

Integrated Report &  
Annual Accounts

**2015-16**

**109<sup>th</sup> Year**



**WORKING TOGETHER TO  
CREATE SUSTAINABLE VALUE**

## Forward-looking statements

Certain statements in this report regarding our business operations may constitute forward-looking statements. These include all statements other than statements of historical fact, including those regarding the financial position, business strategy, management plans and objectives for future operations.

Forward-looking statements can be identified by words such as 'believes', 'estimates', 'anticipates', 'expects', 'intends', 'may', 'will', 'plans', 'outlook' and other words of similar meaning in connection with a discussion of future operating or financial performance.

Forward-looking statements are necessarily dependent on assumptions, data or methods that may be incorrect or imprecise and that may be incapable of being realised, and as such, are not intended to be a guarantee of future results, but constitute our current expectations based on reasonable assumptions. Actual results could differ materially from those projected in any forward-looking statements due to various events, risks, uncertainties and other factors. We neither intend to nor assume any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

# About the report

**The business environment is increasingly being influenced by Governments, Regulators, Civil Society and Investors who are steadily moving towards Focusing Capital on Long-Term. The providers of Financial Capital are now increasingly expecting companies to proactively engage with wider set of stakeholders on matters relating to sustainability. The strategic focus across businesses is steadily moving towards long-term capital creation. To proactively engage with a wider set of stakeholders on matters relating to sustainability and in keeping with our very own core principle, commencing this year, we endeavour to transition towards a system of governance-based reporting for long-term value creation.**

## Reporting Principle

We present our first Integrated Report prepared in line with the framework adopted by the International Integrated Reporting Council (IIRC). The financial and statutory data is based on the requirements of the Companies Act, 2013 (including the Rules made thereunder and Accounting Standards), the Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015 and the Secretarial Standards. The non-financial data is based on various principles laid down by Global Reporting Initiative, IIRC, UN Global Compact and SEBI. Material issues have been identified based on a Materiality Mapping conducted by the Company.

In order to optimise governance oversight, risk management and controls, the contents of this report have been reviewed by the Management.

## Reporting Period

This report covers all material issues (financial and non-financial) relating to Tata Steel India for the period April 1, 2015 to March 31, 2016.

## Independent Assurance

Assurance on financial statements has been provided by our independent auditors viz., Deloitte Haskins & Sells LLP. DNV GL, providers of accredited management systems certification have provided an independent assurance on the Integrated Report. The assurance statement is available on [www.tatasteel.com](http://www.tatasteel.com)

## Highlights

Tata Steel Group	11 <sup>th</sup> Largest steel player globally	25.9 MnT Deliveries	₹1,172 bn Global revenues
Tata Steel India	1.1 mn Lives touched through CSR activities	9.5 MnT Deliveries	₹382 bn Revenues

## Characteristics of the Report

We are a global corporation with operations in 26 countries and commercial presence in over 50 countries. Commencing this year we are presenting our first Integrated Report (covering our India operations) prepared in line with the framework adopted by the International Integrated Reporting Council (IIRC). This report reflects our integrated thinking and approach in judiciously utilising the six capitals (Financial, Manufactured, Intellectual, Human, Social and Relationship and Natural) in our operations to create long-term sustainable value to stakeholders.

<b>Financial Capital</b>  <p>Financial Capital refers to a pool of funds used to create value through conversion into other forms of capital. This capital is raised through financing (equity, debt), operations and investments.</p> <p><b>Pg 22</b></p>	<b>Manufactured Capital</b>  <p>Manufactured Capital represents physical objects that are available to an organisation for use in the production of goods or provision of services.</p> <p><b>Pg 24</b></p>	<b>Intellectual Capital</b>  <p>Intellectual Capital represents organisational knowledge-based intangibles.</p> <p><b>Pg 32</b></p>
<b>Human Capital</b>  <p>Human Capital represents people's competencies, capabilities, experiences and their motivation to innovate.</p> <p><b>Pg 36</b></p>	<b>Social and Relationship Capital</b>  <p>Social and Relationship Capital represents co-operative ties between a company and different communities and stakeholder groups that engage with each other for societal welfare.</p> <p><b>Pg 42</b></p>	<b>Natural Capital</b>  <p>Natural Capital represents all renewable and non-renewable environmental resources such as water, land, minerals, forests, biodiversity and ecosystem health.</p> <p><b>Pg 52</b></p>

Through this report, we aspire to provide our stakeholders, a comprehensive and strategic story of value creation that encompasses various aspects of our sustenance such as strategy, operations, financial performance, governance, society and environment.

**~77,000**

Global workforce

**~70**

New products launched

**11%**

Y-o-Y decline in LTIFR

**7%**

Y-o-Y decrease in GHG emissions

**4%**

Y-o-Y decrease in energy intensity

**25%**

Y-o-Y decline in LTIFR

LTIFR - Loss Time Injury Frequency Rate   GHG - Green House Gas   MnT - Million Tonnes   Y-o-Y - Year on Year

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# COMPANY OVERVIEW

We commenced our operations in 1907 and today we are the world's second most diversified steel producer with operations in 26 countries and commercial presence in over 50 countries. We are the 11<sup>th</sup> largest steel player globally, producing 25.9 MnT finished steel and employing ~77,000 people.



Jamshedpur Steel Plant

In India, we are one of the largest private sector integrated steel producers with a turnover of ₹38,000 crore. Our value chain extends from mining to the steel finished goods in the metal industry.

Over the years we have enriched the glorious legacy handed over by our Founder J.N. Tata, by placing equal emphasis on value creation and corporate citizenship. Underpinning this vision is a performance culture committed to aspirational targets, safety and social responsibility, continuous improvement, openness and transparency. What binds together every member of our global family today is a shared corporate culture, shaped by value-based guiding principles and the lineage of one of the world's most pioneering and respected entities – the Tata Group itself.

## Ownership Structure

We are headquartered in Mumbai. Our ownership (as of March 31, 2016) is diversely held as depicted below.



Category	%
Promoters	31.35
Institutions	45.20
Retail Shareholders	23.45

## Vision

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

## Mission

**Consistent with the vision and values of the Founder Jamsetji Tata, Tata Steel strives to strengthen India's industrial base through the effective utilisation of staff and materials. The means envisaged to achieve this are high technology and productivity, consistent with modern management practices.**

**Tata Steel recognises that while honesty and integrity are the 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 that it does in an atmosphere free from fear and thereby reaffirms its faith in democratic values.**

## Operating Structure

We have a well-defined operating structure to ensure that the Company is on track to achieve its vision and strategic objectives.

