. This has reduced both the amount of coal burnt in the boilers and waste process gases flared – equating to a $CO_2$ saving of 934,000 tonnes per year.


'G' blast furnace, Jamshedpur, India.

and will wait with interest to see if an agreement is reached and how it may impact our operations.

*Carbon reporting*

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

The World Steel Association framework uses an intensity-based approach, in line with the Greenhouse Gas (GHG) Reporting Protocol, for the measurement of $CO_2$ emissions. It provides a globally consistent methodology designed to ensure that steel plants around the world report emissions on a comparable basis – something that has not been possible previously. For further information on the reporting methodology visit www.worldsteel.org/climatechange.

Table 5 on page 29 shows the Tata Steel Group's total $CO_2$ 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, on the same basis, direct $CO_2$ emissions and $CO_2$ intensity. Within the World Steel Association framework, all $CO_2$ emission data are reported based on crude steel production.

There is a close correlation between energy consumption and $CO_2$ emissions performance. Table 6 shows the energy intensity from our five integrated steelworks worldwide and our five electric arc furnace (EAF) steelworks in the UK, Singapore and Thailand.

Tata Steel Europe has signed a voluntary agreement with the Dutch government to achieve a year-on-year improvement in energy efficiency at IJmuiden, both through its processes and products. A similar agreement is in place with the UK government to achieve reductions in energy consumption equivalent to 15.8% by 2010 compared to the 1997 level.

*Monitoring and benchmarking*

Achieving our Group-wide $CO_2$ emissions reduction targets requires a cohesive and proportionate approach to identify, assess, approve and implement measures to reduce our emissions.

**Table 6** Energy intensity in the steelmaking process *Gigajoules per tonne of crude steel*

| | 2008/09 | 2007/08 |
|---|---|---|
| **Blast Furnace (BF) Route** | 23.74 | 22.70 |
| **Electric Arc Furnace (EAF) Route** | 10.10 | 10.42 |
| **Crude steel production**<br>Million tonnes<br>BF Route<br>EAF Route | <br><br>20.7<br>2.6 | <br><br>23.7<br>3.2 |

Divide by 0.979 and 0.967 to convert crude steel production to liquid steel production for BF and EAF routes respectively.

During the year under review, our process experts developed a $CO_2$ emission monitoring and benchmarking system – MoniCA. MoniCA enables us to monitor the direct and indirect $CO_2$ emissions from our production processes, and allows us to benchmark against best practice to identify emissions reduction opportunities.

The system is in place across our European steelmaking operations, with rollout and implementation across our other European downstream non-steelmaking operations planned for completion by 2010.

*Reducing emissions*

Our integrated steelworks are already very efficient, with typical $CO_2$ emissions from steelmaking now around 50% lower, per tonne of steel, than 40 years ago.

Further schemes capable of delivering cost-effective $CO_2$ savings are being identified for each of our integrated steelworks, to bridge the gap between our current emission performance and our reduction targets. A central Energy Efficiency and Climate Change Task Team has been formed within Tata Steel Europe to deliver technical support to the businesses, facilitate knowledge sharing, and monitor overall progress against targets.

A number of large-scale improvement projects have already been successful, with numerous other schemes in various stages of development. Some examples are described below.

Through the ambitious capacity expansion projects at Jamshedpur steelworks, the carbon footprint of our Indian operations will actually be significantly reduced. Efficiency savings will be gained by replacing multiple small blast furnaces with fewer high-capacity furnaces. Advances in technology have also been exploited to achieve further carbon savings, through higher rates of coal injection, blast furnace top gas turbines for electricity generation, and the recovery of waste heat to minimise fuel usage. Phase I of this major expansion was completed in May 2008 with the 'blow-in' of the 1.8 million-tonne capacity 'H' blast furnace. Phase II will see Jamshedpur crude steel production capacity increased to 9.7 million tonnes by 2011.

Construction of a new basic oxygen steelmaking (BOS) ladle furnace at IJmuiden steelworks in the Netherlands began in June 2008. The investment will increase production by 260,000 tonnes per annum while maximising the utilisation of steel scrap per tonne of 'hot metal' – thereby reducing the resultant $CO_2$ intensity per tonne of liquid steel produced.

A Memorandum of Understanding has also been signed between Tata Power, Tata Steel and Tata Steel Europe for the construction of a new captive power plant at IJmuiden. The plant will utilise process gases and energy efficient technologies, allowing it to respond quickly to changes in demand and thereby reducing the need to flare waste gases. The amount of $CO_2$ emitted per unit of electricity generated will be reduced as a result.

*Energy optimisation*

Ideas for optimising energy use at our steelmaking facilities are shared and

BOS gas recovery scheme, Port Talbot, UK.

### BOS gas recovery

In February 2008, Tata Steel Europe announced a £60 million (US$85.8m) investment in energy management technology at Port Talbot steelworks in Wales. This investment will substantially reduce $CO_2$ emissions through the re-use of gases generated at the BOS plant.

The recovered BOS gas will generate an extra 15MW of power – 10% of the facility's total electricity needs. This in turn will allow 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%.

This substantial investment, due to be commissioned at the start of 2010, is designed to reduce $CO_2$ emissions from Port Talbot steelworks by 297,000 tonnes per year. The project will reduce our total European operations carbon footprint by 1%, which is equivalent to the national emission reduction target for Wales.

Planting trees in Thailand.

promoted through an Energy Optimisation Platform. The platform plays a valuable role in our ongoing strategy to reduce $CO_2$ emissions and, as a result, a wide range of energy efficiency schemes have been successfully implemented across the Group. We plan to expand the initiative to include more of our downstream non-steelmaking facilities during 2010.

At our electric arc furnace (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 burning less fuel.

Feasibility studies are also underway 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. These $CO_2$ reduction projects will be put forward for participation through the Kyoto Protocol Clean Development Mechanism (CDM).

*Effect of the global crisis*

The unprecedented global financial crisis brought about a sharp decline in the consumption of steel. During the second half of the year, global demand for steel declined by around 20%, with the downturn being particularly acute throughout Europe.

The Group responded swiftly and decisively, cutting European production by idling blast furnaces to align production with demand. However, the $CO_2$ intensity of these operations was impacted during the second half of the year. 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. This trend is expected to continue into the next financial year.

We also reduced our capital expenditure programme by 40% for the next two years by re-phasing and deferring some of our initiatives. This prudent and necessary action in response to the severe global downturn means that some of our planned investments in $CO_2$ reduction were temporarily deferred. Nevertheless, our commitment to these initiatives remains firm and we believe our long-term vision is still within reach.

During this exceptionally challenging period, Tata Steel Europe launched 'Weathering the Storm', an initiative that included numerous low or zero cost measures to reduce our energy use. Thanks to the outstanding efforts and ideas of our employees, significant savings have been realised and these improved energy efficiency measures will continue after the upturn.

*Innovation*

Our research and development teams are developing ways 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, which if successful at a commercial scale, will reduce the consumption of fossil fuels at our steelworks. They have also discovered how to use nanoparticles in an aqueous medium – termed 'CoolFast' – to cool more effectively, and reduce water and energy consumption.

Through continued product innovations, we also offer our customers solutions to reduce $CO_2$ emissions throughout the life cycle. Additionally, when our steel products reach the end of their useful life,

**Changing our behaviour**

Employees at our Tubes business at Hartlepool in the UK are being encouraged and assisted to find ways of reducing their personal carbon footprints.

The Energy Resource Efficiency project is being delivered with the support of One North East, the regional development agency, to offer energy savings tips. Regular workshops have been held to help employees understand exactly how much energy is being consumed at home and identify the biggest energy-wasters.

By demonstrating the savings that can be achieved at home, we believe the project will encourage similar behavioural changes in the workplace, enabling employees to further contribute to action on climate change.

Employees at Hartlepool, UK.

they can be recycled without any loss of quality, saving $CO_2$ emissions associated with primary steel production. Examples of how our products can be part of the solution to climate change are included in the *Sustainable Solutions* section of this report.

*Employee engagement*

With encouragement from internal climate change awareness campaigns across the Group, and highly motivated climate champions, our employees around the world are showing a great deal of personal commitment to reducing their own carbon footprint both at work and at home. Employees have been establishing their own energy and environment committees – 'Clean, Green and Safe' in Singapore, 'Green Team' in Canada and the 'YmGreen' initiative in the Netherlands.

As part of our 'Stop Global Warming Project' in Thailand, employees met with the deputy governor of Rayong Province and 350 government officers, teachers, students and residents to plant saplings at the Nong Plalai Reservoir.

Employees in Australia, Singapore, Thailand, the Netherlands and the UK also participated in Earth Hour – the World Wildlife Fund (WWF) climate change initiative – switching off lights to show their support for action on climate change.

*Looking to the future*

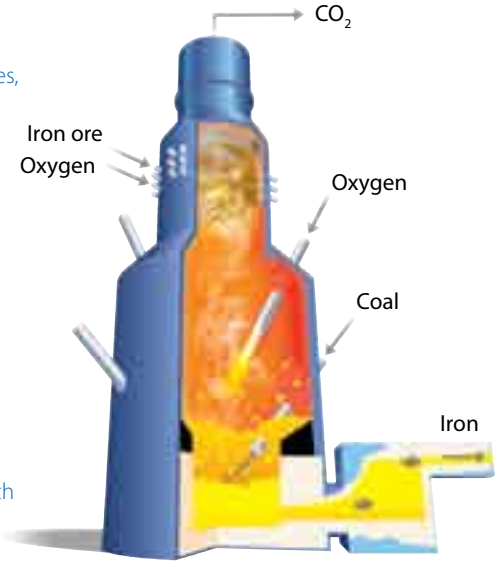
It is a scientific fact that the scope for achieving further significant reductions in $CO_2$ emissions from the conventional iron and steelmaking process is very limited. As a result, the production of hot metal via the blast furnace route must be placed on a completely new technological path if a step-change in emissions is to be realised.

