



TATA STEEL

 WeAlsoMakeTomorrow



Forging Tomorrow.

Corporate Brochure FY 2018-19

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A VISION FOR TOMORROW

45,000 MnT
of our steel has been
used in 32 major
airports across India.

KEMPEGOWDA INTERNATIONAL AIRPORT, BENGALURU

we make
structures
of tomorrow

We provided 75% of
the rebar steel used to
construct India's largest
rail-cum-road bridge.

BOGIBEEL BRIDGE, ASSAM

A VISION FOR TOMORROW

More than 4,000 sq m of our ComFlor®80 composite flooring system was installed at the very top of the world's tallest building.

BURJ KHALIFA, DUBAI

we make
landmarks

of tomorrow

~40,000 km of our steel cables – equal to the Earth's circumference – helped build the iconic bridge over open seas in India.

BANDRA-WORLI SEA LINK, MUMBAI

A VISION FOR TOMORROW

800 MPa strength, more than 20% lighter and greater flexibility for superior aesthetics, HyperForm® champions a mission to lower vehicular CO₂ emissions and augments fuel efficiency, without compromising on safety.

HYPERFORM® AUTOMOTIVE STEEL

we make
solutions

of tomorrow

Extraordinary strength, super lightweight and incredibly corrosion-resistant, Fiber Reinforced Polymers and Graphene represent new-age wonders that find use across countless industrial applications.

ALTERNATIVE MATERIALS

Noamundi Iron Mine and Joda East Iron Mine have been accorded 'Five Star Rating' for their sustainable mining practices by the Ministry of Mines, Government of India, in 2018.

KHONDBOND IRON MINE, ODISHA

we make
tomorrow

greener

We have developed and launched India's first ever LD slag branded products – Tata Nirman (for construction application) and Tata Aggreto (for building roads).

ROADWAYS IN NORTHERN INDIA



A vision for tomorrow

The world as we know it would not be the same without steel. From the buildings we work and live in, to the vehicles we drive, from the iconic landmarks that define our city skyline, to the roads and bridges that bring us closer to each other, Tata Steel is everywhere, ensuring lives are safer and easier.

We strive to address society's biggest challenges, making the world's most versatile material even better. This desire to imagine and innovate helps us go beyond steel to champion a better tomorrow. Our foray into new solutions and technologies speaks of the consistent efforts we are making today to shape a future that is more humane, more liveable and filled with infinite possibilities.

HIGH-RISE IN EUROPE

About Tata Steel

The Tata Steel group is one of the most diversified steel producers in the world, with an annual crude steel capacity of 33 MnTPA. It comprises Asia's first integrated steel maker, Tata Steel Limited, together with its subsidiaries, associates and joint ventures; and operates in 26 countries, with a commercial presence in 50+ nations and an employee base of 65,000+.

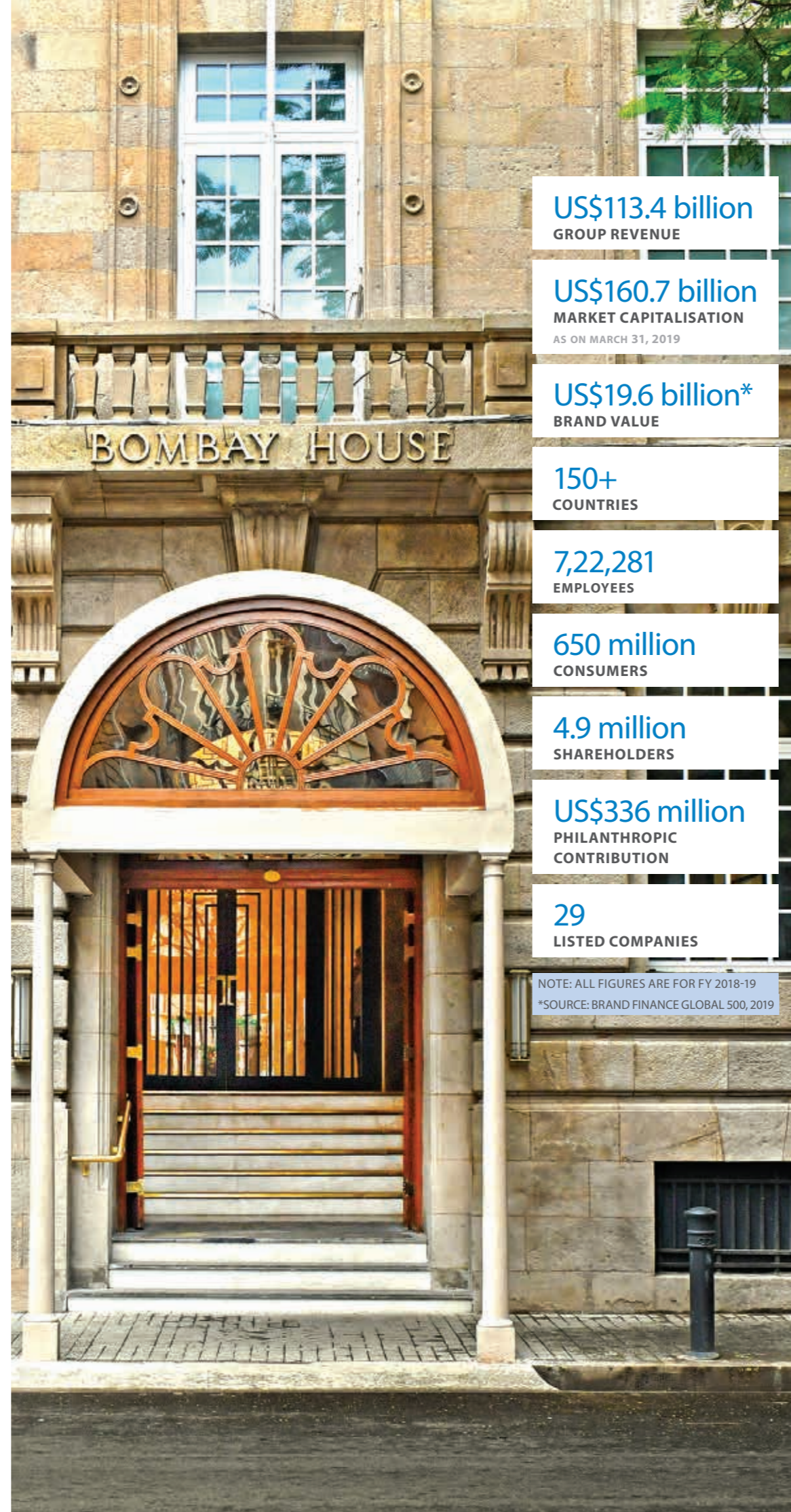
A flagship entity of the 150-year-old illustrious Tata group, Tata Steel is one of the few global steel operations that is fully integrated – from mining to manufacturing and marketing of finished products.

From the House of Tata

The Tata group is a global business conglomerate founded by Jamsetji Nusserwanji Tata in 1868 and headquartered in Mumbai, India. Shaped by a lineage of sound and straightforward business principles, the group is built on a foundation of trust and transparency. This forms the basis of every business we, at Tata Steel, operate in.



BOMBAY HOUSE, MUMBAI



US\$113.4 billion
GROUP REVENUE

US\$160.7 billion
MARKET CAPITALISATION
AS ON MARCH 31, 2019

US\$19.6 billion*
BRAND VALUE

150+
COUNTRIES

7,22,281
EMPLOYEES

650 million
CONSUMERS

4.9 million
SHAREHOLDERS











US\$336 million
PHILANTHROPIC CONTRIBUTION

29
LISTED COMPANIES

NOTE: ALL FIGURES ARE FOR FY 2018-19
*SOURCE: BRAND FINANCE GLOBAL 500, 2019

Businesses at a glance

From an early foray into steel and automobiles, to staying abreast of the latest technologies, the Tata group is present in 150 countries and six continents. It operates through 30 companies that are segregated into 10 clusters.