Our executive management rests with Mr. T. V. Narendran, Managing Director for our Indian and South-East Asian operations and Mr. Koushik Chatterjee, Group Executive Director (Finance and Corporate) and Executive Director for our European operations. Mr. Narendran and Mr. Chatterjee, operationally and administratively report to our Chairman, Mr. Cyrus P. Mistry and functionally report to the Board of Directors.

## Values

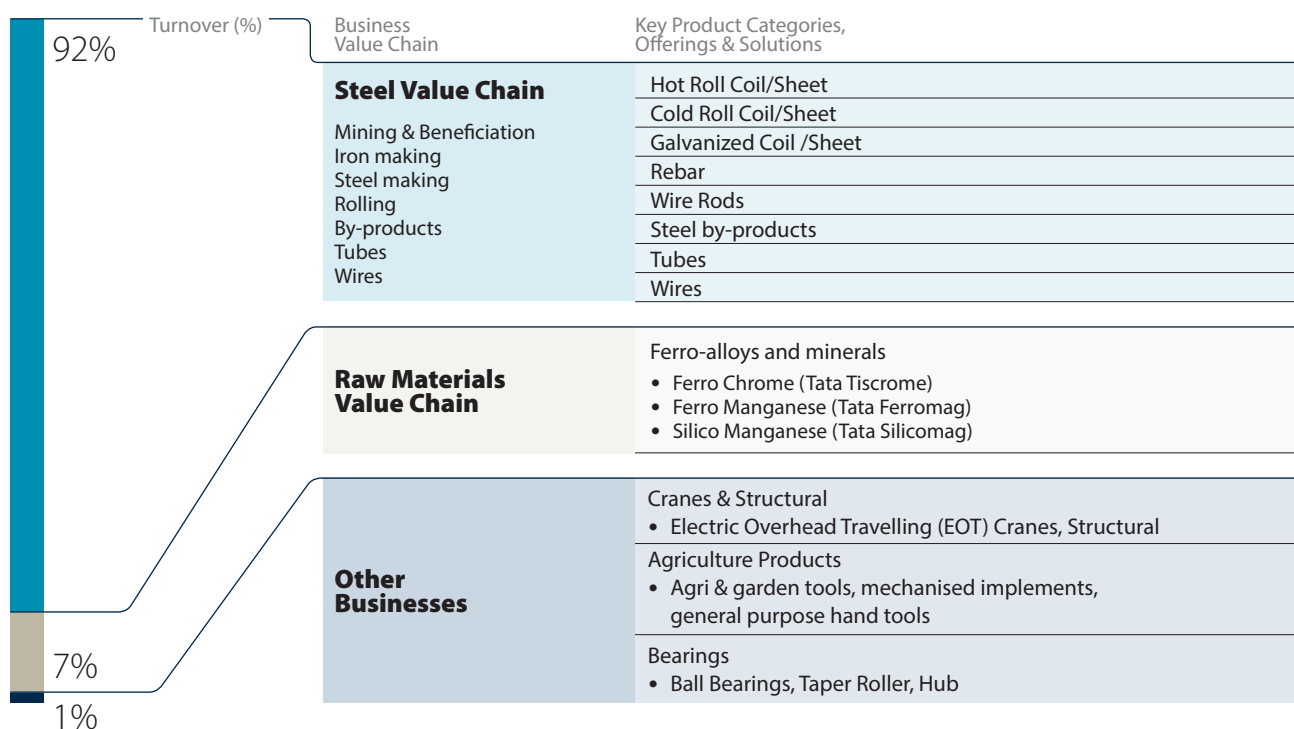
**Integrity, Understanding, Excellence, Unity, Responsibility**

The executive team responsible for operations such as Raw Materials, Steel Making, Sales and Marketing etc. reports to the Managing Director. Corporate functions such as Finance and Accounts, Legal, Secretarial, Communications and Regulatory Affairs, among others, report to the Group Executive Director (Finance and Corporate).

We have a strong, diverse, highly qualified and richly experienced leadership team with a track record of excellence and passion for performance.

# OUR PRINCIPAL ACTIVITIES AND REVENUE STREAMS

From a revenue driver perspective, our Business Value Chain comprises (a) Steel Value Chain – from captive mining to downstream steel businesses, (b) Raw Materials Value Chain – mining of chrome and manganese ore to production and sale of ferro-alloys & minerals and (c) Other Businesses – e.g. equipment manufacturing, bearings and agricultural equipment manufacturing. In FY16, these revenue drivers accounted for 92%, 7% and 1% of our total revenues, respectively.



## Market Segments

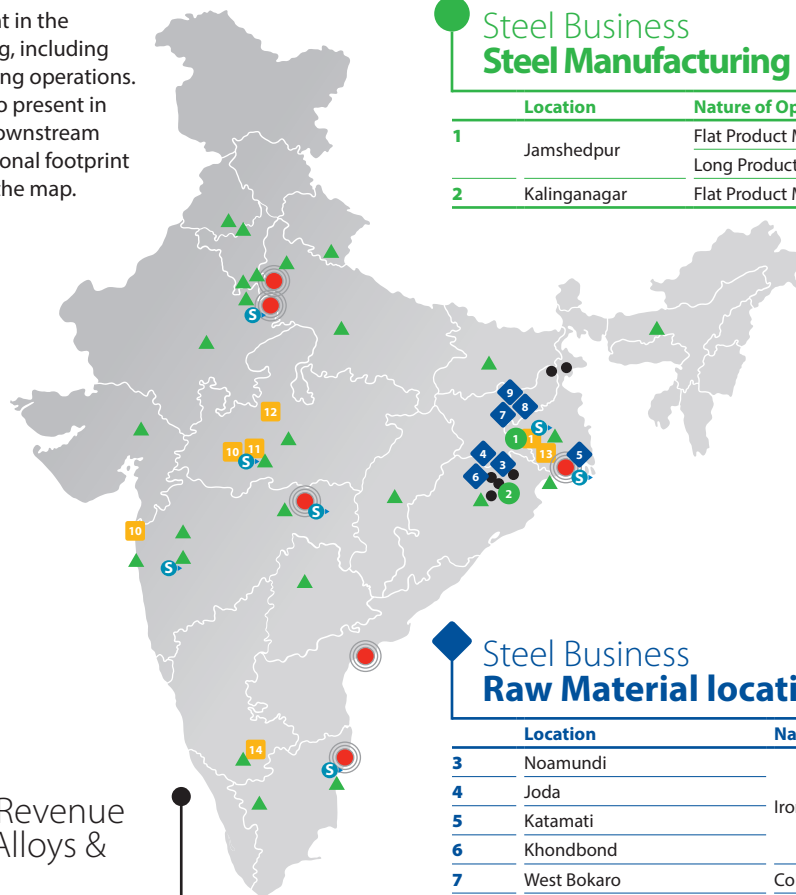
Construction	Automotive	General Engineering	Industrial	Agricultural
Individual House Builders	Auto OEMs	Panel & Appliances	LPG	Agri Equipment
Rural Roofing	Auto Ancillaries	Fabricating & Capital Goods	Welding	Fencing, Farming & Irrigation
Infrastructure		Furniture	Process industries like Cement, Power, Steel	
Housing & Commercial				