Tata Steel 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 has launched a €59 million (US$84.37m) cooperative research initiative to achieve such a step-change. The ultimate aim of the ULCOS project, which began in 2004 and is supported by the European Commission, is to reduce the $CO_2$ emissions per tonne of steel produced by at least 50% by 2050.

**HIsarna technology**

The process is based on direct smelting of iron fines, a concept that has been merged with Rio Tinto's HIsmelt® technology to form HIsarna – a highly energy-efficient, new iron-making technology.

In theory, HIsarna will consume significantly less coal than conventional technologies, which, along with other increased efficiencies achieved by removing the need for sinter and coke, could result in a 20% reduction in $CO_2$ emissions compared to the current blast furnace route. If combined with carbon capture and storage, the emission reduction potential increases to 80% – with additional scope to partially replace coal with biomass, natural gas or hydrogen. A HIsarna pilot plant is planned for construction at our IJmuiden steelworks in the Netherlands.




Phase I of the project identified several breakthrough technologies with the potential to halve $CO_2$ emissions. The most promising include the top gas recycling blast furnace, HIsarna *(see case study)* and advanced direct reduction (all of which would need to be combined with carbon capture and storage), plus electrolysis.

The ULCOS core members and the European Commission have now agreed to embark on Phase II of the project, which will further explore the breakthrough technologies identified with the aim of demonstrating 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. For more information, visit www.ULCOS.org

Independent of the ULCOS project, we are continuing to pursue other long-term solutions. In the UK, our steel plants in Teesside and Scunthorpe are ideally located for $CO_2$ sequestration and we are members of the Carbon Capture and Storage Partnership for Yorkshire and the Humber. Led by the regional development agency, the partnership consists of companies interested in establishing a $CO_2$ network in the region to exploit the carbon storage potential of mature or depleted North Sea oil and gas fields.

## Air quality

Our 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 ($NO_2$).

A combination of direct measurements and detailed modelling work has demonstrated that, when compared to background levels, we do not substantially contribute to airborne levels of pollutants in the vicinity of our production facilities. With the exception of PM10, air quality limits are currently being met in the areas around all our major facilities.

In the case of PM10, point source and diffuse releases from production processes at our integrated steelworks do make a significant contribution to total particulate levels in the local air. This can be a cause for public complaint, and air quality management areas have been declared in the vicinity of our European operations at IJmuiden, Port Talbot and Scunthorpe. We continue to work closely with the environmental authorities to further reduce our emissions in these areas.

We have established a European Air Quality Strategy Group to share good practices, improve operational controls, and instigate further emission reduction initiatives. Formalised reduction strategies for diffuse emissions have been developed for each of our European integrated steelworks, setting out our short, medium and long-term improvement measures.

At our Indian operations in Jamshedpur, we have embarked on a programme to control particulate emissions at their current level

### Dhamra Port project

Since 2004, Tata Steel has been involved 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 industries in the steel, power and mining sectors.

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.

An environmental impact assessment (EIA) for the project was undertaken prior to our involvement, in 1997 and 1998. Approval to proceed with the development was granted by India's Empowered Committee for Environmental Clearance, and the decision was upheld by the National Environment Appellate Authority, in 2000. The EIA's findings, reiterated in the Appellate Authority's judgement, was that turtles had never nested in the Dhamra Port area because there are no sand beaches for them to dig pits and lay their eggs, as there are at Gahirmatha.

Port construction.

Nevertheless, respecting the precautionary principle, we are proactive in taking all reasonable steps to ensure the olive ridley 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.

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

on completion of our expansion project in 2011, which will increase crude steelmaking capacity from 6.8 to 9.7 million tonnes a year. To achieve this, substantial investment is being made to ensure that all new production units are fitted with state-of-the-art emission abatement technologies. Our environmental impact assessors in India and Europe are pooling their expertise to predict the increased emissions and check that the proposed abatement technology has the capability to keep emissions at current levels.

Another example of our commitment to minimise the impact of our operations on local air quality is the £9 million (US$12.87m) investment in particulate emission controls at the BOS plant in Scunthorpe steelworks, UK. By October 2008, the new system of fume collection hoods on the metal pouring and desulphurisation stations were operational. The investment includes new fans and bag filters capable of removing even more particulates.

During the year under review, significant attention was also given to reducing fugitive particulate emissions at each of our electric arc furnace sites. In Thailand, a new fume extraction hood was commissioned to achieve a significant improvement in operational control. To verify its effectiveness, a Continuous Emission Monitoring System (CEMS) has been installed on the bag filter exhaust.

In Singapore, a multi-million dollar project was launched to install a new, more efficient, bag filtration system within the meltshop, due to be completed by early 2010.

Raw material stockyards are another source of diffuse particulate emissions, and during the year we made improvements in this area throughout the Group: from implementing a new policy in Singapore to purchase only clean feedstock, to trialling dust suppression agents on haul roads at Teesside in the UK. Additionally, a £7 million (US$10.01m) improvement project to redesign the scrapyard and scrap-handling bay at our EAF operations in Rotherham, UK, has had a dramatic effect on diffuse emissions as well as significantly improving the efficiency of the steelmaking process.

Table 7 presents the Tata Steel Group's total mass emissions to air for particulates, oxides of nitrogen, and sulphur dioxide from steelmaking and downstream non-steelmaking facilities. The data shown represents the 32% of our manufacturing facilities where emissions to air exceed the

**Table 7** Mass emissions to air from steelmaking and downstream facilities
*Thousand tonnes per year*

| | 2008/09 | 2007/08 |
|---|---|---|
| **Particulates** | 16 | 18 |
| **Oxides of nitrogen** (NO and $NO_2$ as $NO_2$) | 27 | 29 |
| **Sulphur dioxide** ($SO_2$) | 35 | 36 |

**Table 8** Mass emissions to water from steelmaking and downstream facilities
*Thousand tonnes per year*

| | 2008/09 | 2007/08 |
|---|---|---|
| **Hydrocarbons** | 283 | 173 |
| **Suspended solids** | 613 | 711 |

reporting threshold (see the *Performance Summary*). It is too early in the process of reporting Group-level data to establish any performance trends.

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 Europe's activities at IJmuiden and public health in the surrounding neighbourhoods. The results of the investigation were presented to the Dutch Parliament on 1 October 2009.

The report presents a well-balanced assessment of the health issues and their possible causes. An important finding is that no distinct conclusions could be drawn on the causes of cancer found in the neighbourhoods surrounding the IJmuiden steelworks, and that in general the incidence of cancer corresponds to the Dutch national average. A full copy of the Dutch National Institute for Public Health and the Environment (RIVM) report is available at www.corus.nl

Tata Steel Europe is committed to continuously reducing the impact of its operations. Significant improvements have been accomplished at IJmuiden over recent decades and we will continue our efforts to reduce emissions, by further improving our processes and applying the latest abatement technologies.

### 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 consumption and prevent pollution. In fact, our steelmaking operations in Thailand and our quarries and mines in India have optimised their control measures to the point of emitting no discernible discharge to water.

Antoine van Hoorn, water consultant, IJmuiden, the Netherlands.

To minimise the impact of our process effluents, we have installed a complex range of biological, chemical and physical effluent treatment technologies at our plants, and strive continuously to improve our treatment capabilities.

Table 8 presents the Tata Steel Group's total mass emissions to water for suspended solids and hydrocarbons from steelmaking and downstream non-steelmaking facilities. The data shown represents the 44% of our manufacturing facilities where the emissions to water exceeded the reporting threshold (see the *Performance Summary*).

A significant proportion of the increased emissions of hydrocarbons during the year under review was the result of an incident at our Teesside steel plant in the UK, where fuel oil was released into the River Tees.

We are mindful at all times that fresh water is a valuable and finite resource. Relatively large volumes of water are used to make steel, and although most of the water we extract is returned to the same watercourse, the amount of fresh water we consume is difficult to quantify. Our researchers are developing a water footprinting tool, which will ultimately provide a measure of fresh water consumed per tonne of steel product produced. This will allow us to target water saving measures where they are needed most.

Working in conjunction with the UK Environment Agency, our packaging steel production facility at Trostre in Wales has successfully implemented a number of water-saving measures to reduce its weekly consumption by 45% compared to 2003 levels. This equates to approximately 24,000 cubic metres per week – equivalent to six Olympic-size swimming pools.

At our operations in Singapore the use of NEWater – recycled water – increased during the reporting year to offset 95% of the potable water consumed. Process water recirculation systems have also been improved, with the introduction of water-efficient fittings and more frequent maintenance to reduce water losses especially at the cooling towers.

**Table 9** By-product utilisation *Thousand tonnes per year*

| | 2008/09 | 2007/08 |
|---|---|---|
| **Blast furnace slag** | 5,370 | 5,623 |
| **BOS slag** | 2,316 | 2,701 |
| **EAF slag** | 361 | 381 |
| **Tar and benzole** | 364 | 382 |
| **Other** | 2,097 | 1,786 |

**Table 10** Waste materials management *Thousand tonnes per year*

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

## Material efficiency

Our by-products meet tight quality control requirements enabling non-renewable primary raw materials to be displaced and conserved in line with the principle of sustainable consumption.

The most significant, in terms of volume, is the use of blast furnace slag as a clinker substitute in the concrete sector – reducing mineral extraction and $CO_2$ emissions at the same time. Similarly, steelmaking slags are used in civil engineering and agricultural applications, with tar and benzole from our coke-making processes used within the chemicals industry. The consumption of these principal by-products is presented in Table 9.

We are continually looking for new ways to make productive use of the materials generated by our processes, and our involvement in the World Steel Association By-Products Management Project will identify further opportunities. Launched in 2007, the aim is to establish the types, quantities and utilisation of steel industry by-products and the drivers for their efficient re-use, recycling or recovery.

Raw material security is a cornerstone of our business strategy, and we aim 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.

At our integrated steelworks we already apply advanced techniques 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 18 million tonnes of residual materials were internally re-used through our processes, successfully replacing primary raw materials and reducing our overall $CO_2$ emissions.

Although we achieve a high level of internal re-use, some waste is inevitably generated. In these cases, the focus shifts to ensuring that waste materials are re-used, recycled, or recovered by third parties.