-  Automotive
-  Steel
-  Information technology
-  Consumer and retail
-  Infrastructure
-  Telecommunication and media
-  Trading and investments
-  Financial services
-  Tourism and travel
-  Aerospace and defence

Values at the core

Our value system is not an adjunct to profits, but forms the very core around which each Tata group company works to create long-term stakeholder value based on 'Leadership with Trust'.



Integrity

We will be fair, honest, transparent and ethical in our conduct; everything we do must stand the test of public scrutiny.



Unity

We will invest in our people and partners, enable continuous learning, and build caring and collaborative relationships based on trust and mutual respect.



Pioneering

We will be bold and agile, courageously taking on challenges, using deep customer insight to develop innovative solutions.



Excellence

We will be passionate about achieving the highest standards of quality, always promoting meritocracy.



Responsibility

We will integrate environmental and social principles in our businesses, ensuring that what comes from the people goes back to the people many times over.



A look back

- **1868** Began as a trading company by Jamsetji Tata that had a capital outlay of ₹21,000
- **1903** Inaugurated Taj Mahal Hotel
- **1907** Established Tata Iron and Steel Company (now Tata Steel)
- **1941** Commissioned the Tata Memorial Hospital
- **1945** Established Tata Engineering and Locomotive Company (now Tata Motors)
- **1954** Incorporated Voltas
- **1968** Established Tata Consultancy Services (TCS)
- **1984** Forayed into watch market with Titan Industries, a Joint Venture (JV) with the Tamil Nadu Industrial Development Corporation (TIDCO)
- **1994** Entered Indian jewellery market with Tanishq
- **1998** Launched Tata Indica, India's first indigenously designed and manufactured car, and Tata Safari, India's first SUV
- **2000** Tata Tea (now Tata Global Beverages) acquired the then 160-year-old British Tetley group
- **2001** Entered insurance space with two JVs: Tata AIG, this year, and Tata AIA in 2000
- **2006** Launched Direct-to-Home (DTH) service Tata Sky
- **2015** Formed Vistara, Tata Sons' JV with Singapore Airlines
- **2018** TCS became the first listed Indian IT company to cross US\$100 billion in market capitalisation

At home around the world

The Tata group has made significant investments in different geographies. With its ever-increasing international footprint, the group is now reaching out to customers in the farthest corners of the world.


Headquarters
Mumbai
London
Dubai


Representative offices
Washington DC
Singapore
Beijing



We make steel

Tata Steel is one of the world's most geographically diversified steel producers. With raw material operations in India and Canada, and manufacturing units spanning India, Europe and South-East Asia, we are self-sufficient in iron ore.

Growing from strength to strength

- Phase II of expansion of capacity at our Kalinganagar plant in Odisha, from 3 MnTPA to 8 MnTPA, will help us enter the automotive, general engineering and other value-added segments.
- The integration of Bhushan Steel, renamed Tata Steel BSL, has helped us expand our footprint in India significantly.
- We acquired the steel business of Usha Martin, through Tata Sponge Iron, renamed Tata Steel Long Products. This will enable us to participate in the growing market for long products.



UPSTREAM, KALINGANAGAR

CAPACITIES

33 MnTPA
GLOBAL CRUDE STEEL

PRODUCTION AND SALES

27.11 MnT
STEEL PRODUCTION

26.8 MnT
DELIVERIES

FINANCIALS

₹1,57,669 crore
TURNOVER

18.88%
EBITDA MARGIN

₹9,098 crore
PROFIT AFTER TAX

NOTE: ALL FIGURES ARE FOR FY 2018-19



Did you know?

Tata Steel is what connects the London Eye, Kolkata's Howrah Bridge and Dubai's Burj Khalifa. All three iconic structures have been built using our steel.

Our steel is found in every model of Boeing and Airbus civil aircraft in production today.

90,000 sq m of our steel, equal to almost 17 football fields, is building the new gem in London's skyline, 100 Bishopsgate Tower.

Recognitions

- 'Global Steel Industry Leader' in Dow Jones Sustainability Index (DJSI) 2018
- Steel Sustainability Champions 2018 recognition from World Steel Association

A purpose that binds

The Tata group's value system directs the growth and business of all sectors we operate in.

Mission

Consistent with the vision and values of our founder Jamsetji Nusserwanji Tata, Tata Steel strives to strengthen India's industrial base through effective utilisation of staff and materials. The means envisaged to achieve this are cutting-edge technology and high productivity, consistent with modern management practices. Tata Steel recognises that while honesty and integrity are essential ingredients of a strong and stable enterprise, profitability provides the main spark for economic activity. Overall, the Company seeks to scale the heights of excellence in all it does in an atmosphere free from fear, and thereby reaffirms its faith in democratic values.

Vision

We aspire to be the global steel industry benchmark for Value Creation and Corporate Citizenship.

We make a difference through:

- Our People
- Our Offerings
- Our Conduct
- Our Policies
- Our Innovative Approach

Values

Our excellence is rooted in the value system of the Tata group.

-  Integrity
-  Excellence
-  Unity
-  Responsibility
-  Pioneering



DOWNSTREAM, JAMSHEDPUR



Towards holistic excellence

- **1907** Tata Iron & Steel registered as a company
- **1910** Obtained first colliery for Tata Iron & Steel, adding six more in the course of time
- **1911** Began successful operations of first blast furnace
- **1912** Rolled out first ingot of steel from the Sakchi plant; introduced an 8-hour working day
- **1918** Established India's first steel (coke) plant on June 18, as an enterprise financed by Indian capital and built by Indian workers
- **1955** Signed agreement with Kaiser Engineers for a 2 MnT expansion programme
- **2007** Acquired London-based steel manufacturer Corus Group, thereby becoming one of the most geographically diversified and leading steel producers in the world
- **2008** Commemorated 100th year, with the Indian Prime Minister unveiling the centenary postage stamp
- **2012** Created history by becoming the world's first integrated steel company to be awarded the Deming Grand Prize
- **2016** Began commercial production in Kalinganagar, our second integrated steel plant in India
- **2018** Acquired Bhushan Steel
- **2019**
 - Undertook second phase of capacity expansion programme at Kalinganagar
 - Acquired Usha Martin's steel business through our subsidiary, Tata Sponge Iron Limited

Diversified global footprint

Established in India as Asia's first integrated private steel company in 1907, Tata Steel, today, has flourished across five continents. Continuous improvement in our product and service portfolio, along with success in value-added services for customers, allows us to serve global growth markets.

Read more on P 24



THE NETHERLANDS
MANUFACTURING WORKS
Tata Steel Ijmuiden



CANADA
MINING OPERATIONS
Iron ore



THE UK
MANUFACTURING WORKS
Port Talbot Steel Works



INDIA
MINING OPERATIONS
Iron ore
Coal
Chromite
Manganese
Dolomite

MANUFACTURING WORKS
Tata Steel Jamshedpur
Tata Steel Kalinganagar



THAILAND
MANUFACTURING WORKS
Tata Steel Thailand



SINGAPORE
MANUFACTURING WORKS
NatSteel

India

We are Asia's first integrated steel company with captive iron ore mines and collieries located near our manufacturing facilities in Jamshedpur and Kalinganagar. With a slew of organic and inorganic growth initiatives, we are strengthening our business in India and remain well poised to take advantage of the emerging opportunities in the country.

JAMSHEDPUR

Our flagship facility and Asia's first integrated steel works

Read more on P 32

KALINGANAGAR

India's largest single-location greenfield steel project

Read more on P 34

One of the most profitable and lowest cost producers of steel in the world.