## Some of our leading Products & Brands



# OUR FOOTPRINT

We are primarily present in the business of steel making, including raw material and finishing operations. Additionally, we are also present in various value adding downstream businesses. Our operational footprint has been indicated on the map.



Raw Materials Revenue Stream (Ferro Alloys & Minerals)

Location	Nature of Operations
Sukinda & Bamnibal	Ferro Alloys Plant
Sukinda	Chromite Mine
Joda West, Bambebari, Malda, Manmora & Trinpahar	Manganese Mines
Gomardih	Dolomite Mine

Nature of Operations	Nos.
Zonal Hubs	6 [Delhi, Faridabad, Chennai, Vijayawada, Nagpur, Kolkata]
Stockyards	17 [not on map]
Distributors	77 [not on map]
Dealers	10,991 [not on map]
Steel Processing Centres	12 Key SPCs across 7 Locations
Sales Offices	26

## Steel Business

### Steel Manufacturing and Finishing Mills

	Location	Nature of Operations	Capacity
1	Jamshedpur	Flat Product Manufacturing	7 MnTPA
		Long Product Manufacturing	3 MnTPA
2	Kalinganagar	Flat Product Manufacturing	3 MnTPA

## Steel Business

### Raw Material locations

	Location	Nature of Operations
3	Noamundi	Iron Ore Mines & Quarries
4	Joda	
5	Katamati	
6	Khondbond	
7	West Bokaro	Colliery (West Bokaro Division)
8	Jamadoba Group	Colliery (Jharia Division)
9	Sijua Group	

## Steel Business

### Downstream Operations

	Location	Nature of Operations
		Tubes Manufacturing
1	Jamshedpur	Industrial By-products Management Division
		Tata Growth Shop
10	Tarapur	Wire Manufacturing
11-12	Pithampur & Killa, Indore	
13	Kharagpur	Bearings Manufacturing
14	Bengaluru	Cut & Bend (Rebar – tailor-made shapes and size)
-	Across the country through Agrico Processing Partners (APP)	Agricultural tools & equipment manufacturing

# OUR OPERATING ENVIRONMENT

We operate in a volatile and ambiguous business landscape. Our operating environment is influenced by global macroeconomic conditions, developments in steel and allied industries and the evolving technological landscape. Together with this, the social context in the areas we operate in, legislative, regulatory and political environment and the overall ecosystem affect our operations. The discussion on the macroeconomic environment and industry is captured in our Directors' Report. The remaining factors have been discussed below.

## Technological Changes

We face significant challenges to keep up with the pace of technological changes and to ensure that our manufacturing facilities are modern to be efficient with minimal impact on environment. Technological solutions for the steel industry are increasingly being developed with focus on reducing carbon footprint, using inferior raw materials, yield improvement, solid waste utilisation and moving towards a regime of zero water discharge.

In India, the use of inferior quality of indigenous raw materials and the variability in ore, compared to imported raw materials, pose an enormous challenge in terms of achieving high quality products, generation of wastes and energy utilisation. Also domestic needs of global manufacturers for high quality products as well as the continuously evolving demand for newer, high strength grades of steel, makes it necessary for steel makers to expand the capability of their finishing mills to include high-end, high strength products.

## Social Context

In India, we operate primarily in the traditionally backward states of Jharkhand and Odisha, with higher than national average illiteracy and Scheduled Caste (SC) and Scheduled Tribe (ST) community population. These states are also impacted by extremist activities in their rural areas. Most people in these states depend

upon rain-fed, single crop agriculture for livelihood. Rapid socio-economic development in these states is a challenge. With our operations largely confined to areas with a sizeable SC and ST population, we believe that promoting Affirmative Action based on positive discrimination is the right thing to do, besides fostering desirable diversity at the workplace.

## Safety and Health

Steel manufacturing is hazardous by nature. The commitment of global steel manufacturers towards building a sustainable world is manifested in the goal of achieving an injury-free, illness-free and healthy workplace. This is the primary focus in all our operations.

## Employment, Productivity and Skilling

Despite the rise in labour productivity in India, sustainable growth requires investments in intellectual capital and structural reforms. The Indian Industry has proposed a review of labour laws in the country to help boost industrial productivity. It has voluntarily committed to address the mismatch between the representations of socially and economically challenged communities in their workforce as a proportion of their representation in the total population through Affirmative Action. This includes employment and employability initiatives.

## Climate Change

In view of the outcome of climate negotiations at COP21 and India's commitment to address Climate Change through its Intended Nationally Determined Contribution (INDC), a reduction in emission intensity of its GDP by 33 to 35% by 2030 compared to 2005 levels is expected. For this, Indian Steel industry will have to aggressively cut down CO<sub>2</sub> emissions. While the Government has not set any sector specific targets, the Ministry of Steel has prepared a road map. The emission target set for steel production via the BF/ BOF route for 2020 is 2.4-2.6/tcs and the target for 2030 is 2.2-2.4 /tcs. The doubling of the

Clean Energy Cess from ₹200 to ₹400 per tonne would raise input costs for domestic producers.

## Biodiversity and Ecosystem Services

In recent years, the Government of India and NGOs have shown concern over the continuous degradation of biodiversity and erosion of ecosystem service. As a party to the Convention on Biological Diversity (CBD), India has developed 12 National Biodiversity Targets (NBD) using the Strategic Plan 2011-2020 and its 'Aichi' (named after venue for convention on biodiversity) targets as a framework. National Biodiversity Targets relevant to the steel industry include NBD 1, requiring a significant proportion of India's population, especially the youth, to be aware of the values of biodiversity and the steps they can take to conserve and use it sustainably and NBD 9 on national initiatives to protect, use and strengthen the traditional knowledge of communities relating to biodiversity.

