

TATA STEEL
#WeAlsoMakeTomorrow



Forging Tomorrow.

Corporate Brochure FY 2019-20

Contents

A vision for tomorrow	2
Tata group overview	12
Tata Steel group overview	18
Tata Steel India overview	28
A vision beyond operations	40
Innovation	42
Technology	46
Sustainability	50
Directory of group companies	64

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

we make
structures

BOGIBEEL BRIDGE, ASSAM

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

of tomorrow

KEMPEGOWDA INTERNATIONAL AIRPORT, BENGALURU

we make landmarks

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

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

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.

we make
solutions

of tomorrow

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

we make
tomorrow

To increase diversity and inclusiveness, Tata Steel became the first company in India to engage women at its mining locations from September 1, 2019

WOMEN @ MINES: NOAMUNDI IRON ORE MINES

greener

We commissioned India's first steam ageing facility at Jamshedpur for accelerated weathering of LD slag to develop environment-friendly aggregates for road construction, replacing natural aggregates.

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.

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 34 MnTPA. It comprises Asia's first integrated steel maker, Tata Steel Limited, together with its subsidiaries, associates and joint ventures; 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.



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
-  Telecommunication and media
-  Infrastructure
-  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 the watch market with Titan Industries, a Joint Venture (JV) with the Tamil Nadu Industrial Development Corporation (TIDCO)
- **1994** Entered the 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 erstwhile 160-year-old British Tetley group
- **2001** Entered the insurance space with two JVs: Tata AIG, this year, and Tata AIA in 2000
- **2006** Launched the 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
- **2019** Tata Global Beverages and Tata Chemicals combined consumer brands to create Tata Consumer Products Ltd.

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



London Europe

North America



Washington DC

Middle East & North Africa



Dubai



Mumbai

India



Singapore

China



Beijing

Asia Pacific

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.



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

- CII GreenCo Star Performer Award 2019
- Dun & Bradstreet Corporate Award 2019 in the category of Corporate Social Responsibility
- Honoured as 'Business Transformer' at the 14th Annual CIO100 Awards, 2019
- Best Integrated Report Award 2018 by the Asian Centre for Corporate Governance and Sustainability in September 2019
- World Economic Forum's Global Lighthouse recognition for our Kalinganagar Plant - a first for India

CAPACITIES

34 MnTPA
GLOBAL CRUDE STEEL

PRODUCTION AND SALES

28.4 MnT
STEEL PRODUCTION

26.26 MnT
DELIVERIES

FINANCIALS

₹1,39,816.65 crore
TURNOVER

₹1,172.46 crore
PROFIT AFTER TAX

NOTE: ALL FIGURES ARE FOR FY 2019-20 (CONSOLIDATED)

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 Policies
- Our Offerings
- Our Innovative Approach
- Our Conduct