13 MnTPA
CRUDE STEEL
CAPACITY

5.6 MnTPA
CAPACITY OF TATA STEEL BSL
FORMERLY KNOWN AS BHUSHAN STEEL

Europe

Tata Steel is Europe's second largest steel producer, establishing a presence in the continent after acquiring Corus in 2007. We have integrated steelmaking sites in Ijmuiden, the Netherlands and Port Talbot, the UK. Our other downstream facilities across Europe produce a variety of special steels, ultra-pure re-melted steels and various rolling and coating lines.

IJMUIDEN, THE NETHERLANDS

Known for producing high-quality steel used in automotive, construction, packaging, batteries, tubes, industrial vehicles and white goods

PORT TALBOT, THE UK

Part of the strip product business of Tata Steel in the UK

A new high-tech robotic welding line, the largest in the UK, has been introduced at the automotive service centre in West Midlands.

12.4 MnTPA
CRUDE STEEL
PRODUCTION CAPACITY

~50%
OF THE UK'S STEEL
REQUIREMENTS SUPPLIED
BY TATA STEEL UK

South-East Asia

Our South-East Asian operations began in 2004 with the acquisition of NatSteel, Singapore. This was further strengthened in 2015, when we acquired a majority stake in Thailand-based steelmaker Millennium Steel. We are concentrating our efforts in the region to grow our value-added products and services portfolio, while strengthening our key steel operations in Singapore, Thailand and China.

NATSTEEL, SINGAPORE

One of the best steel producers of Singapore

0.75 MnTPA
OPERATING
CAPACITY

75%
OF SCRAP FROM CITY
CONSUMED IN PLANT

TATA STEEL THAILAND

Largest producer and distributor of long steel products in Thailand

1.4 MnTPA
ROLLING (FINISHED)
CAPACITY

10%
OF STEEL EXPORTED TO
GLOBAL DESTINATIONS

Canada

Tata Steel Minerals Canada is a JV between Tata Steel Limited (80%) and New Millennium Iron Corporation (20%). The JV aims to develop iron ore deposits in Quebec, and Newfoundland and Labrador in Canada and is involved in two major projects.

DIRECT SHIPPING ORE PROJECT

Involves mining, crushing, washing, screening and shipping the sinter fines and pellet fines to Tata Steel's European steel-making facilities

TACONITE PROJECT

Conducting a Feasibility Study of the LabMag and KeMag iron ore deposits, which form a part of the 150 km-long Millennium Iron Range in northern Canada.

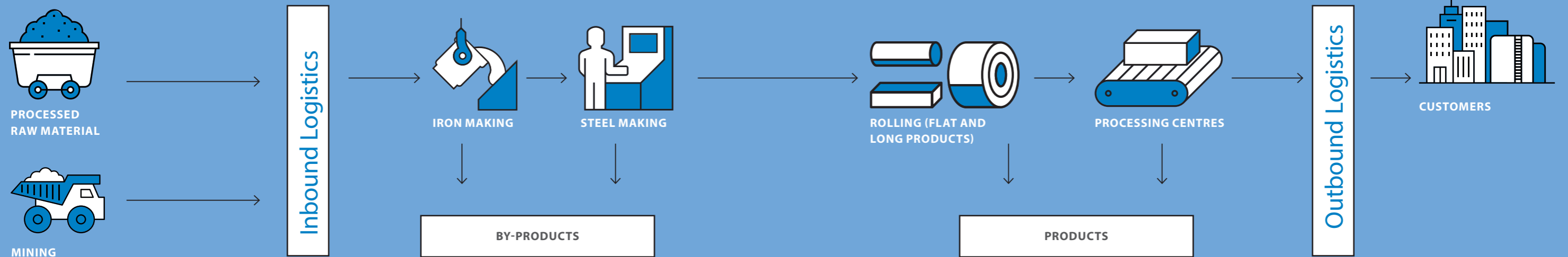
An integrated value chain



DOWNSTREAM, JAMSHEDPUR

Upstream

Downstream



Tata Steel is one of the few fully-integrated global steel producers, involved across mining, iron-making, steel-making, casting, rolling and finishing, and marketing and sales.



Mining

We adopt a holistic operating model encompassing a steel value chain and a raw materials value chain, along with downstream and allied businesses related to value-added products and solutions.



Manufacturing

We convert the raw materials to hot metal and crude steel through various supporting processes, including coke making, sinter making and pelletisation. On the one hand, the steel is cast into slabs, which are then rolled into flat products. On the other, the steel is cast into billets, which are then rolled into long products.



Marketing

We cater to an array of market segments in countries across the world with products and brands that fulfil different requirements.

Inside Tata Steel India

We are India's lowest cost producer of steel. Our history and journey are inextricably linked to the Indian growth story; and we have helped build the nation's industrial narrative, since the time we laid the foundation of India's first industrial city in Jamshedpur more than 100 years ago.

CAPACITIES

10 MnTPA
JAMSHEDPUR PLANT

3 MnTPA
KALINGANAGAR PLANT

5.6 MnTPA
CAPACITY OF TATA STEEL BSL
FORMERLY KNOWN AS BHUSHAN STEEL

FINANCIALS

₹70,611 crore
TURNOVER

29%
EBITDA MARGIN

₹10,533 crore
PROFIT AFTER TAX

₹3,677 crore
CAPEX

PRODUCTION AND SALES

14.24 MnT
HOT METAL PRODUCTION

13.23 MnT
CRUDE STEEL PRODUCTION

114
NEW PRODUCTS DEVELOPED

12.69 MnT
DELIVERIES



UPSTREAM, KALINGANAGAR



UPSTREAM, JAMSHEDPUR

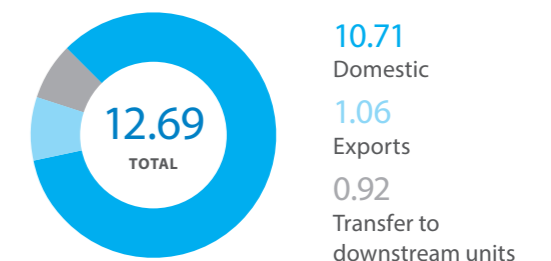


Did you know?

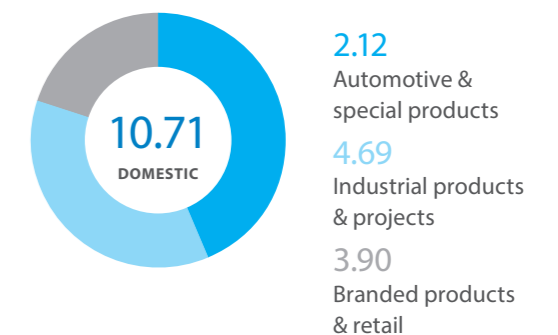
Tata Steel Kalinganagar is the **first and the only Indian** manufacturing facility to be included in the World Economic Forum's Global Lighthouse Network.

We are the **first steel manufacturer in India** to receive a 'GreenPro' certification for four of our products: ground granulated blast furnace slag, Tata Pravesh, Tata Structura and Tata Pipes.

SHARE IN TOTAL DELIVERIES (MnT)



SHARE IN DOMESTIC SALES (MnT)



NOTE: ALL FIGURES FOR FY 2018-19

Operational strength

In India, Tata Steel operates integrated manufacturing facilities in Jamshedpur and Kalinganagar, with captive iron ore and coal mines, a dolomite mine, a chromite mine and manganese mines spread across Jharkhand, West Bengal and Odisha.