## Legislative, Regulatory and Political Environment

India jumped 12 places up in the "Ease of Doing Business" ranking of the World Bank in 2016, to which the Economic Survey 2016 attributes a dramatic spurt in Foreign Direct Investment flows by 40% during the year.

With the Union Government having a clear majority and thereby ensuring political stability, corporates have eagerly anticipated quicker reforms, such as the Goods and Services Tax (GST) and implementation of the Insolvency and Bankruptcy Code. However, there are significant grey areas in the law, particularly insufficient clarity on taxation rates and its likely applicability to the steel sector. Additionally, the delay in the Land Acquisition, Rehabilitation & Resettlement (LARR) Act and reforms in labour legislations are also likely to throw up challenges on the economy and the steel sector.

# CHAIRMAN'S MESSAGE



Dear Shareholders,

Almost seven years after the world economy emerged from the most severe and impactful post-war recession, a return to healthy and stable global economy still remains elusive. The downside risks to the global growth remains at all-time high. During FY16, the global economy had an uneven growth with a few developed economies demonstrating resilience while the Euro Area and Japan has been tentative. Amongst the emerging economies, while India has relatively outperformed its peers, China continues to show moderation in its economic performance. The sharp decline in oil and commodity prices have also impacted the economy of many commodity producing countries. The medium to long-term economic outlook in India continues to look promising and it is heartening to see the Government's drive to continue to liberalise the economy and focus on social sector spending in building both hard and soft infrastructure. These are critical initiatives to make the nation's economy more productive and resilient in the future. The recent initiative to assess and rank the States on ease of doing business has ignited the spirit of

competitive federalism that will certainly make India an attractive destination for new business and investments not only from within India but from across the globe. As a foundation industry for any nation, the Indian Steel industry will be encouragingly watching these developments and would be future-ready to serve the nation with globally competitive products and services.

In recent years, the global steel industry has been impacted by significant oversupply in certain geographies, declining demand, falling spreads between steel prices and raw material prices and volatile currency movements. Some of these issues are structural as the world is readjusting to lower commodity prices and slow growth. Under these circumstances, it would be vital for the industry to look at supply side restructuring to rebalance the demand-supply equation especially in countries and regions where the oversupply situation is structurally acute. The supply side discipline is critical for the future sustenance and viability of the steel industry. As the world adjusts to structurally lower commodity prices for a longer period of time, consolidation of the steel industry would remain a key theme, especially in geographies where the demand is unlikely to grow structurally in the near future. Consolidation of businesses would provide an opportunity to the steel industry to remain relevant and competitive in terms of costs and value to the customers and enable investments in product innovation, technology and supply chain efficiencies. It is important for national governments to ensure a level playing field for fair competition against unfairly priced imports and I would like to compliment the Government of India for responding effectively to put in place an appropriate deterrent mechanism against such imports during the second half of the previous financial year. Having said that, I would like to highlight that while the above measures are short-term support against unfairly priced imports, the long-term competitiveness of the steel

industry in India will depend on the cost of doing business including regulatory costs, infrastructure efficiency for inbound and outbound transportation of raw material and finished goods, as also the availability of energy at competitive costs. We have seen significant increase in levies, duties and regulatory costs in the mining sector in India in the recent years and also infrastructural challenges especially in logistics. If this trend continues in the future, it will seriously impact the long-term attractiveness for investments in the steel manufacturing sector and the country's ambition to be a 300 MnTPA steel producing nation in the next decade will be at risk.

The Indian operations of Tata Steel continue to be the foundation of the Tata Steel Group. During the year under review, the Jamshedpur operations achieved highest-ever crude steel production and sales for the year along with several best-ever operating and commercial milestones. The Company is also undertaking a programme to structurally enhance the business performance through operating improvement initiatives, right sizing of manpower to enhance employee productivity and new product development. The year under review was also very critical for Tata Steel as it completed the project execution of the state-of-the-art 3 MnTPA greenfield project in Kalinganagar, Odisha. This is the first phase of the greenfield site and has the potential to grow further in the future. The Board has approved the commercial production of the facilities this month and over the next financial year, the operations will be ramped up to reach its capacity over the next 18 months. The combination of Jamshedpur and Kalinganagar operations will enable Tata Steel to enhance its product portfolio with enriched products and solutions and also expand its customer footprint to new segments of the market. While investing to build physical assets, the Company continues to make meaningful contributions towards developing social capital especially in communities in and around the place of its business. Building



## Our Indian operations continue to be the foundation of the Tata Steel Group. During FY16, the Jamshedpur operations achieved highest-ever crude steel production and sales for the year along with several best-ever operating and commercial milestones.

a sustainable society remains the core purpose of our business and the focus during the year continued to be on health, livelihood, education, sports, ethnicity and disaster relief.

I would also like to take this opportunity to mention that the business performance of the subsidiaries of Tata Steel in India and South East Asia has significantly improved. Following the exit of the business from China and several other restructuring initiatives, NatSteel and Tata Steel Thailand have significantly improved their underlying performance during the year. Similarly, the performances of other subsidiaries and joint venture companies like Tata Metaliks, Tata Bluescope, Tinplate Company of India and Tata Steel Processing and Distribution improved significantly compared to the previous year.

During FY16, the European steel industry continued to face several challenges including significant third country imports especially to the UK, a sharp drop in the market spread between steel prices and raw material price basket and very volatile currency movements. The adverse operating environment in Europe deeply impacted the consolidated financial performance of Tata Steel for the year under review. While our Management team and employees took significant initiatives to improve the operating performance, market challenges offset the benefits of internal improvement efforts leading to significant profit erosion and impairment of assets. You would recall, I had mentioned in my message in the previous year that should the underlying business and operating environment not improve in the UK, the business has to undergo further restructuring

going forward. Consequently, based on the periodic performance review of the business during the year and an assessment of the business conditions and the challenges faced by Tata Steel UK, the Board of Tata Steel advised its European subsidiary to undertake several structural decisions, most notably, the restructuring and divestment of the Long Products business in Europe and restructuring the operating sites of the Bar business and the downstream operations in Llanwern in the UK. These actions were absolutely critical for the future of the UK business, but more needs to be done to provide a sustainable business going forward.