Values

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

-  Integrity
-  Responsibility
-  Excellence
-  Pioneering
-  Unity



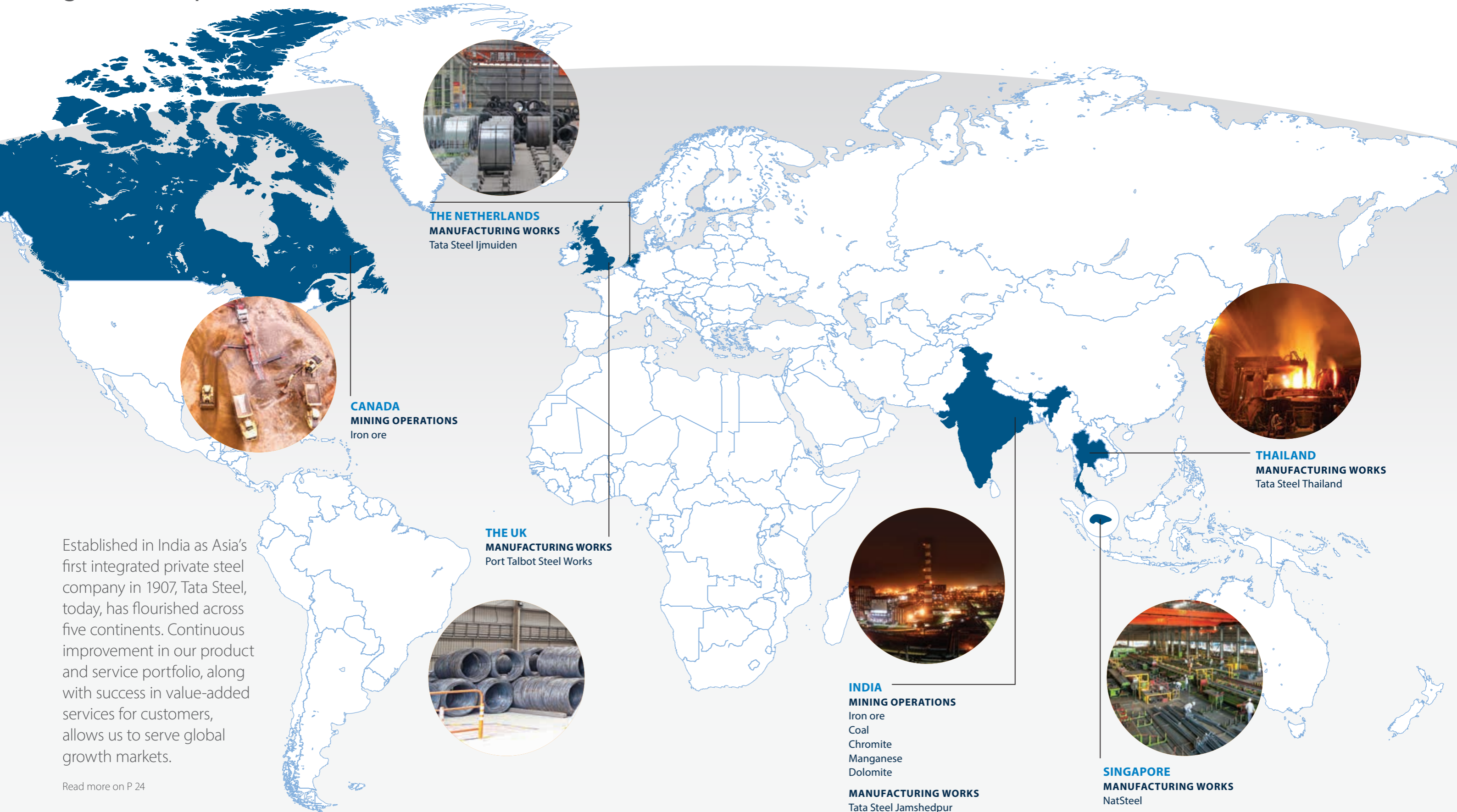
Towards holistic excellence

- **1907** Tata Iron & Steel registered as a company
- **1910** Obtained the first colliery for Tata Iron & Steel, adding six more in the course of time
- **1911** Began successful operations of the first blast furnace
- **1912** Rolled out the 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 an agreement with Kaiser Engineers for a 2 MnT expansion programme
- **2007** Acquired the London-based steel manufacturer Corus Group, thereby becoming one of the most geographically diversified and leading steel producers in the world
- 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 the second phase of capacity expansion programme at Kalinganagar
 - Acquired Usha Martin's steel business through our subsidiary, Tata Sponge Iron Limited
- **2020** Tata Steel Mining Limited signed 50-year leases for Kamarda and Saruabil chromite mines

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



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

DHENKANAL

Tata Steel BSL's plant is one of India's largest integrated steel mills equipped with steelmaking and finishing facilities

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

15 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

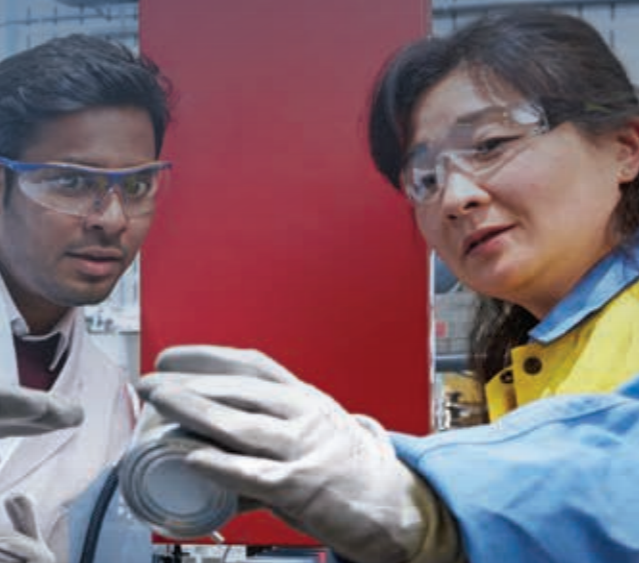
Our South-East Asian operations began in 2004 with the acquisition of NatSteel, Singapore. This was further strengthened in 2015, when we acquired a majority stake in the Thailand-based steelmaker Millennium Steel. We are concentrating our efforts in the region to grow our value-added products and services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