Raw materials

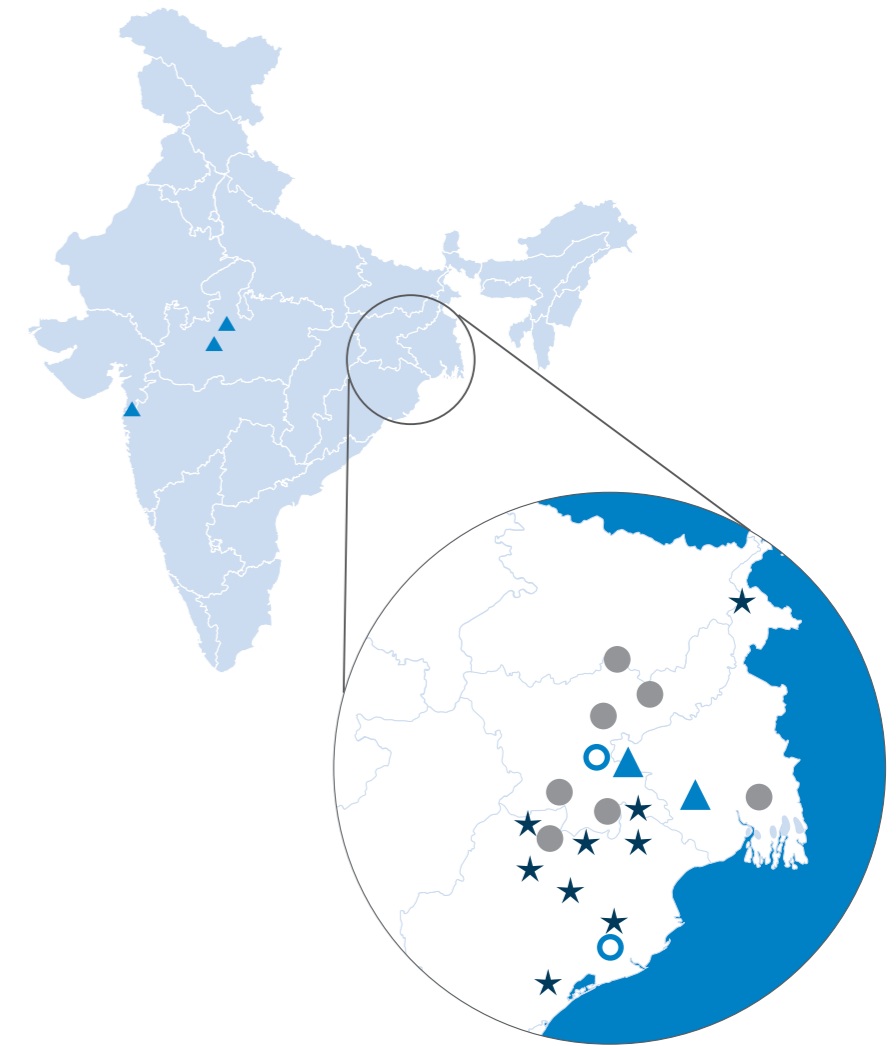
The making of steel depends on natural resources such as iron ore, coal and other minerals, which constitute our key raw materials. Our steelmaking operations at Jamshedpur and Kalinganagar secure 100% of their iron ore requirement from captive sources and this remains one of our biggest operational strengths. It helps us maintain cost-competitiveness and derive production efficiencies, while insulating us against volatility in the open market.

Ferro Alloys and Minerals Division

- Largest non-steel business unit of Tata Steel
- One of the leading global producers of chrome alloy
- India's largest producer of ferro chrome and leading producer of manganese alloy



DOWNSTREAM, JAMSHEDPUR



○ Manufacturing locations

**JAMSHEDPUR
KALINGANAGAR**

● Raw material locations

**NOAMUNDI, JODA EAST,
KATAMATI, KHONDBOND**
Iron ore mines and quarries

WEST BOKARO
Open cast coal mines

JAMADOBA GROUP, SIJUA GROUP
Underground coal mines

▲ Downstream operations

JAMSHEDPUR
Tubes manufacturing and tinplate

TARAPUR, PITHAMPUR, KILLA
Wire manufacturing

KHARAGPUR
Bearings manufacturing

★ Raw materials revenue stream

FERRO ALLOYS AND MINERALS

JODA, BAMNIPAL, GOPALPUR
Ferro alloys plant

**JODA WEST, BAMBEBARI,
MALDA, TIRINGPAHAR**
Manganese mines

SUKINDA
Chromite mine

GOMARDIH
Dolomite mine

Asia's first integrated steel plant

Tata Steel Jamshedpur (TSJ) is our flagship facility. From driving the first stake into the soil of Sakchi village in 1908 to becoming India's steel city, Jamshedpur (also known as Tatanagar) is the soul of the Tata story.



TATA STEEL JAMSHEDPUR (TSJ)



An industry benchmark

- TSJ sets the yardstick for specific consumption of energy, refractory, pulverised coal injection and coke rates in India
- Initiative to roll out process safety through a 'Centre of Excellence' methodology at Jamshedpur has been appreciated by World Steel Association as the 'Best Practice' of 2018 across the industry

Availability of critical manufacturing units

Our focus on asset management using data analytics and predictive modelling, has resulted in >90% availability of our key manufacturing units at Jamshedpur.

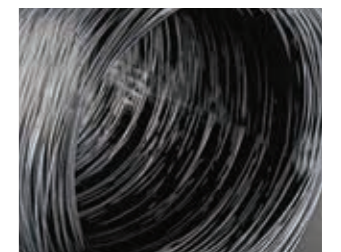
Key outputs



HOT ROLLED COILS



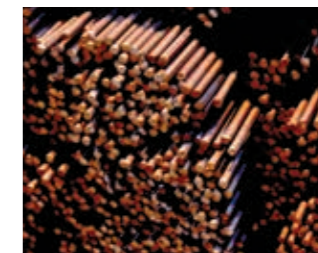
COLD ROLLED COILS



WIRE RODS



GALVANISED COILS



REBARS

India's largest single-location greenfield steel project

Tata Steel Kalinganagar (TSK) is our second integrated steel plant in India, manufacturing high-end flat products. Spread over 3,000 acres and commissioned in 2016, TSK attained production levels at its rated capacity in less than two years. We installed state-of-the-art equipment and modern facilities to achieve a highly cost-competitive and productive plant. TSK is designed to have a minimal water as well as carbon footprint.



TATA STEEL KALINGANAGAR (TSK)

Key digital enablers



**DATA-BACKED
DECISION-MAKING AND
REAL-TIME MONITORING**



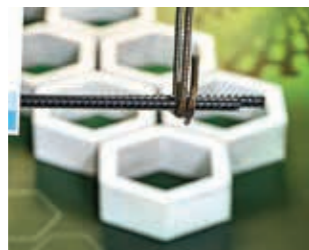
**ADVANCED
ANALYTICS**



**HIGH-SPEED DATA
EXTRACTION**



**ARTIFICIAL INTELLIGENCE
MODELLING**



3D PRINTING



**PREDICTIVE MAINTENANCE
DEPLOYMENT**

Key operational highlights

- Fastest ramp up of greenfield plant
- Fastest stabilisation of 3 MnT+ size blast furnace in the world
- 5% reduction in manufacturing cost
- 60% reduction in product development time
- Fastest time-to-market from order generation to fulfillment in Tata Steel

Fortifying tomorrow

Following the successful implementation of Phase I of the Kalinganagar Project in Odisha, we initiated the next phase of capacity expansion in Kalinganagar in FY 2018-19.

The project configuration and costs include investments in raw material capacity expansion, upstream and mid-stream facilities, infrastructure and downstream facilities. This will help us make value-added products like cold rolled galvanised and annealed products, as well as meet the requirements of automotive, general engineering and other high-end quality product market segments.



₹23,500 crore
CAPEX ALLOCATION



5 MnTPA
CAPACITY EXPANSION



48 months
EXPECTED PROJECT
COMPLETION

NOTE: ALL FIGURES ARE FOR FY 2018-19

Rich customer insight

Tata Steel is home to a comprehensive portfolio of products and brands, catering to multiple industries and segments. From the vehicle you drive, to the house you live in; from the bridges you cross, to the hand tools that you use; the steel we produce is an integral part of your everyday life.