In the wider interest and financial sustenance of the Tata Steel Group, the Board also reviewed the UK business in its entirety and advised its European subsidiary - Tata Steel Europe, to look at all options of restructuring including a potential divestment of the whole or parts of the business. The above process is currently on-going and the alternate options are being closely reviewed even as the business is being currently supported by the parent for investments and funding requirements. I would also like to mention here that under the current fragile business conditions for steel industry in Europe, especially in the UK, exposure to defined benefit schemes significantly impacts the future viability of the underlying business. The Company has been in close and intense discussions with several stakeholders including the Pension Trustees, the Unions and the relevant bodies in the Government of UK and the Welsh Government to find a sustainable solution to the pensions that does not impact the continuing business of Tata Steel UK.

Our Netherlands business generated bulk of the operating earnings in the previous year for Tata Steel Europe. However, it has the potential to improve its performance to a much higher level and with new investments in its steel making and rolling facilities as well as other restructuring and improvement measures that have currently been initiated, I am certain the employees and management of Tata Steel Netherlands will work towards delivering enhanced value for the shareholders of Tata Steel in the future.

In February 2016, Dr. Karl Koehler stepped down as the CEO and Managing Director of Tata Steel Europe and also from the Board of Tata Steel. On behalf of the Board, I would like to place on record the Board's appreciation of Karl's contribution to the Company during his tenure. Mr. Koushik Chatterjee, Group Executive Director (Finance and Corporate) was appointed by the Board as the Executive Director for the European business of Tata Steel in addition to his current responsibilities and Mr. Hans Fischer was appointed CEO of Tata Steel Europe.

Finally, I would like to take this opportunity to thank you as the shareholders of the Company for your support and motivation to the Company during the year. I would also like to thank the lenders, suppliers, customers, various national and provincial governments with whom we have been working, the employees, the Unions and associates across all Tata Steel Group companies who have stood by the Company and I look forward to their continued support in the future.

Yours Sincerely,

**Cyrus P. Mistry**  
Chairman

Mumbai  
May 25, 2016

# BOARD OF DIRECTORS

(As on May 25, 2016)



## 1 Mr. Cyrus P. Mistry Non-Executive Chairman

**6 2**

Mr. Mistry (47) is the Chairman of the Board. He is also the Chairman of Tata Sons and several Tata Group Companies. In the past, he served as the Managing Director of the Shapoorji Pallonji Group. He is a graduate of Civil Engineering from Imperial College London, UK, and has a M.Sc. in Management from London Business School.

## 2 Mr. Nusli N. Wadia Independent Director

**2 6**

Mr. Wadia (72) is foremost amongst famous Indian industrialists. He is the Chairman of The Wadia Group and Bombay Dyeing, companies that are amongst the most respected and widely diversified business houses in the corporate world. He serves on the Board of several companies including Tata Motors, Tata Chemicals and Britannia Industries.

## 3 Mr. Ishaat Hussain Non-Executive Director

**3 1 4 5 6**

Mr. Hussain (68) serves on the Board of several Tata Group Companies including Tata Sons, Tata Consultancy Services, Voltas and Tata Sky. In the past, he was the Executive Director (Finance) at Tata Steel. Mr. Hussain graduated in Economics from St. Stephen's College, New Delhi. He is a Fellow of the Institute of Chartered Accountants in England and Wales.

#### 4 Mr. Subodh Bhargava

Independent Director

1 2 5 7

Mr. Bhargava (74) is currently the Chairman of Tata Communications, GlaxoSmithKline Healthcare and Director on the Boards of Tata Motors and Larsen & Tubro. He is also the Chairman Emeritus of Eicher Group and in the past served as its Group Chairman and CEO. Mr. Bhargava is a Mechanical Engineer from the University of Roorkee.

#### 6 Ms. Mallika Srinivasan

Independent Director

Ms. Srinivasan (56) is the Chairperson and CEO of Tractors and Farm Equipment Limited. She serves on several Boards including AGCO Corporation and Tata Global Beverages. Ms. Srinivasan holds an MBA from the Wharton School of Business, University of Pennsylvania and Master's Degree in Econometrics from the University of Madras.

#### 8 Mr. O. P. Bhatt

Independent Director

4 1 2 3

Mr. Bhatt (65) served as the Chairman of State Bank of India, India's largest commercial bank. He serves on several Boards including Tata Consultancy Services, Hindustan Unilever and Standard Chartered. Mr. Bhatt holds a Graduate Degree in Science and a Master's in English Literature.

#### 10 Mr. Koushik Chatterjee

Group Executive Director (F&C)  
and Executive Director – Europe

3 4 5 6

Mr. Chatterjee (47) is in charge of Finance and all Corporate Functions. He is also the Executive Director for our European Operations. Since 1995, he has served the Company and Tata Sons in various roles. Mr. Chatterjee holds an Honours Graduate Degree in Commerce from the Calcutta University and is a Fellow Member of the Institute of Chartered Accountants of India.

#### 5 Mr. Jacobus Schraven

Independent Director

7

Mr. Schraven (74) is the Chairman of the Supervisory Board of Tata Steel Netherlands BV and serves on the Board of Tata Steel Europe. In the past, he has held a number of executive positions in the Royal Dutch/Shell Group and served as the President of Shell Nederland. Mr. Schraven holds a Master's Degree in Law.

#### 7 Mr. D. K. Mehrotra

Non-Executive Director

5 3 4

Mr. Mehrotra (63) served as the Chairman of Life Insurance Corporation of India. He serves on several Boards including Tata AIA Life Insurance, Multi Commodity Exchange of India and NSE Strategic Investment Corporation. Mr. Mehrotra holds an Honours Graduate Degree in Science from the University of Patna.

#### 9 Mr. Andrew Robb

Independent Director

1 6

Mr. Robb (73) is the Chairman of Tata Steel Europe and serves as Director on the Board of Jaguar Land Rover. In the past, he served as the Director (Finance) of the Peninsular & Oriental Steam Navigation Co. and Pilkington Group. He is a Fellow Member of the Chartered Institute of Management Accountants and holds a Joint Diploma in Management Accounting.

#### 11 Mr. T. V. Narendran

Managing Director  
(India and South East Asia)

3 4 6 7

Mr. Narendran (50) is in charge of our operations in India and South East Asia. Since, 1988 he has served the Company in various roles. He holds a Degree in Mechanical Engineering from the Regional Engineering College (NIT), Trichy and Post Graduate Diploma in Management from the Indian Institute of Management, Calcutta. Mr. Narendran is a Chevening Scholar.