Landfill is the main method used when disposal is the only cost-effective alternative, and our landfill sites are covered by stringent national regulatory requirements. Table 10 provides a breakdown of materials re-used, recycled, recovered or sent for disposal from all our facilities including the quarries and mines.

## Biodiversity

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

To help us manage the biodiversity at our large facilities in the UK, we were a founder member of both the Teesside and Humber branches of the Industry and Nature Conservation Association (INCA). Since 1989 we have worked closely with other industries, volunteers and INCA to improve our understanding of the biodiversity in and around our steelworks. For example, every year 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.

An extensive reclamation and afforestation programme ensures that our mines and quarries are carefully restored to create

suitable habitats. To date, more than 280 hectares of former mineral workings have been restored. 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 past 20 years. Through the Tata Steel Rural Development Society, we also engage with local communities to encourage the sustainable use of the forest as a source of livelihood.

Many of our sites now monitor and benchmark the habitats and species present, producing action plans to encourage further biodiversity within designated non-operational areas. We warmly 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 agreed not to carry out any mining that would damage the outstanding universal value of the property in Côte d'Ivoire.

### Responsible procurement

Interest in the responsible procurement of raw materials has grown in prominence in recent years and the Tata Steel Group is positioning itself at the forefront of steel industry efforts to formulate best practice in this area.

In Europe, the focus on responsible procurement has largely been associated with the UK construction sector. Here we have contributed, through the Construction Products Association and the Building Research Establishment (BRE), to the development of a UK standard for the responsible procurement of construction products.

At the same time, we have continued to work with a range of stakeholders, under the auspices of the UK's Eden Project, to further understand the key criteria for assessing responsibility within constructional steel supply chains.

During 2008, Milieudefensie, a leading environmental pressure group in the Netherlands, carried out a detailed investigation into the environmental and social impacts of raw materials imported by large Dutch companies. Tata Steel Europe was approached to provide information on the procurement of coal and tin used at the IJmuiden steelworks, and responded with openness and with transparency. Milieudefensie's report, available on its website, commends the company for having established systems to prevent the procurement of tin from regions where environmental protection and human rights are not being adequately addressed. The report also included a number of recommendations to further improve our procurement practices, and we are taking these forward.

All of our external iron ore suppliers have management systems certified to ISO 14001. Our principal supplier, Vale, has initiated a wide range of initiatives to contribute to the protection of biodiversity and the elimination of poverty in the areas of Brazil where their 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. We believe that direct ownership of raw materials gives us greater control to enforce our high standards of environmental protection.

### Producer responsibility

REACH is a new European Union regulation relating to the registration, evaluation and authorisation of chemicals. Our facilities within the European Union have an obligation for the substances we manufacture and import, and for substances exported by other Group businesses into the EU. We have established a dedicated team within Tata Steel Europe to fulfil our requirements under REACH and to liaise with our customers and suppliers. For further information, visit www.corusgroup.com/reach

Working closely with a variety of partners, we are developing 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.

### Product stewardship

We understand that the characteristics of our products and the information that we provide to customers can have a profound effect on the environmental performance of those products through 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 our products manufactured in Europe and, in partnership with our customers, we have also published 49 environmental product declarations looking at 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.

Left: A new habitat created for a protected species of newt, Scunthorpe works, UK.

# Sustainable solutions

**The intrinsic benefits of steel make it a sustainable choice for a wide range of applications. Steel is strong, durable, versatile, re-usable and recyclable. Steel in use today will be re-used and recycled many times in the future – it is 100% recyclable, and more than 40% of the world's current production of 'new' steel is made from recycled steel.**

So steel is essential to modern life. The Tata Steel Group works closely with its customers in key sectors to develop products and solutions that help them meet the challenges of sustainability; creating economic value, benefiting society and safeguarding the environment.

### Sustainable construction solutions

Steel in construction offers many advantages, and we work continuously to maximise each of these benefits.

*Adaptable*

Steel buildings are inherently adaptable and can be easily extended. Steel's lightness, relative to alternative construction materials, enables new structures to be built as extensions to existing buildings without overloading their foundations. They can be unbolted, reconnected, modified, repaired, re-used and recycled. Existing buildings can be refurbished with modern steel roofing and cladding systems to bring them up to today's high standards of performance.

Tata Structura was used in Mumbai airport, India.

Our tubular steel sections, available in a wide range of round, rectangular and square forms, give greater flexibility in use and higher strength to weight ratio than conventional sections, enhancing a building's structural efficiency and reducing costs. For example, Tata Structura provides an innovative construction solution for the Indian market, allowing architects and engineers to challenge the conventions of traditional building design. Tata Structura was used in Mumbai airport to create a capsule-shaped structure which spans over 28 metres. www.tatatubes.com/closed_case.htm

*Fast and safe*

Steel construction generates very little waste, and what there is can be fully recycled. Steel construction is dry, dust-free, comparatively quiet, and requires relatively small volumes of materials to be delivered to site. The offsite manufacture of steel construction products ensures high quality under controlled conditions. Factory manufacture is also safer, faster and more efficient than site working. In turn, it reduces site construction times, minimising the impact on surrounding communities.

The advantages of steel in construction are demonstrated in the landmark ICICI Bank building in Hyderabad in India. The use of our ComFlor 80 steel decking offered the building's designers wide spans between beams, saving on material and reducing construction time.

Steel products fabricated offsite can minimise disruption to the public. We supplied the steelwork for a new footbridge spanning the M8 motorway in Scotland. The 90m bridge has a helical truss design using structural hollow sections. The bridge was pre-fabricated offsite and delivered in seven sections. The main 230-tonne span was erected in a single lift, limiting road closure to one evening. This significantly improved health and safety for the construction workers and lessened the impact on motorists using this section of Scotland's busiest motorway.

In Singapore, we are increasingly using offsite fabrication of reinforcement products such as wire mesh and reinforcement bars. This helps to minimise site material wastage and improve working conditions and safety on the construction site, and reduces congestion in the crowded city environment.

Steel-framed modular construction is also fast, efficient and safe. Under a long-term contract to provide accommodation for the British Army, we are supplying 155 three-storey buildings, each comprising 36 fully

*"I suggest that the most significant contribution organised industry can make is by identifying itself with the life and problems of the people of the community to which it belongs, and by applying its resources, skills and talents, to the extent that it can reasonably spare them, to serve and help them."*

**J.R.D. Tata**

### Minimising a building's footprint

Vulcan House in Sheffield is one of the greenest buildings in the UK, and has been awarded an Excellent rating under the Building Research Establishment's Environmental Assessment Method (BREEAM). The project was established as a benchmark of optimum environmental performance for future government construction projects. The design minimises the building's ecological footprint, taking into consideration carbon dioxide ($CO_2$) emissions through construction, operation and eventual demolition.

The building's cube shape helps to regulate its internal climate, reducing the amount of energy consumed for heating and cooling. A steel frame, supplied by us, was selected for its speed of construction, light weight and thermal insulation. Cellular steel beams achieve the maximum possible floor-to-ceiling heights and carry all services, creating column-free zones. The long span beams make it possible to change the configuration of the building in the future with minimum effort and cost.

Vulcan House, Sheffield, UK.

fitted steel-framed accommodation modules. The modules are manufactured at our Living Solutions facility at Shotton in Wales and are fully fitted with furniture and carpets before they leave the factory. Since the first building was delivered in October 2006, onsite erection time has been reduced from 14 days to five days.

*Resource-efficient*

Steel's high strength-to-weight ratio can be exploited to create resource-efficient structures and buildings.

*Emissions reducing*

Most of the carbon dioxide ($CO_2$) generated by a building is a result of the energy consumed during its occupation. Steel cladding systems produce thermally efficient building envelopes. Twin-skin (built-up) and composite steel systems achieve high levels of thermal insulation and air-tightness. By providing designers and decision-makers such as architects with technical guidance on our products, we enable them to capitalise on the $CO_2$ savings that steel offers.

Confidex Sustain® offers a cradle-to-cradle carbon-neutral building envelope. This means that for every 1kg of $CO_2$ emitted by the pre-finished steel, cladding, fixings and insulation, the Tata Steel Group will offset 1kg in climate-friendly projects overseas through The CarbonNeutral Company. Confidex Sustain® won the Chartered Institute of Waste Management's award for sustainable product of the year 2008 and was runner-up in the innovation and technology category of the 2008 Building Sustainability Awards. To date, over 900,000 square metres of Confidex Sustain® pre-finished steel sheet has been installed, which equates to more than 22,500 tonnes of $CO_2$ offset.

*Innovative*

Efficient use of thermal energy requires special low temperature distribution systems. Steel can make an important contribution to such systems, and our Construction Centre in the Netherlands is working on innovative solutions. A heating and cooling system, known as Comfort Vite, is now sold under licence by a company called Warmteplan.

Bi-Steel protection systems in London, UK.

EMC² ceiling system.

The system uses the metal's conductivity to radiate heat into the living space, from water contained in steel tubing within the walls or ceiling. Further advances are also being made by the Construction Centre through the development of a new ceiling system, EMC², that 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.

*Secure*

When world leaders met in London for the G20 summit in March 2009, they were protected by our Bi-Steel perimeter protection systems. 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: in Whitehall, central London, it has even been clad in Portland stone to blend in with the surrounding historic buildings.

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

Butterfly Park, Bangalore, India, created with Tata Structura.

released during earthquakes, and to bend without breaking, allows our customers to build stronger and safer developments within earthquake zones. We are working in partnership with the Indian National Institute of Disaster Management to provide technical guidance for safe construction practices within seismic zones to decision makers such as architects and designers. Workshops have already been held in particularly vulnerable regions such as the north-eastern states of India.

*Looking to the future*

The UK construction industry faces an unprecedented challenge to significantly reduce greenhouse gas emissions generated from the built environment. The objective is clear and the targets set, but there is a lack of reliable data to inform the technical decisions that need to be made.