SEGMENT Construction

Sub-segment

Individual house builders (B2C)

Rural roofing (B2C)

• Infrastructure (B2B)
• Housing and commercial (B2ECA)

Products and brands

• Tata Tiscon (rebars)
• Tata Structura (pipes)
• Tata Pravesh (doors and windows)

• Tata Shaktee (roofing sheets)
• Nest-in (housing, water ATMs and bio-toilets)

• TMT Rebars (higher diameter rebars and corrosion-resistant steel)
• WAMA Walling Solutions (for rural and urban infrastructure)



SEGMENT Automotive

Sub-segment

Auto OEMs (B2B)

Auto ancillaries (B2B, B2ECA)

Products and brands

• Hot rolled, cold rolled, coated sheets, steel coils and sheets

• Hot rolled, cold rolled, coated steel coils and sheets
• Precision tubes
• Tyre bead wires and spring wires
• Bearings



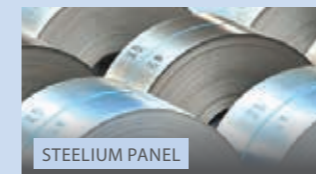
SEGMENT General engineering

Sub-segment

• Panel and appliances (B2ECA)
• Fabrication and capital goods (B2ECA)
• Furniture (B2ECA)

Products and brands

• Steelium panel
• Galvano panel
• Appliance



SEGMENT Industrial

Sub-segment

LPG (B2B)

Welding (B2B)

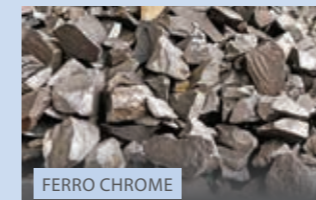
Process industries such as cement, power and steel (B2B)

Products and brands

• Hot rolled

• Wire rods

• Ferro chrome
• Process tubes
• Tata Astrum Super (retail hot rolled sheets for fabrication)
• Tata Kosh (galvanised sheets for consumer durables in rural areas)



SEGMENT Agriculture

Sub-segment

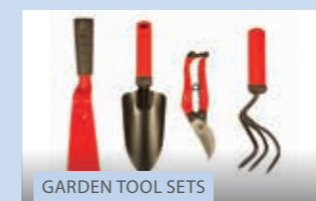
Agri equipment (B2B)

Fencing, farming and irrigation (B2C)

Products and brands

• Bearings

• Galvanised iron wires
• Agri and garden tools
• Conveyance tubes



Board of Directors

The trust that Tata Steel has garnered in the past 110 years is an irreplaceable asset created through the efforts of colleagues. Our leaders guide us towards a better tomorrow, as we take this legacy forward and seek opportunities to create new value in the age of accelerating change.



STANDING (LEFT TO RIGHT)

T. V. Narendran
Chief Executive Officer and
Managing Director

V. K. Sharma
Non-Executive Director

Petrus Blauwhoff
Independent Director

Deepak Kapoor
Independent Director

Saurabh Agrawal
Non-Executive Director

Koushik Chatterjee
Executive Director and
Chief Financial Officer

SITTING (LEFT TO RIGHT)

Aman Mehta
Independent Director

N. Chandrasekaran
Chairman of the Board and
Non-Executive Director

Mallika Srinivasan
Independent Director

O. P. Bhatt
Independent Director



A vision beyond operations

Our long-term strategy to be a global steel industry leader entails looking much beyond financial and operational objectives to create shared value for our stakeholders. True to our founding philosophy of 'profits with a purpose', we are deeply committed to building a business that remains as relevant and impactful tomorrow as it is today.

DOWNSTREAM, JAMSHEDPUR

Building on the three pillars of Innovation, Technology and Sustainability, we have embarked on a journey to not only make superior quality steel, but a better tomorrow as well.



Innovation

Our patents, new products, new materials and in-house technologies are aimed at making a positive difference to the society.



Technology

Our efforts to leverage both steel technology and digital interface are targeted at achieving service excellence.



Sustainability

Our initiatives help conserve natural resources while ensuring sustainable growth and fostering strong relationships with communities.

Creating new value

A continued emphasis on novel approaches keeps us ahead of the curve, amid changing customer needs, competition from alternative materials and a dynamic regulatory environment.



₹216 crore
R&D SPEND



72
PATENTS GRANTED



114
NEW PRODUCTS LAUNCHED

NEW PRODUCTS DEVELOPMENT, KALINGANAGAR | NOTE: ALL FIGURES ARE FOR FY 2018-19

Key support units

- Enhanced research facilities with state-of-the-art laboratories, an R&D team of 200+ researchers and collaborations with 40 premier technical institutes
- Innovation council that incubates novel ideas, enables implementation and advances research on new materials
- In-house platforms, such as Innovent, that identify key customer insights and translate them into tested and scalable business models



To generate
~10% of revenue
from new materials.

Key outcomes

We are creating solutions that make a positive difference to the society with patents, new products, new materials and by developing in-house technologies for sustainable performance.



LOUVRE, ABU DHABI

Innovent

In-house platforms such as Innovent focus on identifying key customer insights and translate them into tested and scalable business models.

Pravesh Vista windows

These are hybrid window with dual functionality features, which swing and slide open.

- Give 95% uninterrupted opening space to the user
- Provide integrated security features
- Durable and easy to maintain
- Termite resistant and rust proof
- Hassle-free, professional installation

Smart trash bins

These help the municipality segregate waste at source into two collection bins.

- Variable sizes and vandal proof
- Provide garbage-level information to the command centre for necessary action

Smart bus shelters

- Provide Wi-Fi connectivity and phone charging sockets
- Accessibility for the differently abled
- CCTV and hooters to ensure safety of passengers
- Enable emergency access to a central command centre

Solar panels

Our first-of-its-kind solar panels, made with extremely thin steel sheets, eliminate the thick, toughened glass with high-end polymers. This makes the panels practically unbreakable and are used in rooftops, mobile portable units, facades and solar bags.

- Steel integrated solar panels with all associated accessories as standard ready-to-use roof-top kits
- State-of-the-art mechanism for diverting solar power
- Easy and quick installation on flat roofs with no invasion to existing roof and no welding
- Modular structures that are light-weight, robust and wind-resistant, with complete safety features



NEW PRODUCTS

- Special focus on new steel product development for promising segments of Pre-Engineered Building, Lifting and Excavation, and Oil and Gas.
- The Kalinganagar facility helped develop products at an accelerated timeline.
- In-house R&D efforts, along with collaborations with Tata Steel Europe and technical institutions, helped us expedite product and process design for new products.



NEW & ADVANCED MATERIALS

- **Graphene**
Graphene-doped plastic products that were used in Tata Steel for industrial use showed a two-fold increase in life as compared to existing products.
- **Fibre Reinforced Polymer (FRP) products**
Our New Materials Business has adopted an asset-light model through partnerships to develop FRP products that cater to automotive, industrial, infrastructure and railway sectors.
- Apart from Graphene and FRP Composite, there is a focus on incorporating other advanced materials, such as ceramics, into our portfolio.



PROCESS IMPROVEMENTS

- **High Gradient Magnetic Separator (HGMS)**
The Noamundi iron ore mine discards 16% of wet run of mine output as slime, which has 8% alumina and 55% iron content. Use of HGMS is expected to recover 50% of slime containing iron content of 63%. This initiative is in its pilot stage and is expected to save virgin raw materials and increase mine life through improved beneficiation.
- **Carbon composite briquettes**
A new technique of super fine agglomeration called carbon composite briquetting was developed and charged into the blast furnace. A successful plant trial resulted in a favourable drop in coke and carbon rates. This will be adopted across facilities in coming years.

ROAD AHEAD

- Continue to enhance our new product portfolio, cost competitiveness and environmental performance through capability building and collaboration with technology and research partners
- Co-develop and adopt new business models that can bring about a paradigm shift through world-class partners and start-ups



SOLAR PANEL FIELDS, INDIA

Achieving excellence in cost and service

As we gear up for the fourth industrial revolution, we are developing cutting-edge technologies and designing solutions that help transform processes, improve efficiencies and enhance customer experience.