#### Chairman Emeritus



#### Mr. Ratan N. Tata

Ratan N. Tata (78) was the Chairman of Tata Sons, the holding company of the Tata Group, from 1991 till his retirement in 2012. He was also Chairman of the major Tata Group Companies. During his tenure, the Group's revenues grew to over \$100 bn.

Mr. Tata is currently the Chairman of two of the largest private-sector-promoted philanthropic trusts in India. He serves on the Board of Alcoa and also on the International Advisory Boards of Mitsubishi Corporation, JPMorgan Chase, Rolls-Royce, Temasek Holdings and the Monetary Authority of Singapore.

In 2008, the Government of India honoured Mr. Tata with its second-highest civilian award, the Padma Vibhushan.

#### Board Committees

- 1 Audit
- 2 Nomination and Remuneration
- 3 Corporate Social Responsibility
- 4 Risk Management
- 5 Stakeholders' Relationship
- 6 Executive Committee of the Board
- 7 Safety, Health and Environment

■ Chairman ■ Member

#### Mr. Parvatheesam K

Company Secretary

# RISKS AND OPPORTUNITIES

## Enterprise Risk Management

The objective of our Enterprise Risk Management (ERM) is to prepare the Company to become 'Risk Intelligent' i.e. to strengthen risk resilience to significant risk exposures, provide agility and a competitive edge with the goal of preserving as well as enhancing long-term value for stakeholders.

We have established a robust governance structure, headed by the Risk Management Committee of Board (RMC). At the Senior Management level, we have the Group Risk Review Committee (GRRC), to identify, assess, mitigate and report on risks of the Tata Steel Group. At the organisational level, a centrally established ERM team facilitates

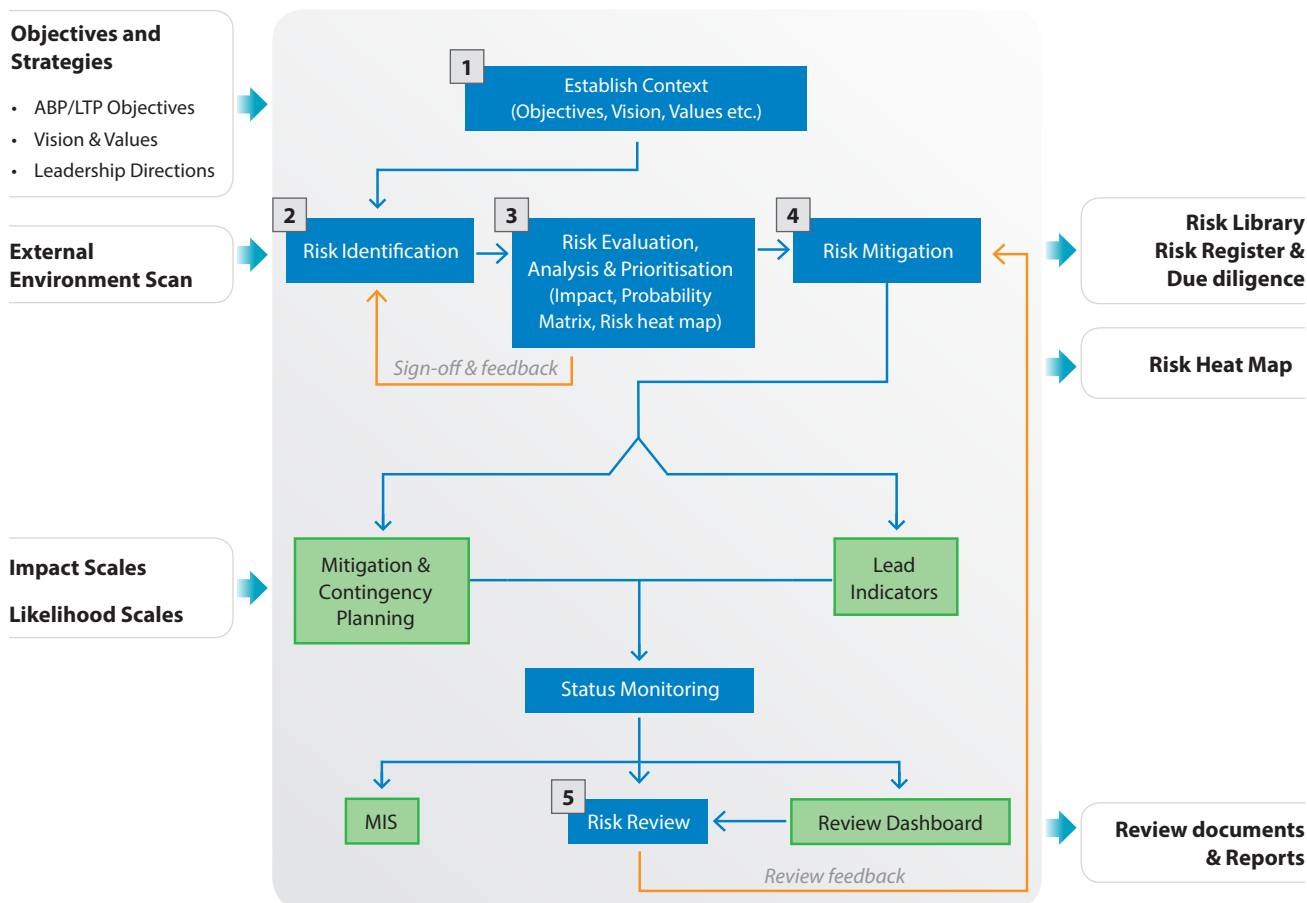
the phased rollout of the ERM framework and ensures uniform deployment across the Tata Steel Group. The final ownership for and implementation of risk response strategies rests with the senior executives of the functional units or the risk owners.

Our ERM framework has been developed with inputs based on best practices of leading companies and international standards & references such as COSO (Committee of Sponsoring Organisation of Treadway Commission) & ISO 31000. The framework has effectively been used to identify and analyse unforeseen risks, resulting in the management taking risk informed decisions. The ERM team ensures the effectiveness of the process through

its engagement with a wide spectrum of internal stakeholders via a bottom up five step process depicted in the diagram, with the senior management actively monitoring, reviewing and guiding the process at all stages.








## Overview of Key Risks








As a global organisation, we are exposed to risks and opportunities arising out of a dynamic macroeconomic environment that could impact our business objectives, strategies and hamper our ability to create value over the short, medium and long-term. Our key risks, linkage to strategic priorities, impact on various capitals and the mitigation strategies are summarised in the adjacent table.