In order to fill this gap, the British Constructional Steelwork Association – the representative organisation for steelwork contractors in the UK – and Tata Steel Europe have jointly commissioned engineering consultancy AECOM to lead a £1 million, (US$1.43m) three-year development project to generate fully detailed and costed solutions for five building types in order to meet the emissions reduction targets set by the UK government towards the ultimate aspiration of zero carbon by 2019.

Reports and guidance will be produced for each of the building types (schools, warehouses, offices, supermarkets and mixed use), available from www.targetzero.info

## Sustainable transport solutions

The Tata Steel Group partners with its customers in the transportation sector to create the materials and services that will enable them to build safer, more fuel-efficient and environmentally-conscious transport systems.

*Recyclability*

Over 99% of the 60 million cars made globally each year have a steel-intensive body. Steel is safe, affordable and is the world's most recyclable engineering material. Steel has a vital role to play in achieving the 95% recyclability target required from 2015 by the European Union End-of-Life Vehicles Directive.

*Safer vehicles*

Our continuing development and improvement of steel rolling technology for tailor-rolled blanks is just one example of how we are actively helping our automotive customers to engineer lighter, stronger and more stable platforms within which safety devices such as front-end crash structures, air bags, knee bolsters and anti-submarining seats (preventing crash injuries caused by passengers sliding forward) can function effectively.

*Safer roads*

Tata Steel Europe has been manufacturing highway barrier systems for over 40 years, producing and testing the safety fences and bridge parapets on the UK's major road network. Our range of Protect 365™ highway bridge parapet systems offers robust solutions for elevated roadways and complements our award-winning Vetex™ safety fence system, which reduces installation time and in turn the exposure of road workers to the hazards of moving traffic.

*Emissions challenge*

There is a direct link between vehicle weight and $CO_2$ emissions, and legislative pressure is increasing in the EU and US to reduce vehicle emissions. Our Advanced High Strength Steels (AHSS) are a key material in the toolkit used to reduce vehicle weight. The average car is already 60kg lighter thanks to the use of AHSS. Our VA/VE (Value Analysis/Value Engineering) approach is a proven method for evaluating and optimising the gauges, grades and coatings of vehicle body and chassis components in order to reduce the weight and costs of prototype and production vehicles.

Vetex ™ safety fence system.

Left: ICICI building, Hyderabad, India.

Above: European high-speed rail network.

Right: Tata Steel Europe automotive research engineers Ivan Phillips and Fouzia Hannour studying a car design for cost and weight improvements.

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 – which equates to a total reduction of 2.2 tonnes of $CO_2$ for an average car. This more than offsets the total $CO_2$ emitted in the manufacture of the AHSS used. Our latest grades of AHSS steel, such as DP800 HyPerform®, are targeted at pushing these $CO_2$ and weight-saving opportunities even further and are configured for easy adoption by car makers.

We are also applying our expertise to freight vehicle design, and have successfully assisted an LGV trailer manufacturer to identify up to 350kg of potential $CO_2$ savings by specifying a different grade of steel (Ympress®) in its chassis.

Our nickel-plated steels offer the automotive industry added flexibility when it comes to designing alternative fuelled vehicles. The superior corrosion resistance of our nickel-plated steels allows them to be used for fuel lines in vehicles where the engine is designed to run on bio-fuels, or a mixture of gasoline and ethanol or methanol.

*Innovations*

Our continuing investment in research and development has produced an array of innovations and engineering analysis tools to help engineers select the right material grade for their vehicle structures. We developed Forming to Strength®, for example, a software tool to optimise the use of steel in components. Such tools are helping to reduce weight and thereby reduce $CO_2$ emissions from vehicles.

When manufacturers need to bring a new design into full production rapidly, we offer technologies, services and advanced computer-aided engineering tools, such as In-Form™, an innovative simulation technique that helps customers to reduce material and energy wastage and save on start-up costs.

Our new product MagiZinc® is a hot-dip zinc coating to which small amounts of aluminium and magnesium have been added. Tests have shown that MagiZinc® offers at least four times more corrosion resistance than conventional galvanised steel for the same coating thickness. Work is ongoing to reduce the coating thickness even further. This opportunity to reduce metallic coating weight, while giving improved material properties, is attracting growing interest from customers in both the automotive and construction markets.

Our AHSS range already provides vehicle weight savings, and through our successful collaborative product development of High Strength and Ductility (HSD®) steels with Salzgitter AG, we will further help our customers to build lighter yet safer vehicles emitting lower volumes of $CO_2$. HSD® steels represent a new era in material application for the automotive industry and will enhance future designs, such as electrical and hybrid alternatives.

*The rail option*

Tata Steel Europe is also playing a part in helping to meet the increased demand for rail – one of the most sustainable forms of public transport. A £2 million (US$2.86m) investment in our Rail Service Centre in 2008/09 has helped to secure orders for the expansion of railway infrastructure in Europe. Our plant in Hayange, France, is a major supplier of rails to the high-speed network that carries passengers swiftly and safely throughout Europe. Profiles for switches and crossings, made at both plants, are being used in major renewals and upgrades, helping to increase rail safety. Our Silent Track solution is helping to cut noise pollution on railways, reducing vibrations through a system of dampers on rails.

*Looking to the future*

The Tata Steel Group is participating in the World Steel Association's multi-million dollar 'Future Steel Vehicle' project, which will develop steel auto body concepts that address alternative powertrains such as advanced hybrid, electric, and fuel cell systems. The goal of the research is to demonstrate safe, lightweight steel bodies for future vehicles that reduce greenhouse gas emissions over the entire life cycle.

In the UK, a number of our engineers have been involved in a government-sponsored initiative, the New Automotive Innovation and Growth Team (NAIGT), and will also participate in a new programme, called 'Test Bed UK', to trial, promote and develop new ultra-low carbon personal transportation systems.

### Sustainable packaging solutions

Steel packaging is strong, lightweight, and completely protects its contents from light, air and water. It is the only packaging material for heat-processed food that maintains the condition of nutrients without the need for additives and preservatives. Using steel packaging for food reduces greenhouse gas emissions over the entire life cycle, particularly when compared to food preparation by freezing, and its long shelf life reduces waste.

*Lightweight solutions*

Advances in steelmaking and manufacturing technologies have enabled the development of increasingly lightweight steel packaging solutions, which require less raw material and energy to produce, thereby reducing their carbon footprint. 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.

We are working with our customers to further 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%.

Steel packaging already meets the highest food safety standards, though we are continually researching new coating systems. Protact® is a polymer-coated steel that provides improved corrosion resistance against aggressive acid and chemical can contents, and offers further improved colour characteristics.

*Packaging recycling*

Steel's magnetic properties make it easy to separate from the post-consumer waste stream, and it is 100% recyclable.

Globally, more than two out of every three steel cans are recycled after use – avoiding 13 million tonnes of $CO_2$ being released to the atmosphere. This exceeds recycling rates for plastic and aluminium, the two most common alternative packaging materials.

We recognise the importance of recycling in the carbon economy, and are committed to increasing the already high recycling rate for steel within the countries where we manufacture steel for packaging. 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.

Sustainable solutions in packaging steel.

We have established a dedicated centre responsible for managing compliance with packaging recycling regulations in the UK, where we are the largest issuer of steel Packaging Recovery Notes (PRNs). In 2008, our business recycling rate for steel in the UK was 76%. We play a central role in steel packaging recycling within the UK, and our commitment to its success is shown by the fact that the country surpassed its 2008 national steel packaging recycling target of 54%, achieving a recycling rate of 62%.

By investing PRN funds in local authority collection systems, waste management companies and private can collectors, we have helped divert over 300,000 tonnes of packaging waste from landfill over the past ten years. We have also contributed to investments in can balers, can flatteners and sorters, can banks and conveying systems.

MagiZinc® offers at least four times more corrosion resistance than conventional galvanised steel.

*Looking to the future*
Education is vital in sustaining and further improving steel packaging recycling rates, and we continue to play an active role in promoting awareness and enthusiasm. In 2008/9 employees visited 25 schools in the UK to spread the recycling message, while our informative and interactive recycling education website, www.scrib.org, is proving both a popular and practical resource for teachers and their pupils.

## Sustainable energy solutions

There are many areas in which our steel is playing an important enabling role in adapting technologies or creating new infrastructure to meet the needs of a more sustainable energy mix.

*Electrical steels*
As global energy demand continues to grow, so does the need for more efficient electrical transformers. Our electrical steels are used to generate, transmit and facilitate the use of electrical power. Advances in steelmaking and annealing processes have improved the electrical properties of grain-oriented silicon. These types of electrical steels reduce energy losses from transformers, saving the equivalent of 4.9 tonnes of $CO_2$ per tonne of steel compared to 20 years ago.

Increasingly, electrical steels are 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*
Our steel pipelines are helping oil and gas companies to access deeper offshore fields through the development of linepipe technology that is able to function at depths of over 3,000 metres.

*Wind*
We have strong relationships with the world's leading companies in the growing market for wind energy. Our speciality engineering steels are used to manufacture gears, bolts and bearings for wind turbines. Our electrical steels are the vital component in converting kinetic energy from the wind into electrical energy. Our steel plate is fabricated into wind towers up to 60 metres high that must withstand demanding weather conditions both onshore and offshore. Many hundreds of these towers are now in operation in Denmark, Germany, Spain and the US. We also continue to play an active role in the development of this renewable energy technology through membership of the British Wind Energy Association.

*Wave*
Wave power is attracting growing interest and investment as a potentially viable source of renewable energy, particularly in Europe. Our steel plate is used to fabricate the Pelamis wave energy converter, which formed the world's first wave farm off the coast of northern Portugal. Each machine is capable of producing 750kW of power. Full commercialisation would typically produce 22.5MW, sufficient to supply electricity to 15,000 households.

*Tidal*
We supplied steel for a prototype tidal power generator installed in the UK's Humber estuary in 2008, which is capable of producing up to 100 kilowatts of electricity – enough to power about 70 homes. Following successful trials, a one megawatt generator is expected to be developed.