35 kg/tonne of hot metal

IMPROVEMENT IN COKE RATE AT KALINGANAGAR



40+

ADVANCED ANALYTICS MODELS DEPLOYED TO ENHANCE OPERATIONAL EFFICIENCIES

SECURITY OPERATIONS CENTRE, KALINGANAGAR | NOTE: ALL FIGURES ARE FOR FY 2018-19



Reach production capacity of 30 MnTPA in India

Maintain cost leadership

Manufacturing

- Coke rate is an important operating parameter for an integrated steel plant, impacting cost, CO₂ emission and energy intensity. During FY 2018-19, the coke rate at our Kalinganagar plant improved significantly from 434 kg/tonne of hot metal to 399 kg/tonne.
- The Shikhar25 programme focuses on delivering superior product quality, optimising product mix, improving operational efficiency to lower carbon footprint, reducing waste generation and improving waste utilisation, while maximising energy and material efficiency.

**363.15 kg/tonne
of hot metal**

COMBINED COKE RATE AT
TSJ AND TSK

5.82 Gcal/tcs

COMBINED ENERGY INTENSITY
AT TSJ AND TSK

₹2,801 crore

SAVINGS THROUGH SHIKHAR25

NOTE: ALL FIGURES FOR FY 2018-19



DOWNSTREAM, KALINGANAGAR

Digitalisation

We have embarked on a long-term digital technology-led business transformation programme to drive value creation.



PREDICTIVE ANALYTICS, JAMSHEDPUR

Key outcomes

We have moved away from being capex-heavy to capex-light by opting for managed services to augment the IT layers of connectivity, infrastructure and cybersecurity.

ROAD AHEAD

- Be one of the top five technologically advanced global steel companies
- Become agile, intelligent and smart in all business processes and enhance stakeholder experience while generating substantial EBITDA improvement



DATA SECURITY

We have deployed a full-scale Security Operations Centre (SOC) to safeguard our IT and Operational Technology (OT) data and applications, which can analyse 30,000 events per second, resulting in proactive detection and defence from cyber threats.



PREDICTIVE ANALYTICS

We have built and deployed over 40 Advanced Analytics models to enhance operational efficiencies.



CUSTOMER INTERFACE

Our customer-facing digital platforms, Aashiyana, DigECA and Compass, have resulted in additional revenue and improved customer satisfaction.

Committing to grow responsibly



Environment

One of the top 7 integrated steel companies globally in CDP (formerly the Carbon Disclosure Project) 2018

Corporate Social Responsibility

Reached >1.1 million lives

People

~6.5% women in the workforce

NOTE: ALL FIGURES AS OF FY 2018-19



<2 tCO₂/tcs GHG
emission intensity

Zero effluent discharge

Improving >2 million lives

25% diversity in workforce

Environment

At Tata Steel, we are in constant pursuit of minimising our environmental footprint and conserving the natural environment around us. Our philosophy of resource efficiency guides our investment decisions to monitor and mitigate the impact of our operations.

RAINWATER HARVESTING, NOAMUNDI IRON MINE



Emissions control



SINTER PLANT, JAMSHEDPUR

CO₂ EMISSION

Tata Steel aims to achieve emission intensity <2 tCO₂/tcs by 2025. We continue to implement Internal Carbon Pricing in our capital expenditure appraisal process with the shadow price of carbon at US\$15/tCO₂.

Highlights of our CO₂ emission reduction projects:

- Carbon Capture and Use (CCU) at TSJ and at the Ferro Chrome plant at Bamnipal, Odisha
- Assessment of renewable energy potential across our locations in India
- Maximisation of scrap utilisation in steelmaking

2.34 tCO₂e/tcs
GHG EMISSION INTENSITY

TSJ is the Indian benchmark for CO₂ emission intensity at 2.29 tCO₂/tcs and energy intensity at 5.67 GCal/tcs for steel production through the Blast Furnace Basic Oxygen Furnace route.

DUST AND GASEOUS EMISSION

- 24 projects implemented in FY 2018-19 to upgrade the existing air pollution control equipment, including upgradation of all Electrostatic Precipitators (ESPs), at the sinter plant
- Commissioning an online monitoring system in all major stacks

0.42 kg/tcs
DUST EMISSION INTENSITY



Water management



TERTIARY TREATMENT PLANT, JAMSHEDPUR

- Invested in Sewage Treatment Plant (STP) and Rainwater Harvesting (RWH) structures at various locations to improve the groundwater table
- Commissioned a 25 MLD tertiary treatment plant at Bara STP to convert sewage water of the Jamshedpur township into processed water for reuse in Jamshedpur Steel Works

3.5 m³/tcs
SPECIFIC WATER CONSUMPTION

One of the top 7 integrated steel companies globally in CDP 2018

Tata Steel Bara Tertiary Treatment Plant won the 'Industrial Water Project of the Year 2019' Award presented by the Global Water Intelligence (GWI)



<2 tCO₂/tcs GHG emission intensity

GREEN BELTS IN JHARKHAND

 **Circular economy**



Steel is 100% recyclable and we are setting the bar in the industry with our steel recycling business that will help meet the growing demand for steel in a sustainable manner. It will formalise the scrap market in India and help the country transition to a scrap-based steelmaking route for a more sustainable future.

- Recovered metal from steel slag is utilised in the steelmaking process and this scrap is used in steel melting shops, along with clean scrap and pooled iron.
- Tata Steel handles ~17 MnTPA of by-products, which is converted and sold across 20+ product categories every year.
- Granulated blast furnace slag is 100% utilised in Portland slag cement making. Tata Steel has developed and launched India's first ever LD slag branded products – Tata Nirman (for construction application) and Tata Aggreto (for building roads).

0.78 m³/tcs
EFFLUENT DISCHARGE INTENSITY

99%
TOTAL SOLID WASTE UTILISATION

NOTE: ALL FIGURES ARE FOR FY 2018-19

 **Biodiversity**



While Tata Steel's current operations in India are not located in any of the identified biodiversity hotspots or protected areas, our mining operations (being extractive in nature) impact the flora and fauna in the region.

Therefore, we voluntarily partnered with the International Union for Conservation of Nature (IUCN) at our raw material locations in Jharkhand and Odisha for the implementation of biodiversity management plans.

100%
TOTAL RAW MATERIAL SITES COVERED UNDER BIODIVERSITY MANAGEMENT PLAN

ROAD AHEAD

- Continue investing in technologies to achieve the highest environmental performance standards
- Sustain LD slag utilisation at 100%
- Ensure no net loss of biodiversity at our mining locations

IMPACT ON SDGS



Corporate Social Responsibility

Our inclusive programmes give us the opportunity to work with and help communities flourish with us. We have partnered with various organisations and will continue to deepen our engagement with communities.

EMPOWERING GIRLS TO PURSUE SPORTS



Health, drinking water and sanitation

Maternal and New-Born Survival Initiative (MANSI) works with pregnant women, mothers and children to reduce infant mortality.

FY 2018-19 outcomes

- Infant mortality reduced in 12 blocks of Odisha and Jharkhand
- Real-time digital tracking system launched to provide vital support to health volunteers to respond to high-risk cases

~1,855

HIGH-RISK CHILD AND MOTHER CASES IDENTIFIED

~44%

REDUCTION IN DEATH RATE ACHIEVED

Regional Initiative for Safe Sexual Health by Today's Adolescents (RISHTA) educates adolescents on the importance of nutrition and their rights, while imparting life skills training.

FY 2018-19 outcomes

- Reached out to 15,000+ adolescents

990+

PEER EDUCATORS DEVELOPED FROM ADOLESCENT POPULATION

HIV-AIDS and leprosy interventions, together with the LEPRO Society, spread awareness about the diseases and provide treatment and rehabilitation to concerned patients.