2.2 MnTPA
ROLLING (FINISHED) CAPACITY

10%
OF STEEL EXPORTED TO GLOBAL DESTINATIONS

Canada

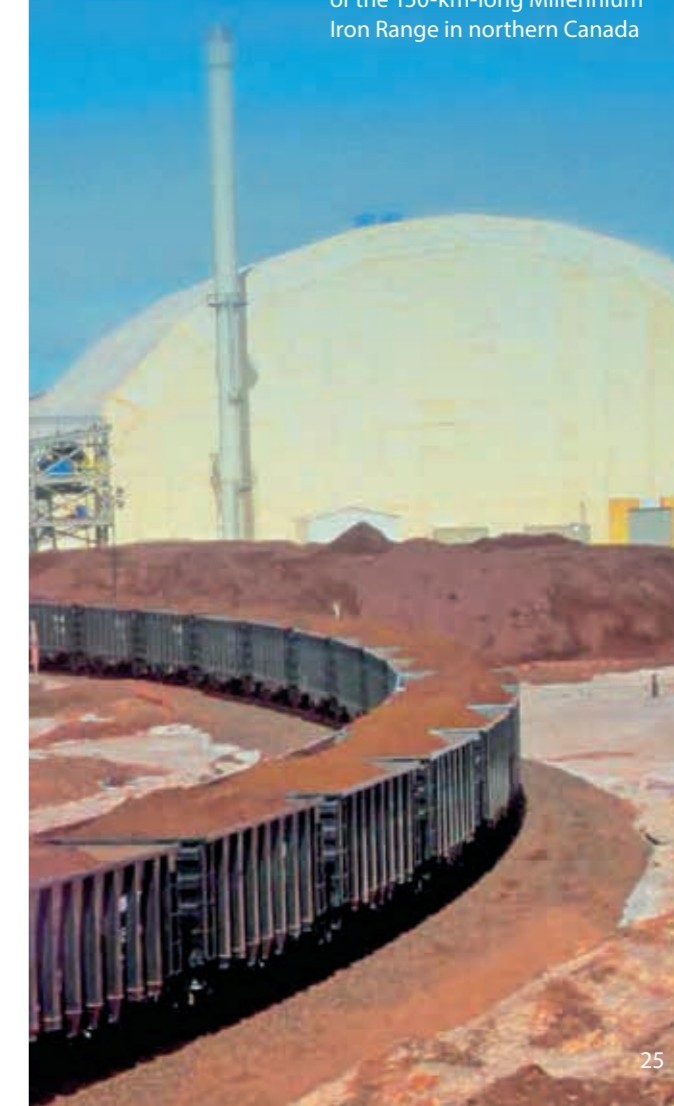
Tata Steel Minerals Canada is a JV between Tata Steel Limited (80%) and New Millennium Iron Corporation (20%). The JV aims to develop iron ore deposits in Quebec, and Newfoundland and Labrador in Canada and is involved in two major projects.

DIRECT SHIPPING ORE PROJECT

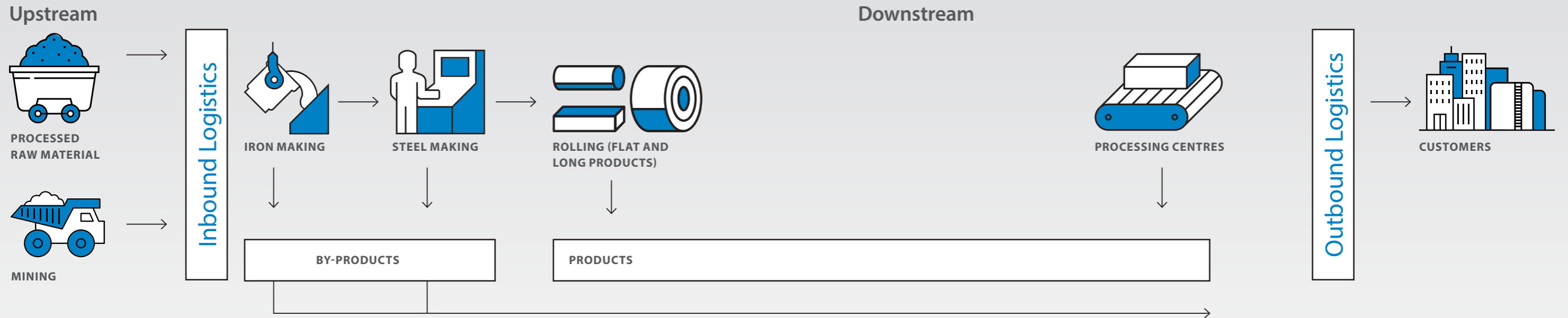
Involves mining, crushing, washing, screening and shipping the sinter fines and pellet fines to Tata Steel's European steel-making facilities