*Photovoltaics*
One of our most exciting research and development (R&D) projects currently is our joint venture with the Australian company Dyesol – a world leader in dye solar cell (DSC) technology. DSC is an emerging photovoltaic technology that mimics photosynthesis in plants.

The goal of the project is to develop, manufacture and market metal roof and wall cladding products with DSC functionality integrated into the strip steel. This ambitious £11 million (US$15.73m) project is being supported by the Welsh Assembly Government in line with its objective of creating sustainable, high value-added employment in Wales, based on innovation and the renewable energy sector.

Our steels are used in wind tower components.

A dedicated R&D facility, including a pilot production line, has been built at our site in Shotton, Wales. Initial coating trials have proved highly promising, and during the next phase of development, due for completion in May 2010, manufactured product will be subjected to rigorous acceptance testing.

DSC-integrated steel roofing has the potential to become the first solar cell technology that is grid-competitive in the normal light levels experienced in most cities around the world, as opposed to full sun conditions needed for other solar technologies. Dye solar cells exhibit operating voltage stability across a range of weather conditions, including cloud and haze.

DSC is also less susceptible than other solar technologies to very hot weather, and it comes in a variety of natural colours that can be pigment-modified to achieve a wide range of optical effects. Combined with the low energy required for manufacture and the relatively inexpensive materials used in construction, DSC has tremendous promise as a reliable and efficient source of renewable energy wherever steel roofing is used.

Other photovoltaic applications come from Kalzip, our specialist aluminium roofing business, which 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.

On a building in London, for example, a typical 15 kWp Kalzip AluPlusSolar system would yield over 12,000 kWh of electricity per year – equivalent to an annual $CO_2$ saving of almost seven tonnes. AluPlusSolar technology currently contributes some 2,000 MWh to Europe's energy needs.

Our Construction and Engineering Products business in Wales has found a niche in designing a simple Z-frame for solar panels. The frames have now been used in nine solar farm projects in Spain which together generate 13MW of electricity.

*Looking to the future*

Our energy products and expertise are being used in developments at the forefront of scientific advancement. We worked with CERN scientists who created the Large Hadron Collider, heralded as the biggest scientific experiment since man landed on the moon. This particle accelerator aims to reproduce conditions similar to those just after the Big Bang. Tata Steel Europe manufactured the electrical steel 'C' cores for the Beam Dump apparatus, which safely decelerates the beams of particles by firing them into a block of graphite to absorb their energy.

Left: Kalzip solar roofing products in Milan, Italy.

# Contributing to society

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 strongly that the company had a responsibility to 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 wherever it conducts business.

## Economic contribution

The Group contributes to local and regional economic development globally. At the end of March 2009, we employed approximately 80,000 people in many different countries. We also generate economic benefits indirectly for thousands more people who assist us as contractors and suppliers.

Our steel products are used to build and improve the infrastructure in many countries. In Singapore, for example, our steel has been used in the Mass Rapid Transport metro system and Changi Airport. Rail made in our UK and French plants forms much of the European high-speed railway network.

We also provide the steel for the construction of much-needed housing and social facilities in many developing countries. In rural India, Tata Steel was the first company to introduce a dependable and transparent distribution network to supply millions of residents with a quality-assured and affordable galvanised roofing material called Tata Shaktee®.

### Disaster relief

Tata Steel spearheads the Tata Relief Committee to provide donations and volunteer support in the event of disaster in India. The aim is to help those affected get back on their feet and to rebuild local infrastructure.

In 2008, the floods in Bihar state left many hundreds of thousands of people homeless and devastated. The Tata Relief Committee sent volunteers, including a team of doctors, to assist in the relief work. We donated over 440 tonnes of our pipes in various sizes for building temporary shelters, and constructed 27 flood centres. Tata Steel also committed to assist in ongoing rehabilitation work in the villages, and supplied additional materials for the reconstruction effort at concessionary rates. The Tata Relief Committee has so far built 44 earthquake-resistant houses, with another 100 planned.

After the 2008 floods in the state of Orissa, we supplied 27,550 tarpaulins for temporary shelters and almost 2,000 sheets of Tata Shaktee roofing material for new housing. When flooding also affected Jamshedpur in June 2008, we moved 3,000 people to safety, set up 10 relief camps and dispatched emergency supplies and medical teams to affected areas.

In Thailand, we also acted quickly in response to flooding, distributing 'life bags' to villagers in Tambon Khao Sam Yord, Lopburi province and to affected people in Phra Nakhon Si Ayutthaya province.

Through our NatSteel companies, we gave assistance following bush fires and floods in Australia, the Sichuan earthquake in China, Cyclone Nargis in Myanmar, and floods in Bac Giang and Vinh Phuc in Vietnam.

### Changes to operations

We always endeavour to take a considerate and responsible approach whenever changes are called for in our operations, to ensure that the economic and social impacts are minimised and handled sensitively.

*"In a free enterprise, the community is not just another stakeholder in the business, but is in fact the very purpose of its existence."*

**J.N. Tata, founder**

Distributing 'life bags' after flooding in Thailand.

### Helping UK steel regions

UK Steel Enterprise is a wholly-owned subsidiary of Tata Steel Europe. Its aim is to help improve the economies of those areas of the UK most affected by changes in the steel industry.

Over the past 30 years, UK Steel Enterprise has provided finance and premises, together with help and advice, to more than 4,500 small businesses. The £72 million (US$102.96m) it has invested since 1975 has enabled these businesses to create over 70,000 new jobs in steel areas. Examples of the type of assistance offered include helping an East Kilbride-based company secure £500,000 (US$715,000) in funding to expand into Europe and providing investment for new technology to help a printing company beat the recession in the North East of England.

UK Steel Enterprise also supports community projects. During the year, these included a club in Rotherham to benefit the elderly and the very young, an anti-drugs campaign for children in Scotland, a creative training academy for young people near Stoke-on-Trent, and a regeneration charity for the unemployed in Middlesbrough.

Social enterprise assisted by UK Steel Enterprise, Middlesbrough, UK.

In response to the severe economic downturn during the year under review, we restructured and refocused our operations in Europe, which led to the loss of around 4,000 jobs. We have made every effort to achieve the reductions through voluntary, rather than compulsory redundancies, while ensuring that critical skills are retained. A full and fair range of redundancy benefits and outplacement support services will be provided to all the employees leaving the company as a result of the reorganisation.

### Greenfield development

Whenever we plan to extend our business 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 activities will indeed bring sustainable economic benefits and that the environment will not be adversely affected by the planned 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 our new operations.

Our resettlement and rehabilitation programme in India, known as 'Tata Steel Parivar', 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, but also to create sustained well-being for families affected by our growth projects. Parivar members such as Mangal Bage have benefited from training, self-help group membership and loans, as well as improved housing and better facilities in their new neighbourhoods. Mangal Bage was trained in welding, and now works in Tata Steel's fabrication yard at Duburi. He has bought his own house and is able to afford to educate his children so they, in turn, will have the opportunity to shape their own futures.

### Indigenous communities

We respect the rights of indigenous communities and seek to ensure that our operations do not adversely affect them.

The needs of any indigenous community are also 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.

We respect and promote the cultures of tribal peoples in India through our Tribal Cultural Society.

The Heritage Hall in our recently renovated Tribal Cultural Centre in Sonari, near Jamshedpur, showcases the cultures of local tribal peoples and these groups also use the centre for cultural and development activities. We host regular cultural events to promote tribal sport, dancing, art and languages.

### Compensation and resettlement

A one-off payment by Tata Steel of Rs. 721,600 (US$14,185), in addition to Rs. 57,500 (US$1,130) compensation for land and housing, helped the Gagarai family increase its annual income more than sixfold. Pandu trained as a mason with the help of Tata Steel, and his wife and mother have started a poultry farm. With the increased income, the children are now enjoying a good education.

Pandu Gagarai.

Ramachandra Jamuda has come a long way from his village roots and the limited educational opportunities they afforded. After being resettled owing to the development of the steel plant at Kalinganagar, he trained and is now working in the fast-growing call centre industry in Bangalore. His younger brother Laxman works in the Tata Growth Shop in Jamshedpur and mother Sabita runs a sewing unit supplying uniforms to schools in the Jajpur district of Orissa.

### Developing skills

The Tata Steel Tribal Cultural Society currently supports 20 active self-help groups with a total membership of 216. The society conducted four training programmes during the year to develop craft and entrepreneurial skills, including stone carving, candle making, jute crafts, and making sanitary and paper products.

To further promote indigenous crafts and introduce rural craftsmen and women to potential markets, we hosted the 17th Gramshree Mela (village fair) in March 2009 in collaboration with the Council for Advancement of People's Action and Rural Technology (CAPART). Over 209 stalls displayed artefacts created by artisans from 20 Indian states and sales amounted to more than Rs. 800,000 (US$15,727).

Tribal cultural centre, Sonari, India.

Health support in India.

In 2008, four tribal hamlets of the Birhor and Savar tribes in the Singhbhum and Saraikela Kharsawan districts of Jharkhand state benefited from several of our targeted development programmes and educational initiatives such as the Sakshar Samaj programme to improve literacy for people aged 16 and over.

During the year under review, we organised and completed two courses in more than 100 centres, assisting 3,830 adults to achieve functional literacy. Another development programme involves coaching students from Scheduled Castes and Tribes for competitive examinations and acceptance on professional training courses. One beneficiary this year was Chandan Ram, who is now a Tata Steel apprentice in the auto trade in Jamshedpur following coaching for the selection examination.

Our policy of affirmative action in India helps to address inequalities and ensure that people from Scheduled Castes and Scheduled Tribes are treated fairly and equally, particularly in relation to employment rights.

## 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 community health is poor and local facilities are lacking.

### Extending health services

During the year under review, Tata Steel's healthcare services in India immunised 7,750 children, carried out approximately 8,400 antenatal check-ups, conducted over 1,640 cataract operations and assisted more than 2,600 people with disabilities, providing certificates, aids and appliances.

We worked with approximately 24,000 young people through project 'RISHTA' to raise awareness of and promote sexual health in young people aged 15 to 24. Young people in this age category form a significant proportion of India's population and are at risk of teenage pregnancy, sexual disease and abuse.