FY 2018-19 outcomes

~1,905

LEPROSY CASES AVOIDED AWARENESS, TREATMENT AND REHABILITATION, INCLUDING 31 SURGERIES

Outreach clinical healthcare services invests in Mobile Medical Units (MMUs), health camps, cataract screenings, surgeries and provision of eyeglasses.

FY 2018-19 outcomes

- 3,800+ cataract cases operated

2,400+

SURGERIES CONDUCTED BY MOBILE EYE SURGICAL UNITS

Drinking water intervention installed and repaired drinking water facilities, such as hand tube wells, deep bore wells and piped drinking water, and involved work on solar-powered drinking water projects

FY 2018-19 outcomes

- Enabled clean water supply to five villages throughout the year, by preventing contamination of natural perennial springs

1.2 lakh+

BENEFICIARIES IMPACTED



Education

Thousand Schools project facilitates education for children, through better teaching and learning methods, while improving school governance through School Management Committees.

Learning Beyond School is a fully-community-managed education resource centre that enables children to learn beyond school hours and become familiar with digital technology.

FY 2018-19 outcomes

- 1,170 schools covered in Odisha and 248 in Jharkhand
- 1,600+ habitations have become Child Labour-Free Zones, out of the total 2,239 being addressed in Odisha (since the project's inception)

1,50,000+

STUDENTS COVERED IN ODISHA AND JHARKHAND

Residential camp schools, known as Masti Ki Pathshala, cater to children who are either dropouts or from vulnerable backgrounds engaged in child labour.

Saving Lost Childhood

programme aims to reduce child labour in Jamshedpur.

FY 2018-19 outcomes

- 3 new Masti Ki Pathshalas created in Jamshedpur – 4 schools catering to 50 girls and 260 boys
- Pipla School in Jamshedpur catering to ~100 girls from nearby areas who require bridging and mainstreaming to formal schools
- 90+ students received scholarships under Tata Steel Scholars' Programme for Jharkhand and Odisha

3,300+

STUDENTS RECEIVED SCHOLARSHIPS UNDER JYOTI FELLOWSHIP IN JHARKHAND AND ODISHA

Child education for Particularly Vulnerable Tribal Groups (PVTG) provides access to quality facilities.

FY 2018-19 outcomes

- ~260 students enrolled in seven residential English-medium schools in FY 2018-19, most of them first-generation learners from PVTG families

Literary meets/fests in Kolkata, Ranchi, Bhubaneswar and Mumbai.

FY 2018-19 outcomes

- Acted as top knowledge platforms for intellectual exchange and attracted literary enthusiasts from all corners of the globe



FACILITATING YOUTH EDUCATION

VISION 2025
Improving >2 million lives

Livelihood

Technical education institutes improve employability of the youth in our community through professional skilling courses.

Ek Pahal is a skilling initiative to constructively engage prison inmates by imparting in-house training to enable them to secure gainful employment, both within and outside the jail.

Digital skills for rural children imparted through a classroom-on-wheels, **Kaushalyan**, using an air-conditioned bus with workstations, an LED TV display as well as a trained computer faculty.

Nursing programmes to help address the issues of poverty, unemployment and mass migration through nursing training.

FY 2018-19 outcomes

~4,800
YOUTH ENROLLED

~2,500
YOUTH TRAINED

~2,000
YOUTH PLACED/SELF-EMPLOYED

Women Self-help Groups (SHGs) created in our communities to help impart skills and empower them to run an enterprise.

FY 2018-19 outcomes

~10,000
WOMEN EMPOWERED THROUGH SHGs IN 95 GRAM PANCHAYATS

Improve agricultural productivity by investing in enhanced irrigation facilities for the community, waste land development and other allied activities.

FY 2018-19 outcomes

20,000+
FARMERS BENEFITED THROUGH AGRICULTURE PRODUCTIVITY TECHNIQUES AND ALLIED ACTIVITIES

~85
PONDS CONSTRUCTED/REPAIRED IN JHARKHAND AND ODISHA FOR AGRICULTURAL AND DOMESTIC USE

Youth and sports

Empower youth by training stakeholders and providing them access to unparalleled sports facilities and nurturing sporting talent with career potential.

FY 2018-19 outcomes

40,000+
YOUTH ENGAGED THROUGH DIFFERENT SPORTS ACTIVITIES

Jamshedpur FC (formerly, Tata Football Academy) was established under the aegis of J. R. D. Tata, to promote local youth participation in sports.

FY 2018-19 outcomes

REACHED THE QUARTERFINALS OF THE SUPER CUP IN APRIL 2018

Tribal Identity

Samvaad serves as an international platform for discussion among tribal communities.

FY 2018-19 outcomes

6
REGIONAL EDITIONS OF SAMVAAD HELD ACROSS INDIA

1,680 tribals
REPRESENTING 99 TRIBAL COMMUNITIES, DELEGATES FROM 27 INDIAN STATES AND 17 COUNTRIES ATTENDED THE SAMVAAD 2018 EVENT

Preserve **literary and cultural tribal heritage** in partnership with 12 tribal organisations.

FY 2018-19 outcomes

~16,480 students
OF JHARKHAND AND ODISHA ENROLLED IN 317 LANGUAGE CENTRES PROVIDING INSTRUCTIONS IN SIX TRIBAL LANGUAGES

Rhythms of the Earth
A PAN-INDIA TRIBAL MUSICAL GROUP COMPRISING 75 MEMBERS FROM FIVE STATES COVERING 14 TRIBES WAS LAUNCHED

Encourage and promote **tribal sports**.

FY 2018-19 outcomes

~4,200 tribal youth
OF JHARKHAND AND ODISHA WERE ENGAGED THROUGH TRIBAL SPORTS

ROAD AHEAD

- Establish district models in improving access to quality education and healthcare for infants, mothers and adolescents
- Continue to engage with tribal communities and nurture leadership potential among tribal youth
- Explore partnerships with governments, social sector organisations, academia, experts and other organisations in the national and international development space
- Adopt innovative ways of enhancing household income, community nutrition, completion of basic education till matriculation by all; dealing with endemic water deficiency, supporting the differently abled and enabling better self-governance among citizens at the Panchayat level

IMPACT ON SDGS



People

Investing in people, striving to be the employer of choice, while creating a safe and healthy workplace constitute key priorities for Tata Steel. Industrial harmony of 90-plus years and a century-old trade union is a testament to our culture of 'working together'.



32,984 employees
ON ROLL (INDIA)