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

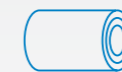


Tata Steel is one of the few fully-integrated global steel producers, involved across mining, iron-making, steel-making, casting, rolling and finishing, and marketing and sales.



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

12 MnTPA
JAMSHEDPUR PLANT

3 MnTPA
KALINGANAGAR PLANT

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

FINANCIALS

₹82,125 crore
TURNOVER

₹17,650 crore
EBITDA

₹5,611 crore
PROFIT AFTER TAX

₹10,400
EBITDA/TONNE

PRODUCTION AND SALES

18.2 MnT
CRUDE STEEL PRODUCTION

155
NEW PRODUCTS DEVELOPED

16.97 MnT
DELIVERIES

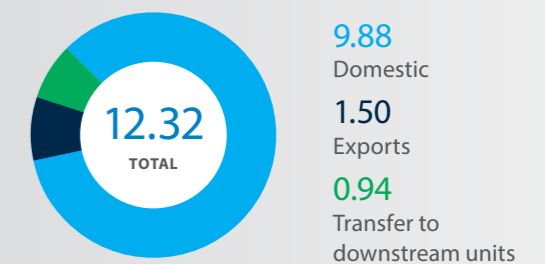


Did you know?

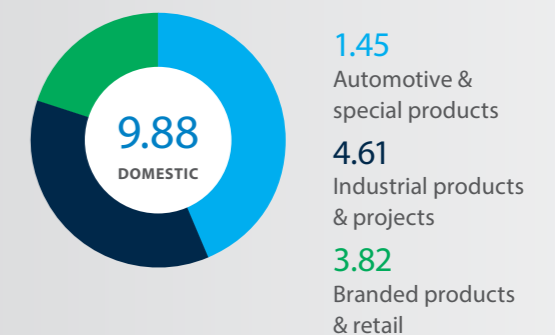
Tata Steel Kalinganagar is the first Indian plant to be included in the elite Global Lighthouse Network of the World Economic Forum for its leadership in applying Industry 4.0 technologies.

India's first steam ageing facility for 'accelerated weathering' of LD slag was commissioned at Tata Steel Jamshedpur.

SHARE IN TOTAL DELIVERIES (MnT)



SHARE IN DOMESTIC SALES (MnT)