Also in India, we protected over 7,000 couples through permanent methods of family planning, such as laparoscopic tubectomy in women and non-scalpel vasectomy in men, encouraging and facilitating male participation in family planning (which has been traditionally viewed as the woman's responsibility).

Cleft lip and palate is a relatively common deformity, but has been neglected in India because of social stigma. Tata Steel has been extending support for the condition since 2002, and now works in partnership with the US charity, Operation Smile. To date, more than 3,000 children have had this condition rectified through our healthcare system, including 284 in the year under review.

### HIV/AIDS

It is estimated that 2.5 million people in India are currently living with HIV/AIDS. The significant 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. We recognised the importance of HIV/AIDS intervention in the 1990s, and since then have designed a comprehensive spectrum of measures to address the problems faced in these locations.

Tata Steel's award-winning 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, Project Kavach also includes awareness events, treatment clinics and counselling to minimise the risk of HIV/AIDS among hauliers. Counselling at Sneh Kendra, Jamshedpur, has helped over 1,440 people 'at risk' during the year. Project Sathi, a residential community care centre located in Ganjam, set up in partnership with Orissa State AIDS Control Society, provided treatment and counselling to a further 376 people.

### 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. We 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. Almost all of our 5,000 employees at Port Talbot and Llanwern attended two-hour alcohol and substance awareness sessions in 2008, and more than 200 line managers have already been trained in how to spot and deal with possible drug or alcohol-related issues. During the year, 20 employees were given the chance and support to take control of their lives again through rehabilitation – 90% whilst remaining in full-time employment.

Drugs and alcohol awareness session, Port Talbot, UK.

### Assistance for the less physically able

NatSteel's social programme, Building Beyond Borders, was introduced in 2007 with the aim of providing structured and targeted 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. In the reporting year, our donations to St Joseph's Home in Singapore and the Society for the Physically Disabled have helped buy a modified minibus for wheelchair-bound residents and fund bursaries for disabled students.

## 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. We also contribute 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.

### Primary

In the Netherlands, we have developed an educational programme, Techniektorens, designed to encourage children aged 4-12 to become interested in technology. To date, it has been distributed to more than 50 schools in the area around our plant at IJmuiden. In South Wales, we work with local schools to educate children about industry and raise awareness of their future career options, and also support important community projects to improve children's health and safety.

In India, our Early Childhood Education scheme has successfully integrated more than 380 students living in urban areas and 550 children in rural areas into formal education. In our Camp School initiative, we have worked with Jharkhand Education Project to help underprivileged girls enter the mainstream. In 2008/09, 200 girls enrolled in the intensive learning course.

Jharkhand education project.

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 32 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.

In March 2009 Tata Steel Thailand donated 'book corners' to 15 schools located in the communities around the plants in Saraburi, Chonburi and Rayong provinces, as part of an initiative called 'Grow Smart with Tata Steel'. The book corners are designed to help nurture a reading habit in the schoolchildren, which will expand their knowledge and capabilities, and ultimately benefit their families and the local community. Our goal is to create similar book corners in 400 schools by 2012. We have also helped teach basic computer and internet skills to children living near the plants, and repaired computers and set up an internet system for another nearby school.

In the UK, we are helping to inspire the next generation of scientists and engineers with the launch of a unique sport-themed programme to encourage young children to explore the worlds of science, technology, engineering and mathematics. Engineers from the Scunthorpe steelworks in the UK have been working for a year with the Study United organisation and educationalists from North Lincolnshire Council to design the programme. Activities to date include a challenge to design, build and test models of floodlights for Scunthorpe United football club. Teachers in every primary school in the area are being offered training in delivering the interactive programme.

### Scholarships and bursaries

In May 2008, Tata Steel again announced its annual 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 has been running since 1990 and this year fellowships to the value of Rs. 2.5 million (US$49,000) were awarded, reaching out to 246 students at school level and 304 at college/university level. The Moodie Endowment, which encourages youths in various districts of Jharkhand and West Bengal to pursue studies in pure science, awards 110 grants annually worth a total of Rs. 1.1 million (US$22,000).

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 one year for each year of course sponsorship. In recent years, more than 80% of scholars have chosen to stay with the company after the completion of their bonds.

### Educational sponsorship

In South Africa, we are sponsoring school fees, transport and mentoring for Lee-Ann van der Merwe, a gifted but economically-disadvantaged secondary school student. She is seen here with the President of South Africa, Dr Jacob Zuma.

### Helping entrepreneurs in South Africa

When our new ferro-chrome enterprise development plant in South Africa was being commissioned in 2006, we decided to try a different approach to securing cleaning services for the facility. Instead of inviting large, typically white-owned companies to tender for the contract, we went directly to the historically disadvantaged local community to see if they could meet our requirements. Their response was excellent, and with our mentoring to help develop their business skills, the women of the Mafure project won the Emerging Entrepreneur of the Year Award at the Business Women's Association Annual Awards for the Zululand region held in June 2009.

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

#### 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 in Metallurgy 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.

#### 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 a rural area near Joda, India, we have given free driving lessons to 31 women, helping to empower them and provide them with a means of earning a good income. Four of the women are now employed as professional drivers in one of the area's mining companies. We have helped 3,000 young people to acquire valuable vocational skills, training them in community health, computing, and as laboratory pathologists, vehicle mechanics and electrical technicians. Many have gone on to secure further training opportunities and employment. Of the 80 people who received training in our Urban Services initiative, 31 have found permanent jobs to date. We have initiated two major collaborative pilot projects to improve agricultural productivity, and in another project have revived irrigation systems, benefiting 1,400 families.

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

Activities in Thailand include helping with career training for local communities.

## 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 and lend our expertise and resources.

In the UK, we were a major sponsor of the 2008 GO 60 Sharing Our World Project, a challenge to complete the 17,000-mile journey from Solihull to Singapore by Land Rover in just 60 days to mark the car company's 60th anniversary. Proceeds generated by the sponsors of the event were donated to the British Red Cross to help improve the lives of vulnerable children and their families in many parts of the world.

In February 2009, Tata Steel Europe sponsored The World of Iron Conference organised by the Institute of Archaeology and the Natural History Museum in London.

In 2008, we became a sponsor of Telstar football club, near the IJmuiden works in the Netherlands, helping to improve facilities at the club's stadium in Velsen.

Sponsorship of Telstar football club, the Netherlands.

Tata Athletics Academy, Jamshedpur, India.

Kids of Steel triathlon event, Birmingham, UK.

This was in addition to the sponsorship of AZ, the Dutch football club and national champions of 2008/09. The Corus Chess Tournament, one of the world's leading chess competitions, takes place annually in Wijk aan Zee in the Netherlands. The 71st tournament, held in February 2009, attracted 14 of the world's top players, while local people and employees also took part in the tournament's amateur competitions.

In Thailand, we donated steel products to enable the youth volunteer camp of the Faculty of Engineering, Chulalongkorn University, to build bridges in rural areas. We also sponsored lunch and donated goods to orphans at the Pakkred Babies' Home.

## Sports

Participation in sports can have many beneficial effects, promoting a healthy lifestyle and helping to improve self-esteem and interpersonal skills. Accordingly, the Tata Steel Group actively encourages and supports sporting activities through sponsorship and by making more sports facilities available to more people.

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 7,000 children from 250 schools participated in the Corus Kids of Steel events during the summer of 2008, giving each child the chance to experience the three triathlon disciplines of swimming, cycling and running.

In India, we have created a number of top-class sports facilities which benefit employees and the local community. The JRD Sports Complex and Keenan Stadium in Jamshedpur are both used for a wide range of sporting activities. We run programmes to encourage local residents to take part in sport, and particularly encourage people from disadvantaged communities to get involved and achieve sporting success. Participants in our football, archery and athletics academies have represented India.

Achal Gaurav and Alpana Kumari of the Special Olympics Jharkhand Chapter, both supported by Tata Steel, were selected to represent India in floor hockey at the Special Olympics Winter Games in Idaho, USA, in February 2009. Their teams won gold and silver medals respectively.

In Thailand, we work with local government in organising sports competitions in order to promote healthy living and foster good relationships and teamwork.

In India, the Tata Steel Adventure Foundation aims to develop leadership and self-confidence, as well as exciting physical skills, for both the community and the corporate world. Over 200 employees and members of the Jamshedpur community have enjoyed and benefited from a number of activities including water sports and parasailing. The Adventure Foundation also organises wilderness and adventure trips for schools and institutes, with nearly 600 students taking part in 19 programmes during the year.

In the UK, we contributed £10,000 (US$14,300) in 2008 to a sports programme that will see hundreds of children and young people with disabilities from the area around our Port Talbot steelworks taking part in a wide range of activities. The youngsters – from primary school age up to 25 – are able to try a new sport and receive expert coaching, with the opportunity to progress to national competitions.

In Scunthorpe, we participated with the local police force in a 'Be fit, be healthy challenge' that encouraged young people to get involved in community improvement projects during the summer holidays.

## Caring and volunteering

Many of our employees share the Group's philosophy of contributing to society, choosing to offer their time and expertise to help local communities.

In the Netherlands, a special feature of the celebrations to mark the IJmuiden plant's 90th anniversary in 2008 was a 'Hartenactie' ('campaign from the heart') to thank the local community, of which our business has been an integral part for so long. Teams of employees helped local mentally and physically disabled people by tending their gardens and taking them on outings. Many employees have continued these activities since the celebrations.

In South Africa, our staff, their families and service providers joined in to clean and repair playground equipment, classrooms and bathroom facilities at a nursery in Aquadene town, helping to make it a safer and more attractive environment for the children.

In Singapore, our employees are being encouraged to make use of a special volunteering leave scheme in order to accompany elderly residents of St Joseph's Home – one of the company's adopted charities – on outings. A total of 118 staff took this leave, and spent more than 550 hours in total enriching the lives of the elderly residents.

Special volunteering leave in Singapore.