49% reduction
IN LOST-TIME INJURY FREQUENCY
RATE (LTIFR) BETWEEN FY 2008-09
AND FY 2018-19

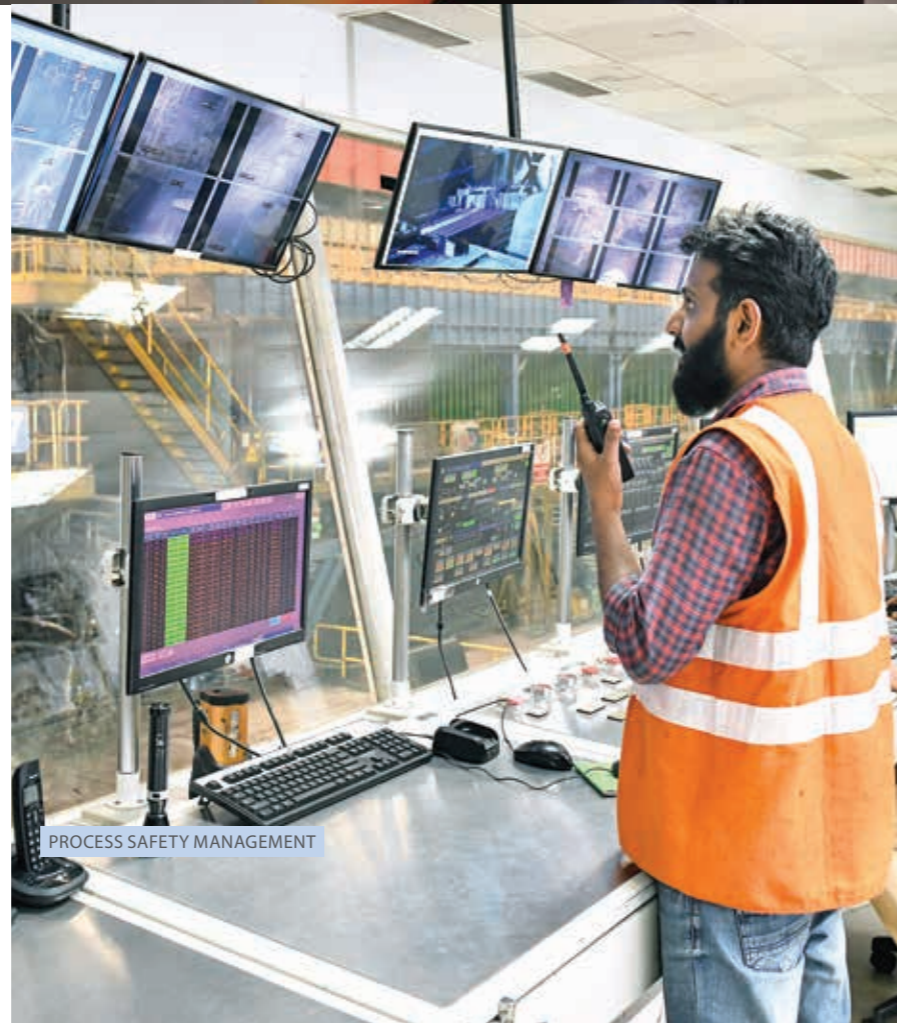
~6.5% women
IN THE WORKFORCE

FOSTERING DIVERSITY AND INCLUSION | NOTE: ALL FIGURES ARE FOR FY 2018-19



Occupational Health and Safety (OHS)

We have instituted policies that drive a culture of safety consciousness and prevention across our entire operations. Our commitment is reflected in the successful ramp-up of the Kalinganagar facility while maintaining the best practices in health and safety.



PROCESS SAFETY MANAGEMENT

Leadership capability building at all levels to achieve zero harm and promote a safety-positive behaviour

FY 2018-19 outcomes

~26%
REDUCTION IN HIGH POTENTIAL INCIDENTS

Elimination of safety incidents on road and rail to achieve safe, efficient and smart transport

FY 2018-19 outcomes

- Zero fatalities inside plant premises sustained between FY 2014-15 and FY 2018-19
- 56% y-o-y reduction in road Lost Time Injury

Competency and capability building to mitigate hazards and manage risks

FY 2018-19 outcomes

- 1,201 officers trained on recalibrated risk matrix
- 2,928 opportunities for improvement identified through cross-functional audits

Contractor safety risk management to engage and empower the sizeable contract workforce

FY 2018-19 outcomes

- 1,035 vendors assessed via a contractor competency audit
- 12,366 contract workforce trained and certified

Process safety management to ensure effective control of risks at high-hazard operations

FY 2018-19 outcomes

1.2%
IMPROVEMENT IN HEALTH INDEX

- 56% high-risk cases (related to lifestyle diseases) transformed to moderate or low-risk
- 10 hazard control projects
- 12 ergo control projects implemented



BUILDING A CONGENIAL WORK ENVIRONMENT



25% diversity in workforce



Employee productivity and capability development



We have implemented the Employee Productivity Framework across our facilities and we continue to identify redundancies through programmes such as right skilling, **Sunhere Bhavishya Ki Yojna** and a job-for-job scheme. We are making significant progress in simplifying the organisation structure, systems and communications.

We also have a Workforce Capability and Capacity Framework to assess capability needs across the workforce for skill and competence building, customer focus, organisational performance, innovation, health and safety, and environment and business ethics.

800 tcs/employee/year
IN THE WORKFORCE

₹132.87 crore
INVESTED IN EMPLOYEE TRAINING AND DEVELOPMENT

NOTE: ALL FIGURES ARE FOR FY 2018-19



Diversity and inclusion

MOSAIC, our marquee initiative, covers four aspects: Gender, Person with Disabilities (PwDs), LGBTQ+, and other marginalised sections of the society. Through this initiative, we are inducting female engineers in manufacturing, sensitising employees about diversity and inclusion, retaining and developing diverse talent, creating infrastructure to simplify lives of working parents and members of the workforce with special needs.

With the objective of enabling greater flexibility and empowering our people, we provide paternity leave for blue-collared workers, offer project-based and full-time roles to women willing to return to work after a hiatus, facilitate satellite office operation for those with location constraints, provide menstrual leave without approval to those that require it, provide adoption leave to single male and transgender employees, and so on.

~17%
EMPLOYEES FROM THE AFFIRMATIVE ACTION COMMUNITY

ROAD AHEAD

- Improve employee productivity
- Be one of the best places for people to work
- Zero fatality
- 2% improvement in health index year on year

IMPACT ON SDGS



Directory of group companies

Name	Holding Type	Holding (%)
Tata Steel Special Economic Zone Limited	Subsidiary	100
Jamshedpur Utilities & Services Company Limited	Subsidiary	100
Kalimati Global Shared Services Limited	Subsidiary	100
Rujvalika Investments Limited	Subsidiary	100
T S Alloys Limited	Subsidiary	100
TSIL Energy Limited	Subsidiary	100
Tata Steel Processing and Distribution Limited	Subsidiary	100
The Tata Pigments Limited	Subsidiary	100
Tata Steel Foundation	Subsidiary	100
Jamshedpur Football and Sporting Private Limited	Subsidiary	100
Bhubaneshwar Power Private Limited	Subsidiary	100
Bamnipal Steel Limited	Subsidiary	100
Bhushan Steel (Orissa) Ltd.	Subsidiary	100
Bhushan Steel (South) Ltd.	Subsidiary	100
Bhushan Steel (Madhya Bharat) Ltd.	Subsidiary	100
The Indian Steel & Wire Products Ltd.	Subsidiary	95.01
Subarnarekha Port Private Limited	Subsidiary	92.04
Adityapur Toll Bridge Company Limited	Subsidiary	88.50
The Tinsplate Company of India Limited	Subsidiary	74.96
Tata Steel BSL Limited	Subsidiary	72.65
Haldia Water Management Limited	Subsidiary	60
Tata Metaliks Limited	Subsidiary	55.06
Tayo Rolls Limited	Subsidiary	54.91
Tata Steel Long Products Limited	Subsidiary	54.50
Creative Port Development Private Limited	Subsidiary	51
Bhushan Energy Limited	Associate	47.71
Bhushan Capital & Credit Services Private Limited	Associate	42.58
Jawahar Credit & Holdings Private Limited	Associate	39.65
TRF Limited	Associate	34.11
Tata NYK Shipping (India) Pvt. Ltd.	Joint Venture	100
TKM Global Logistics Limited	Joint Venture	100
Naba Diganta Water Management Limited	Joint Venture	74
TM International Logistics Limited	Joint Venture	51
Jamshedpur Continuous Annealing & Processing Company Private Limited	Joint Venture	51
SEZ Adityapur Limited	Joint Venture	51
Mjunction Services Limited	Joint Venture	50
Tata BlueScope Steel Private Limited	Joint Venture	50
Jamipol Ltd.	Joint Venture	39.78
Himalaya Steel Mills Services Private Limited	Joint Venture	26
Industrial Energy Limited	Joint Venture	26
Medica TS Hospital Pvt. Ltd.	Joint Venture	26
Nicco Jubilee Park Limited	Joint Venture	25.31

NOTE: ALL FIGURES ARE AS ON MARCH 31, 2019.



NEW PRODUCTS DEVELOPMENT, KALINGANAGAR

Tata Steel Limited

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