NOTE: ALL FIGURES ARE FOR TATA STEEL INDIA FOR FY 2019-20



UPSTREAM, KALINGANAGAR

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

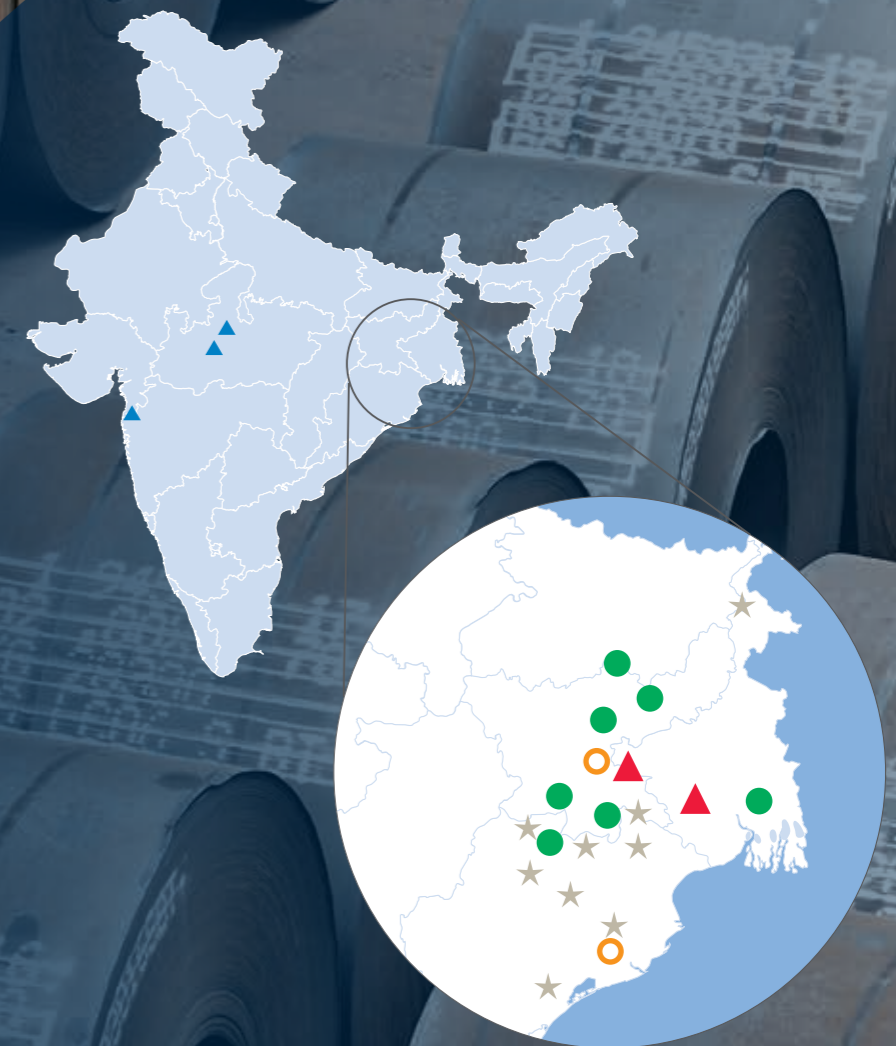
The making of steel depends on natural resources such as iron ore, coal and other minerals, which constitute our key raw materials. Our steelmaking operations at Jamshedpur and Kalinganagar secure 100% of their iron ore requirement from captive sources and this remains one of our biggest operational 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	● Raw material locations
JAMSHEDPUR KALINGANAGAR DHENKANAL	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	★ Raw materials revenue stream FERRO ALLOYS AND MINERALS
JAMSHEDPUR Tubes manufacturing and tinplate	JODA, BAMNIPAL, GOPALPUR Ferro alloys plant
TARAPUR, PITHAMPUR, KILLA Wire manufacturing	JODA WEST, BAMBEBARI, MALDA, TIRINGPAHAR Manganese mines
KHARAGPUR Bearings manufacturing	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.



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.

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 2019-20

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

Market Sub-segments

Individual House Builders (B2C)

Corporate and Government Bodies (B2B) (B2G)

Infrastructure (B2B)

Housing and Commercial (B2ECA)

Products and brands

Tata Tiscon (rebars), Tata Pravesh (steel doors and windows), Tata Shaktee (roofing sheets), Tata Pipes (plumbing pipes), Tata Structura (tubes)

Habinest (prefabricated houses), AquaNest Water Kiosks, Ezynest Modular Toilets, MobiNest (office cabins), Nestudio (rooftop houses), CanvaNest (EV charging station), Smart Easy Nest (for smart cities)

TMT rebars (higher dia rebars and corrosion-resistant steel)

Tiscon readybuild (cut and bend bars), Tata Structura (tubes), PC Strands (LRPC)**, Tata Nirman, Tata Aggreto, Ground Granulated Blast Furnace Slag (GGBS), WAMA – GC for walling

SEGMENT Automotive

Market Sub-segments

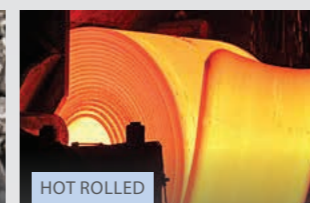
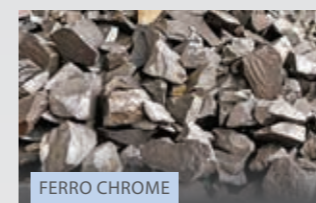
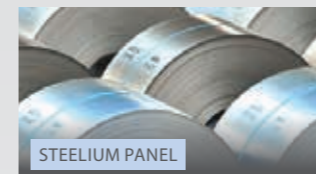
Auto OEMs* (B2B)

Auto Ancillaries (B2B) (B2ECA)

Products and brands

Hot-rolled (HR), Cold-rolled (CR), Coated Coils and Sheets

HR, CR, Coated Steel Coils and Sheets, Precision Tubes, Tyre Bead Wires, Spring Wires, Bearings