## Key Risks

Risks	Potential Impact	Impacted Capital	Risk Response Strategies
<b>Strategic Risks</b>			
Adverse macro environment coupled with global steel capacity may impact our operating markets and net realisations stressing our cash flows and ratings.	Profitability, Financial, Flexibility	Financial Capital 	<ul style="list-style-type: none"> <li>Driving initiatives for developing value added products, introducing new brands, diversifying and deepening the customer base and several cost reduction strategies to mitigate challenging economic conditions.</li> <li>Merchant mining of chrome ore and leveraging zero duty on exports.</li> <li>Refinancing of loans and renegotiation of covenants to provide adequate flexibility to the business.</li> <li>Divestment of non-core assets and deferring of expenditure wherever feasible.</li> </ul>
Long-term growth of the organisation may be hampered in case of failure of capacity expansion projects, restructuring.	Growth & Expansions	Financial Capital 	<ul style="list-style-type: none"> <li>Leveraging project management expertise for successful implementation of various projects.</li> <li>Development of structural processes for effective project planning, management and enhancing in-house capability.</li> <li>Leveraging experience with regulatory authorities for timely approvals &amp; sanctions.</li> </ul>
<b>Operational Risks</b>			
Failure to maintain adequate health and safety standards may cause us to incur significant costs, liabilities and damage the Company's reputation.	Human Safety, Employee Morale	Human Capital  Social and Relationship Capital 	<ul style="list-style-type: none"> <li>Various policies, initiatives, guidelines stringently followed across the organisation to maintain high safety standards.</li> <li>Initiation of "Committed to Zero" drive across the Tata Steel Group, to create awareness and reduce safety accidents.</li> <li>Enhanced efforts to ensure workplace safety in the mines and collieries in India and construction sites.</li> </ul>
Absence of social license to operate may cause business disruptions.	Business Continuity	Financial Capital  Social and Relationship Capital 	<ul style="list-style-type: none"> <li>Engagement in various community development programmes such as Self Help Groups (SHGs).</li> <li>Creating village committees and other initiatives that drive the socio-economic empowerment of the local community.</li> </ul>
Human resource risks and/or low productivity may challenge the Company's competitiveness.	Employee Productivity, Cost	Human Capital 	<ul style="list-style-type: none"> <li>Strategic initiatives for enhancing employee productivity. This is being achieved through redeployment of the workforce in a phased manner keeping the industrial harmony intact through focused communication channels and developing parity in amenities and treatment for all employees.</li> </ul>

Risks	Potential Impact	Impacted Capital	Risk Response Strategies
<b>Legal &amp; Compliance Risks</b>			
Absence of raw materials linkage due to adverse regulatory environment and/or its price volatility may threaten Company's profitability.	Business Continuity, Cost, Volume	Natural Capital  Manufactured Capital 	<ul style="list-style-type: none"> <li>Strong supplier relationships and flexible sourcing through the centralised procurement of raw materials.</li> <li>Continue to closely monitor market conditions and seek to put in place contractual arrangements to ensure security of critical supplies.</li> </ul>
Regulatory and environmental non-compliances may cause the Company to incur liabilities and damage the Company's reputation.	Regulatory Compliance	Manufactured Capital  Financial Capital  Social and Relationship Capital 	<ul style="list-style-type: none"> <li>Policies, systems and procedures for regular monitoring of compliances through automated systems.</li> <li>Invest in various environmental projects &amp; schemes (pollution control equipment, effluent treatment plants, quality monitoring systems, waste recycling &amp; disposal schemes, etc.) to improve energy efficiency and minimise environmental footprints.</li> </ul>
Foreign exchange rate volatility may affect the outcome of commercial transactions.	Profitability	Financial Capital 	<ul style="list-style-type: none"> <li>Foreign exchange hedging policies to protect trading and manufacturing margins against rapid and significant foreign exchange movements.</li> </ul>
Impairment of tangible and intangible assets may affect the Company's key financial ratios.	Financial Ratios	Financial Capital 	<ul style="list-style-type: none"> <li>Reviews of the carrying amounts of tangible and intangible assets (including investments) to determine recoverable amount through continuing use.</li> </ul>

### Focus Areas

To further strengthen and improve upon the process and framework, the Company will going forward focus on:

1. Widening the reach and depth of engagement across the Company in the planned phased manner.
2. Better integration of ERM with business processes.
3. Automation of the ERM process.
4. Launch of e-learning modules and packages/ manuals / documented procedures for ready referrals.
5. Initiation of external training sessions and programmes to spread awareness.

# Opportunities

## The India Opportunity

Urbanisation directly influences steel consumption. India is only about 31% urban presently and with higher migration, newer centres of development and Government programmes such as the Smart City Mission, the rate of urbanisation and urban renewal is expected to rise significantly in the near-future. India's per capita steel consumption is very low (at 61kg) compared with China (at 540kg), pointing to a significant headroom for consumption growth.

Demographic trends further support the case for the increasing steel demand in India. Each year approximately 12 mn people join the workforce in India. There is a corresponding increase in demand for housing, transportation and public infrastructure, all of which are major drivers for steel demand.

Raw material costs form a significant portion of the steel making cost. India has adequate reserves of high quality Iron ore giving steel manufacturers in India a price advantage.

Competitive labour costs in India allow steel producers a distinct advantage. Globally, labour constitutes approximately 8-10% of the total cost of making and selling steel. We seek to leverage this advantageous position and strengthen our status as a low-cost producer of steel.

	Raw Material	Growth	Productivity	Customer, Market and Product segments	Digital Technologies
OPPORTUNITIES FOR TATA STEEL	High quality, low cost iron ore available at close proximity to the manufacturing plant.	Stable demand growth in India driven by a young demography and trend of urbanisation.  Focus of Government on infrastructure development and 'Make In India' initiative.	Employee productivity low as compared to peers.	Potential for customised products and services.	Leverage digital technologies to make the Company more agile, enhance productivity and profitability.
STRATEGIES TO LEVERAGE THE OPPORTUNITIES	Invest in mining assets for securing iron ore reserves.	<b>Enhance steel producing capacity</b> <ul style="list-style-type: none"> <li>Explore Jamshedpur Works capacity expansion.</li> <li>Commencement of Kalinganagar Phase 2 – including downstream.</li> </ul>	Improving work practices and increasing automation.	Increase revenue from services and solutions and B2C.  Enter new segments.	Seeding initiatives via organisation-wide mobilisation, pilots and capability building.