Children of the Aquadene Creche, South Africa, refurbished by Tata Steel employees.

Many employees in India and Thailand have volunteered to take part in the Group's disaster relief initiatives.

Employees around the UK joined in the annual Comic Relief national charity event, raising over £4,000 (US$5,720) through a variety of inventive and sometimes slightly eccentric fundraising efforts.

In South Yorkshire, a new partnership with the Titans Community Foundation is benefiting thousands of youngsters in the Rotherham area. As well as making a financial contribution of £10,000 (US$14,300) to the programme, in which rugby players listen to youngsters read, we give employees time off work to help youngsters improve their reading skills. Each year, we challenge our graduates in South Yorkshire to offer their skills in support of the community. In 2008, the project transformed a school's drama studio into a facility for the whole community. Through our Corus Ambassador Awards scheme, employees who volunteer in the community are able to apply for funding to support their chosen initiative, and awards totalling more than £9,500 (US$13,585) were made in the year under review.

## Green thinking

As well as addressing 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.

Improving reading skills, Rotherham, UK.

In Thailand, we organised an environmental conservation camp for the pupils of schools near our plants. The camp encouraged students to learn more about the environment and raised their awareness of current issues. Following the camp, we are continuing to support a group of students who have embarked on a conservation project within their school.

In India, we completed a two-year pilot programme called Renewable Energy for Rural Livelihoods (RERL) in five villages in the Saraikela Kharswan district of Jharkhand. The aim of the programme is to provide villagers with easy access to cheap, clean fuel. We have set up 255 solar home lights, 21 street lights, 240 biogas plants and five woody biomass gasifiers. This successful project has now been replicated in ten more villages, covering 843 households, and 130 biogas plants were constructed in the year under review.

The Tata Steel Rural Development Society has organised mass plantations involving local people in many of our operational areas in India, including Joda, Bamnipal and Sukinda. We have also conducted awareness campaigns in conjunction with the planting projects to increase understanding of environmental issues within these communities.

# Ethical, transparent and accountable

**This is the Tata Steel Group's first Group-wide Corporate Citizenship Report. We are committed to continuing to develop and improve our reporting of corporate citizenship matters and to supplement the Tata Steel Group Annual Report with more localised and detailed information in line with stakeholder requirements. We also report on sustainability indicators to the World Steel Association (worldsteel).**

*"No success or achievement in material terms is worthwhile unless it serves the needs or interests of the country and its people and is achieved by fair and honest means."*

**J.R.D. Tata, chairman, 1938-84**

### Ethical, transparent and accountable business

Tata Steel Limited is a public limited company with 857,041 shareholders as at 31 March 2009 – the vast majority individuals. Tata Sons Limited is the largest single shareholder, with a shareholding of just over 31%. Around 66% 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 Board of Tata Steel considers itself a trustee of its shareholders and has robust systems in place to deliver its responsibilities for creating and protecting shareholder wealth, while ensuring the interests of other stakeholders in our businesses are safeguarded.

### Accountability for sustainability issues

The Board takes responsibility for sustainability issues and monitors compliance with the law on related matters such as emissions and safety regulations. The Board also regularly monitors performance on key indicators related to our corporate citizenship philosophy and corporate goals for 2012. These are implemented through integration into the business plans of our companies, with associated targets for individual business units and departments. Reporting mechanisms are in place to ensure that associated performance data from all companies is reported and monitored from operational levels though to Tata Steel Group Board level.

### Transparency and accountability

The Board promotes full transparency and accountability in all its transactions, in order to protect the interests of all our stakeholders.

We prepare and maintain our accounts in accordance with the relevant accounting and financial reporting standards that represent the generally accepted guidelines, principles, standards, laws and regulations of the countries in which we conduct our business. Our internal accounting and audit procedures reflect fairly and accurately all of

Electrical engineer Howard Smith, left, volunteering in Uganda.

Kishori Lal, material handler, Steelpark, UK.

Dr Tapan Kumar Rout and Marjon Zonneveld, research and development colleagues, IJmuiden, the Netherlands.

our business transactions and activities, and we have controls to provide this assurance to our Board and shareholders.

### Assurance

We have adequate internal control systems to review compliance and, through the audit committee of the Board, to ensure that effective external audit procedures are performed by external auditors. The audit committee reviews the financial results of the Group before submission to the Board and makes recommendations to the Board on any matter relating to the financial management of the Group.

Internal assurance is provided across the Group companies through a dedicated function which aims to maintain strong, effective internal control systems and, among other things, to ensure the integrity of financial information.

External assurance is applied through our financial auditors and accredited certifiers via standards such as ISO 9001 and ISO 14001.

## From the Tata Code of Conduct

**National interest:** Our companies are committed to benefit the economic development of the countries in which they operate to the extent possible and affordable. Our activities are always in accordance with the laws of the land and also respect local culture, customs and traditions.

**Compliance:** We aim to achieve complete compliance with local, national and international regulations, both in letter and spirit, wherever we operate.

**Competition:** We support the development and operation of competitive open markets and promote the liberalisation of trade and investment in each country and market in which we operate. We do not engage in restrictive or unfair trade practices.

**Conflict of interest:** Employees and directors of our companies must always act in the interest of their company and avoid any conflict of interest. They must declare any potential conflicts of interest to management, including those associated with the interests of family members.

**Securities transactions and confidential information:** Employees and their families cannot benefit or assist others to benefit from information gained through their employment which is not in the public domain. Specifically, our employees must not disseminate 'insider information' about the Group, company, clients or suppliers, for making or giving advice about investment decisions.

**Political non-alignment:** We are committed to supporting the constitution and governance systems of our countries of operation. We do not support any specific political party or candidate for political office, nor do we behave in a way that could be interpreted as mutual dependence/favour with any political body or person.

**Gifts and donations:** There are clear guidelines in place and Group companies have their own policies on appropriate behaviour regarding the giving and receiving of gifts and donations. We do not, unless mandated under applicable laws, give any gifts or donations to any government agency or its representatives.

**Whistle-blowing:** It is the responsibility of every employee to report promptly to management and/or a designated third party any concerns regarding any activity which is suspected of not being in the company's interest, including any actual or possible violations of the Code of Conduct. There is a whistle-blower system in place in our companies to encourage concerns to be raised and to protect those who raise such concerns. The anonymity of whistle-blowers is guaranteed. All concerns raised are investigated and appropriate actions taken for those found to be valid.

**Rolling out the Code of Conduct**

The Tata Code of Conduct was first adopted by our business in Thailand in July 2007. The Code of Conduct handbook was translated into Thai and distributed to employees, followed by training sessions. All Tata Steel Thailand employees have been tested on their understanding of the Code and have signed a commitment to adhere to it. They also receive a monthly Code of Conduct newsletter.

Launching the Tata Code of Conduct in Thailand.

### Managing risk

The process of managing risk has been reviewed in light of the increasingly global nature of Tata Steel Group's operations, and we are enhancing our risk management system to address the complexities of the risks we face across the Group.

Our risk management process is assured through the Group's corporate assurance and risk management function, reporting to the Group chief financial officer and the audit committee of the Board.

A detailed analysis of the risks we manage, covering the key areas listed below, can be found in the Tata Steel Group Annual Report 2008/09:

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

### Business ethics

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.

Ethical behaviour is central to our business. Our ethical philosophy is part of our legacy, set out more than a century ago by Jamsetji Nusserwanji Tata, founder of the Tata Group, who believed that business must operate in an ethical way that respects the rights of all its stakeholders and creates an overall benefit for society.

Since 1998 these ethical principles have been articulated in the Tata Code of Conduct, which applies in all Tata companies. In 2008, in line with changing expectations within society and the increasingly global scale of the Tata Group's activities, the Code was updated in consultation with Corus and other Tata Steel Group companies. The revised Code of Conduct was adopted by the Tata Steel Group Board in October 2008 and now applies in all our companies.

### Tata Code of Conduct 2008

The revised Tata Code of Conduct 2008 addresses contemporary issues of concern for global business, with more guidance and direction on, for example, integrity, fraud, bribery, corruption, conflict of interest, competition and excellence. The importance of implementing a sustainability protocol is addressed for the first time.

When the revised Code of Conduct is fully implemented throughout the Group, all employees will have a personal responsibility to uphold the high standards of corporate and personal behaviour it sets out. Additionally, the Code will extend to contractors and vendors, who must agree to respect its principles.

Joint ventures controlled by the Tata Steel Group will be encouraged to adopt a Code of Conduct based on the business principles articulated in the Tata Code.

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

*Leadership*

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

*Systems and process*

A structure exists at Board level to address ethics 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 in the Group companies, measured against the four pillar concept. This forum has proved to be a valuable resource in ensuring that aligned systems and processes are in place to manage

business ethics and compliance with the Code of Conduct, 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, current employees were also asked to sign up to the revised Code of Conduct during the year under review. In Europe, group senior managers signed up to the Code in advance of its planned roll-out to the rest of the organisation.

*Training and awareness*

All Tata Steel Group companies developed communication programmes during the year to raise awareness and provide guidance on the revised Code to relevant stakeholders. The Code 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 have held training and awareness sessions within our regular engagement forums such as the Joint Departmental Councils.

Dedicated training programmes have been carried out in Group companies that have recently adopted the Code, with poster and e-mail reminders to reinforce the message in some countries.

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.

*Measurement*

In India, we monitor the total number of concerns raised through our ethics management. We 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 reputation as a fair and caring employer, and respects and protects human rights both within and outside the workplace. The Tata Code of Conduct stipulates clearly 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 Steel Works in 2005 and were recertified in 2007. Our chrome mining operation in Sukinda, India 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 try to respect and protect the rights of indigenous communities wherever we operate; this is particularly relevant 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 the Group, while respecting and supporting the social norms and cultural practices that are a vital part of their communities.

### Global Compact

In 2008 NatSteel Holdings joined our Indian operations in signing up to the United Nations Global Compact (UNGC), a public commitment to embrace, support and enact a set of core values designed to protect human rights, uphold labour rights, protect the environment and tackle corruption in business.