SEGMENT Industrial and General Engineering

Market Sub-segments

Panel and Appliances, Fabrication and Capital Goods, Furnitures (B2ECA)

LPG (B2B)

Welding (B2B)

Transmission Power and Distribution (B2B)

Process Industries (Cement, Power) (B2B)

Products and brands

Tata Steelium (CR), Galvano (Coated), Tata Astrum (HR), Tata Structura (tubes), Tata Astrum Super (for fabrication)

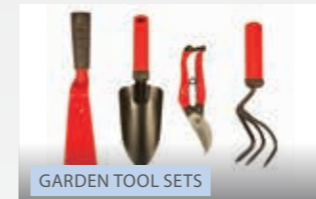
Hot-rolled (HR)

Wire rods

Tata Astrum Super (for fabrication)

Tata Tiscrome (ferro chrome), Tata Ferromag (ferro manganese), boiler tubes, Tata Pipes, Tata Ferrosots, Blast Furnace (BF) slag, Metallics

Notes: B2B – Business to Business; B2C – Business to Consumer; B2G – Business to Government; B2ECA – Business to Emerging Corporate Account
*OEM – Original Equipment Manufacturer
**LRPC – Low-relaxation Pre-stressed Concrete



SEGMENT Agriculture

Market Sub-segments

Agri Equipment (B2B)

Fencing, Farming and Irrigation (B2C)

Products and brands

Bearings

Galvanised Iron (GI), Wires, agricultural 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

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.



₹259 crore
R&D SPEND



58
PATENTS GRANTED



155
NEW PRODUCTS LAUNCHED

Key support units

- Enhanced research facilities with state-of-the-art laboratories, an R&D team of 200+ researchers and collaborations/ memberships with 50 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.



NEW PRODUCTS

- Developed 155 new products in FY 2019-20, including those for high-strength automotive structural applications.
- On the long products front, we commercialised high-strength, high-ductility rebar grade - Fe600 HD. We also developed low nitrogen steel grade (WR3M) wire rods through the Electric Arc Furnace (EAF) route for welding electrode wire application.
- Continuous efforts towards enriching customer experience by delivering innovative products resulted in Tata Steel winning the 'Innovative supplier of the year 2019' award for developing the S460MC grade of steel.
- In Europe, 22 new products were launched during the year, which include major developments for engineering, automotive and construction markets.
- The Packaging department has further developed and commercialised its already launched polymer laminated steel Protact® range of products.

NEW & ADVANCED MATERIALS

Graphene

- ~1,500 tonnes of graphene-coated 'cut and bend' superlinks (GFX Ultima) were sold.

Fibre Reinforced Polymer (FRP) products

- In the infrastructure segment, a wide range of FRP solutions were launched, including FRP street furniture, gazebos, fencing, and a range of decorative and translucent poles.
- Building on the success of installing India's first FRP foot overbridge in March 2019, our New Materials Business (NMB) completed two more successful FRP bridge projects in FY 2019-20.
- In the industrial segment, FRP pressure vessels for water filtration, FRP tanks and chemical equipment for paper and pulp, textile and iron and steel industries were supplied. These products are best equipped to tackle corrosion and are lightweight, thereby offering a long maintenance-free service life.
- Following the initial success of supplying FRP components to the Indian Railways, NMB has entered into railway coach interiors and is working closely with key production units of the Indian Railways.

PROCESS IMPROVEMENTS

TMining

- An insight development on application of blast free mining technology (Surface Miner) in hard rock (Underground Coal Study: ~80 Mpa) such as overburden material (sandstone, shale etc.) near West Bokaro has been conducted. This would be a first of its kind in the world for removing materials that create overburden.

CProcess Visualisation and Diagnostics (PV & DT)

- Developed a virtual pile-making model using real time data for Noamundi iron ore pile, facilitating visibility of chemical composition and material mix of every location of 100 kilo tonne pile, to identify and take corrective action in order to reduce standard deviation of iron ore fines quality.

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 windows 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

French doors

- Doors with aesthetic look and greater security for areas leading to balconies, gardens and lobbies
- Are being piloted in Punjab and Kerala

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

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 Industry 4.0, we are developing cutting-edge technologies and designing solutions that help transform processes, improve efficiencies and enhance customer experience.



364 kg/tonne of hot metal
IMPROVEMENT IN COKE RATE AT KALINGANAGAR



100+
DATA ANALYTICS MODELS DEPLOYED TO ENHANCE OPERATIONAL EFFICIENCIES

SECURITY OPERATIONS CENTRE, KALINGANAGAR | NOTE: ALL FIGURES ARE FOR FY 2019-20



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 2019-20, the coke rate at our Kalinganagar plant improved from 399 kg/tonne of hot metal to 364 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.

5.63 Gcal/tcs
ENERGY INTENSITY AT TSJ

6.27 Gcal/tcs
ENERGY INTENSITY AT TSK

₹4,298 crore
SAVINGS THROUGH SHIKHAR25

NOTE: ALL FIGURES FOR FY 2019-20



Digitalisation

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



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.



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 100+ data 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.

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

Committing to grow responsibly

Environment

Ranked fourth in the Dow Jones Sustainability Indices for the global steel sector in 2019

Corporate Social Responsibility

Reached >1.4 million lives

People

~6.9% women in the workforce

NOTE: ALL FIGURES AS OF FY 2019-20



<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.



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

2.31 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 EMISSIONS

- Upgradation of air pollution control equipment and better environment management in Jamshedpur, resulting in 25% reduction in dust emission since FY 2016-17
- Pollution control system operations established at Kalinganagar resulting in 56% reduction in dust emissions from the first year of operations in FY 2016-17

0.38 kg/tcs
DUST EMISSION INTENSITY



Water management



TERTIARY TREATMENT PLANT, JAMSHEDPUR

- Specific consumption of freshwater at Jamshedpur was at an all-time best at 2.8 m³/tcs, which is also an Indian steel industry benchmark
- Constructed 177 water harvesting structures largely for agricultural use and partly for domestic use

3.11 m³/tcs
SPECIFIC WATER CONSUMPTION

Rated 'B' in Climate Change and Water related disclosures in 2019

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



GREEN BELTS IN JHARKHAND



<2 tCO₂/tcs GHG emission intensity

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.
- A steel scrap processing unit is under commissioning at Rohtak, Haryana with a 5,00,000 tonne per year capacity.
- Tata Steel has formed a Carbon Impact Centre to have a focused intervention to drive low carbon transition and initiatives and to achieve a goal of carbon neutrality in the long-term.

0.73 m³/tcs
EFFLUENT DISCHARGE INTENSITY

100%
TOTAL SOLID WASTE UTILISATION

NOTE: ALL FIGURES ARE FOR FY 2019-20

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 THE 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.



Education

Thousand Schools Programme 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 2019-20 outcomes

- ~2,00,000 children's lives impacted through the Thousand Schools Programme
- Almost all blocks in Odisha are now child labour-free zones

3,400 youth

REACHED THROUGH 32
COMMUNITY-RUN EDUCATION
RESOURCE CENTRES IN ODISHA

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 2019-20 outcomes

- 700+ children covered from ~3,000
- 10 residential and non-residential facilities in Jamshedpur

189

CHILDREN MAINSTREAMED UNDER
MASTI KI PATHSHALA



Youth and sports

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

Outcomes

53,844

YOUTH ENGAGED THROUGH
DIFFERENT SPORTS ACTIVITIES



Health, drinking water and sanitation

Response to the COVID-19 pandemic

Have been spearheading a deep-dive into both the urban and rural communities in Jharkhand and Odisha since late March 2020 under a ten-point agenda, #CombatCovid-19

The agenda includes:

- Provision of food and dry rations with hygiene kits to vulnerable communities
- Enabling income-generation opportunities
- Co-ordinating volunteer assistance to assuage the anxieties of citizens in light of uncertainty

8,02,095

LIVES IMPACTED THROUGH OUR
INITIATIVES DURING THE PANDEMIC

- Supporting migrant labour across India to connect with their families besides
- Provision of relief materials
- Creating market linkages for farmers to ensure their crops get a fair price amid the lockdown

Prioritising maternal and child health

FY 2019-20 outcomes

- Reached 58,620 mothers and children and enabled the reach of ASHA system to their homes
- Sexual and reproductive health knowledge to 15,800 adolescents

97,000

PEOPLE EDUCATED ON THE
HEALTH AND SURVIVAL OF
WOMEN AND CHILDREN BEFORE,
DURING AND AFTER CHILDBIRTH

Focus on water consumption and effluent discharge

FY 2019-20 outcomes

- Minimising freshwater consumption by upgradation of existing water treatment and cooling tower systems to increase its efficiency and reusing treated waste water from sewage Treatment Plant at Bara for industrial purpose
- Undertaken river basin study to identify watershed-level risks at Jamshedpur