# Performance summary

This is the first year that the four business entities, Tata Steel Europe, Tata Steel India, Tata Steel Thailand and NatSteel Holdings, have reported collectively on corporate citizenship as the Tata Steel Group. A mapping exercise has been undertaken with the Group's business and functional directors to identify the material economic, social and environmental aspects of our Group activities. These aspects, together with those identified through stakeholder engagement, form the basis of this report.

In support of the Tata Steel Group Vision and Corporate Citizenship 2012 targets, a further eight indicators have been selected to measure and communicate our health, safety and environmental performance. Our efforts to improve performance in these areas, as well as others, are detailed within the relevant sections of this report. Environmental Resources Management (ERM) has provided independent assurance as to whether key selected safety and environmental performance data are appropriately reported.

This report covers Tata Steel Group (TSG) activities from 1 April 2008 to 31March 2009, 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 are reported on a near 100% basis. Environment data are reported for our 58 main manufacturing facilities including five integrated steelworks, five electric arc furnace steelworks, 39 downstream non-steelmaking manufacturing facilities and nine mines and quarries with associated processing activities. The 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 overleaf.

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.

| | 2008/09 | 2007/08 | SCOPE & REPORTING THRESHOLD |
|---|---|---|---|
| **HEALTH & SAFETY DATA** | | | |
| **Fatalities** (employees and contractors) | 8 | 12 | [1] |
| **Lost time injury frequency rate (LTIF)** [A] | | | |
| Number of lost time incidents per million hours worked | | | [2] |
| Employees and contractors | 1.31 | 2.11 | |
| **ENVIRONMENT DATA** [5] | | | |
| **Carbon dioxide emissions** World Steel Association scope in million tonnes $CO_2$ [B] | | | |
| Direct (Scope 1) emissions | 38.4 | 41.1 | [3] |
| Total (Scope 1 + 2+ 3) emissions | 43.7 | 48.5 | |
| Carbon intensity in tonnes of $CO_2$ per tonne of crude steel produced | 2.11 | 2.05 | |
| **Energy intensity** World Steel Association scope in GJ per tonne of crude steel [B] | | | |
| Blast furnace route | 23.74 | 22.70 | [4] |
| Electric arc furnace route | 10.10 | 10.42 | |
| **Mass emissions to air** thousand tonnes [C] | | | [5] |
| Total particulates [D] | 16 | 18 | 10 |
| Oxides of nitrogen (NO and $NO_2$ as $NO_2$) | 27 | 29 | 100 |
| Sulphur dioxide ($SO_2$) | 35 | 36 | 100 |
| **Mass emissions to water** thousand tonnes [C] | | | [5] |
| Hydrocarbons | 283 | 173 | 0.1 |
| Suspended solids | 613 | 711 | 1 |
| **Waste** thousand tonnes [C] [E] [F] | | | |
| Material disposed of to landfill | 910 | 1,186 | [6] |
| Material disposed via other routes | 77 | 112 | |
| Material re-used, recycled or recovered by third parties | 472 | 501 | |
| **Material re-used through our processes** thousand tonnes [E] | 18,881 | 18,367 | [6] |
| **By-products of our processes used by other sectors** thousand tonnes [E] [G] | | | |
| Blast furnace slag | 5,370 | 5,623 | [6] |
| Steelmaking slag | 2,316 | 2,701 | |
| Electric arc furnace slag | 361 | 381 | |
| Tar and benzole | 364 | 382 | |
| Other | 2,097 | 1,786 | |

[A] LTI was previously recorded on day three of absence for TS India during 2007/08.
[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
The World Steel Association, and their independently commissioned steel industry expert, has assured the 2007 calendar year data return.
Divide by 0.979 and 0.967 to convert crude steel production to liquid steel production for BF and EAF routes respectively.
[C] Calculation methodology is based on the UK Environment Agency's Pollution Inventory Reporting Guidance for Ferrous & Non-Ferrous Metals Activities.
[D] Excludes diffuse particulate emissions from our Indian operations, including the mines and quarries.
[E] Material efficiency is reported based on its route to remove national differences in the definitions of waste and by-product.
[F] 55 out of 58 sites have reported. The 3 sites that have not reported the tonnage of material sent for disposal are downstream non-steelmaking facilities and are not material.
[G] By-product data for 2007/08 is not absolute as a full breakdown was not available at the time of reporting.
[1] All TSG employees and contractors, including all NatSteel Holdings' operations.
[2] TSG employees and contractors. NatSteel Holdings data only includes its operations in Singapore, and does not include its six downstream non-steelmaking operations in Australia, China, Thailand and Vietnam. The business is working towards re-defining its systems to measure LTIF across all its operations.
[3] TSG integrated steelmaking facilities only
[4] TSG integrated and electric arc furnace steelmaking facilities only
[5] TSG steelmaking facilities and downstream non-steelmaking facilities only
[6] TSG steelmaking facilities, downstream non-steelmaking facilities, quarries and mines
[7] Excludes operations disposed of prior to the publication of this report.

# Independent assurance report to the Tata Steel Group

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

**Our brief**

We were asked to provide independent assurance as to whether the following safety and environmental performance data are appropriately reported:

**Safety**

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

**Environment**

- Total and direct $CO_2$ 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/yr)
- Mass emissions to water for suspended solids and hydrocarbons (tonnes/yr)
- Total waste materials disposed of to landfill (tonnes)
- Total waste materials disposed of through other routes (tonnes)
- Total materials re-used, recycled or recovered by third parties (tonnes)
- Total materials re-used internally (tonnes)

**Our approach**

**Standards and criteria used**

We delivered our work in accordance with ERM's assurance methodology, which is based on the international assurance and audit standard ISAE 3000 and the ISO 19011 guidelines for quality and /or environmental management systems auditing.

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 causes use to believe that the performance data, referenced above, is materially mis-stated (moderate assurance).

If we had been asked to conclude on whether the selected data reported were robust, i.e. materially accurate (high assurance), we would have needed to conduct more work at group level and TSG's operational sites 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 and a selection of four operational sites as set out below. Our assurance activities included:

- Face-to-face interviews with the TSG corporate citizenship task team and group corporate functions to understand and test the reporting processes and underlying data management systems for the selected data;
- Site visits at four operational sites (IJmuiden Integrated Steel Works (ISW), in the Netherlands, Jamshedpur ISW in India, N.T.S electric arc steelworks in Thailand and Siam Industrial Wire in Thailand) to interview data owners to understand the data 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 2008/09, ERM has not worked with TSG on other consulting engagements. ERM conducts strict conflict checks and has confirmed its independence to TSG for this assurance engagement.

**Our assurance conclusions**

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

**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:**

- For the first time TSG has presented an integrated review of its group-wide corporate citizenship performance and set out its responses to these sustainability challenges.
- Through numerous initiatives TSG has improved its performance in a number of areas particularly the reduction in materials sent to landfill and in the lost time injury frequency rate for employees and contractors.

**Recommendations for improvement:**

- TSG should further develop and communicate its policy and approach to accounting and reporting for the impacts from its Joint Ventures.
- TSG should also consider how the corporate citizenship impacts associated with major projects and 'greenfield' developments should be further reported on in future corporate citizenship reports.
- TSG should continue to expand the scope of its environmental data reporting to cover all its significant activities.
- We encourage TSG to continue expanding the use of integrated group-wide data collection tools and systems to improve the efficiency of data collection and analysis benefiting operational management and reporting activities.

Environmental Resources Management Limited (ERM)
London, UK, 20 November 2009.

ERM is an independent global provider of environmental, social and corporate responsibility 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 principal operating business 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** | 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 |

# Glossary

| | |
|---|---|
| **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** | The Tata Steel Group's business operations in India |
| **Tata Steel Rural Development Society** | Runs socio-economic development programmes to enhance the quality of life in rural communities around Tata Steel's operations |
| **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 |
| **TSG** | The Tata Steel Group comprises of four main business entities: Tata Steel, Tata Steel Europe, 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 |

US dollar figures based on closing conversion rate on 31.03.09.

## AWARDS, 2008/09

- Deming Application Prize 2008
- Golden Peacock Global Corporate Social Responsibility Award
- Economic Times of India Company of the Year Award
- Best industrial employer in the Netherlands, *Intermediair* magazine (3rd time)
- The Best Establishment Award by the President of India
- The Most Admired Knowledge Enterprise (MAKE) Asia Award (5th time)
- The TERI Corporate Award for HIV/AIDS initiatives
- The Think Odisha Leadership Award for 100 years of service to the Indian nation
- Indian national safety awards (West Bokaro and Jharia divisions)
- Vestlandet Faglig Forum HMS, Norway, for health, environment and safety
- Most improved accident prevention, North Lincolnshire, UK
- European Agency for Safety and Health at Work Good Practice Award
- Walsall Town Council CSR award
- Welsh Marketing Award 2008
- Chartered Institute for Waste Management's Sustainable Product Development of the Year
- Singapore HEALTH (Helping Employees Attain Life Time Health) Platinum Award
- Singapore Tripartite Committee for Work-Life Strategy, Work-Life Excellence (WLE) Award (3rd time)
- Excellence in Manufacture Award for Quality, Environment and Safety Management, Department of Primary Industries and Mines, Thailand, to Siam Construction Steel Company
- Logistics Management Award, Department of Primary Industries and Mines, Thailand
- Australian Certification Authority for Reinforcing Steel (ACRS) accreditation
- ISO 14001 accreditation for environment protection (to Wuxi Jinyang Metal Products Co.)
- ISO 9001:2000, TIS 18001:1999 and OHSAS 18001:1999 quality management certifications (Thailand)
- Green Star Award, environmental governance, Industrial Estate Authority of Thailand, 2009
- Confederation of Indian Industry (CII) Sustainability Award
- Admired company for CSR activities in India, Nielsen India Corporate Image Monitor 2008
- Silver Award for improving the health and well-being of employees, Scottish Centre for Healthy Working Lives
- National Men's Health Forum recognition for initiatives, Teesside Cast Products UK
- Confederation of Indian Industry (CII) Wellness Award

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