**ASPIRE TO ACHIEVE SPECIFIC WATER
CONSUMPTION OF <3 M3 BY 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.

Outcomes
5,504
 YOUTH ENROLLED

2,733
 YOUTH TRAINED

2,197
 YOUTH PLACED/SELF-EMPLOYED

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

Outcomes
14,822
 WOMEN EMPOWERED THROUGH SHGs

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

Outcomes
17,032
 FARMERS BENEFITED THROUGH AGRICULTURE PRODUCTIVITY TECHNIQUES AND ALLIED ACTIVITIES



Tribal Identity

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

Outcomes
7
 REGIONAL EDITIONS OF SAMVAAD HELD ACROSS INDIA

2,115 tribals
 FROM 150 TRIBES OF 13 COUNTRIES ATTENDED THE SAMVAAD 2019 EVENT

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

Outcomes
23,005 students
 OF JHARKHAND AND ODISHA STUDIED FIVE TRIBAL LANGUAGES IN 464 LANGUAGE CENTRES

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)

6.9% women
IN THE WORKFORCE



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.

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

Outcomes

**~44%
REDUCTION IN HIGH POTENTIAL INCIDENTS**

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

Outcomes

- Three fatalities inside plant premises sustained between FY 2014-15 and FY 2018-19

Competency and capability building to mitigate hazards and manage risks

Outcomes

- ~300 supervisors and senior associates from various Centre of Excellence (CoE) departments trained on Process Safety Management
- 10 safety standards simplified, including development of e-learning modules

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

Outcomes

- 840+ high-risk job vendors assessed, of which 246 upgraded to 4-star rating and one to 5-star rating
- 100% contractor employees trained and certified on various skills

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

Outcomes

**1.2%
IMPROVEMENT IN HEALTH INDEX**

- Improvement in Health Index from 12.62 in FY 2018-19 to 12.70 in FY 2019-20
- ~7,600 employees trained to improve competency on first-aid and CPR
- 15 hazard control projects implemented in TSJ and Jharia Division for reduction of exposure level



NOTE: ALL FIGURES ARE FOR FY 2018-19

FOSTERING DIVERSITY AND INCLUSION | NOTE: ALL FIGURES ARE FOR FY 2019-20



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.

803 tcs/employee/year
IN THE WORKFORCE

₹152.33 crore
INVESTED IN EMPLOYEE TRAINING AND DEVELOPMENT

NOTE: ALL FIGURES ARE FOR FY 2019-20



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.

17.5%
EMPLOYEES FROM THE AFFIRMATIVE ACTION COMMUNITY



25% diversity
in workforce

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
Tata Steel Utilities and Infrastructure Services Limited (formerly Jamshedpur Utilities & Services Company Limited)	Subsidiary	100
Kalimati Global Shared Services Limited	Subsidiary	100
Rujuvalika Investments Limited	Subsidiary	100
T S Alloys Limited	Subsidiary	100
TSIL Energy Limited	Subsidiary	100
Tata Steel Downstream Products Limited (formerly 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
Bamnival Steel Limited	Subsidiary	100
Bhushan Steel (Orissa) Limited	Subsidiary	100
Bhushan Steel (South) Limited	Subsidiary	100
Bhushan Steel (Madhya Bharat) Ltd.	Subsidiary	100
The Indian Steel & Wire Products Ltd.	Subsidiary	95.01
Subarnarekha Port Private Limited	Subsidiary	50.41
Adityapur Toll Bridge Company Limited	Subsidiary	88.50
The Tinplate 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 (formerly Tata Sponge Iron Limited)	Subsidiary	54.50
Creative Port Development Private Limited	Subsidiary	51
Angul Energy Limited (formerly Bhushan Energy Limited)	Associate	99.99
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) Private Limited	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 Limited	Joint Venture	39.78
Himalaya Steel Mills Services Private Limited	Joint Venture	26
Industrial Energy Limited	Joint Venture	26
Medica TS Hospital Private Limited	Joint Venture	26
Nicco Jubilee Park Limited	Joint Venture	25.31

NOTE: ALL FIGURES ARE AS ON MARCH 31, 2020.



NEW PRODUCTS DEVELOPMENT, KALINGANAGAR

Tata Steel Limited

**BOMBAY HOUSE, 24 HOMI MODY STREET,
MUMBAI - 400 001, INDIA**

www.tatasteel.com