# BUSINESS MODEL

Our value creation process comprises converting heterogeneous raw materials (Iron ore and coal) into customised steel products for customers.

At the core of our value creation process is the business model which represents a well-integrated steel manufacturing operation from mining to steel making and further downstream processing.

We produce outputs (Flat and Long steel products and solid waste as a by-product), while drawing inputs from the various capitals. Our business activity endeavours to minimise the negative environmental and social impacts and to enhance our competitive position, relationships, brand image and reputation.

The outcomes of the business activities on the various capitals are shown in the business model. The Company measures these outcomes at defined frequencies and takes suitable actions to improve them, while maintaining a strategic focus on long-term value creation for all stakeholders.

The vision, mission, values, our systems & process approach and long-term relationship with stakeholders is at the very core of our operations that leads to sustainability of our business.

Fundamental to our activities and processes is the culture of innovation and continuous improvement to generate new products to meet our customer requirements. Our goal is to leverage best available technologies, improve resource efficiency, increase solid waste utilisation and make products and processes more environment friendly.

We are unique in not just the magnitude of our operations but also in our people practices, our innovative approach and our overall conduct.

## INPUTS

Financial Capital	As on March 31, 2016
Capex (₹ crore)	5,858

Manufactured Capital	As on March 31, 2016
Jamshedpur Steel Works (MnTPA)	9.7
Kalinganagar (MnTPA)	3.0

Intellectual Capital	FY12 – FY16 (Cumulative)
Spend on R&D- (Capital+Revenue)	₹448 crore
Collaborations / memberships (technical institutes) FY16	Multiple collaborations with 20 technical institutes
Patents Filed	791
Patents Granted	318

Human Capital	As on March 31, 2016
Employee on Rolls	35,439
Skilled Manpower (%)	93.9
Spend on training over last 5 years (₹ crore)	578

Social and Relationship Capital	FY15	FY16
CSR spend (₹ crore)	171	204
Pan-India dealers	9,326	10,991
Pan-India distributors	70	77

Natural Capital	FY15	FY16
Captive Iron Ore (%)	84	92
Captive Coal (%)	36	36
Water Withdrawal from surface sources (mn m <sup>3</sup> )	74	63
Specific Water consumption from surface source (Jamshedpur Steel Works) (m <sup>3</sup> /tcs)	5.54	4.39
Energy Intensity (Jamshedpur Steel Works) (GJ/tcs)	25.2	24.1

## OUTPUTS

Manufactured Capital (MnT)	FY15	FY16
Crude Steel production	9.3	9.9
Flat Product - Sales	5.8	6.3
Long Product - Sales	2.9	3.2
Total Sales	8.7	9.5

## BUSINESS ACTIVITIES

**RM Mining & Beneficiation**  
Extraction and processing of raw materials for Iron making

**Iron making**  
Converts Iron Ore to hot metal for steel making

**Steel making & Rolling**  
Converts hot metal into different types grades of steel products

**Finishing & Downstream**  
Converts steel products into finished goods as per customer requirement

## KEYWORK SYSTEMS

Spares & Services



Engineering & Project



Human Resource Management



Iron Making  
10.5 MnTPA



## OUTCOMES

Financial Capital	FY15	FY16
Turnover (₹ crore)	41,785	38,210
Underlying EBITDA (₹ crore)	10,102	7,388
EBITDA (₹ crore)	10,102	10,896
EBITDA (%)	24	29
PAT (₹ crore)	6,439	4,901
Working Capital	FY15	FY16
Revenue from Branded Products (%)	48	50
Marketshare in Automotive (%)	43	43
Marketshare in Construction (Projects) – B2B (%)	9	11
Intellectual Capital	FY15	FY16
New products developed	41	39
Patents:		
Filed	56	71
Granted	36	32

Human Capital	FY15	FY16
Fatality	5	2
LTIFR Index	0.31	0.23
Health Index	12.21	12.35
Attrition Rate (%)	3.57	4.47
Employee Productivity (tcs/FTE)	623	701
Diversity – Women (%)	5.36	5.50

Social and Relationship Capital	FY15	FY16
Lives Impacted (mn)	1.3	1.1
Affirmative Action (% Employed)	16.3	16.9

Natural Capital	FY15	FY16
Water discharged after use (mn m <sup>3</sup> )	27	14
Water discharged after use (Jamshedpur Steel Works) (m <sup>3</sup> /tcs)	2.3	1.2
Solid waste Utilisation (%) (Jamshedpur Steel Works)	78	81
Dust Emission (Kg/tcs) (Jamshedpur Steel Works)	0.57	0.5
GHG Emissions (Direct + Indirect) (Jamshedpur Steel Works) (tCO <sub>2</sub> /tcs)	2.42	2.26
GHG Emissions (Direct scope-1) (Jamshedpur Steel Works) (tCO <sub>2</sub> /tcs)	2.26	2.11
Tree Plantation (mn)	0.3	0.4
Biodiversity	Biodiversity assessment carried out in 8 Raw Material locations in FY16 and Corporate Biodiversity Policy launched	

### Manufactured Capital

#### Jamshedpur

##### Best-ever performance, % increase over FY15:

Sales: 9.54 MnT, 9% increase  
Crude Steel production: 9.97 MnT, 7% increase  
Hot Metal production: 10.65 MnT, 4% increase

In our continuing efforts towards efficiency improvement, the Blast Furnaces in Jamshedpur achieved best-ever coke rate and highest best-ever coal rate (Indian Benchmark)

Environment clearances received for Jamshedpur plant expansion to 11 MnTPA Crude Steel

#### Kalinganagar

Production started at the 3 MnTPA Kalinganagar Steel Plant (currently under stabilisation). This will significantly improve volume growth and expand our product portfolio in the L&E, Ship Building, Defence Equipment, Energy & Power, Infrastructure and Aviation sectors.

#### Ferro Alloys and Minerals Division

After clearances from Regulators, our FAMD production has been ramped up in FY16

Gopalpur ferrochrome plant to come on board with ~55,000 TPA in FY17

Governance



### SUPPORT SERVICES



Raw Material Mining & Beneficiation  
22 MnTPA



Steel Making  
9.7 MnTPA

Rolling,  
Finishing &  
Downstream

Outsourced  
Finishing &  
Processing

Profit  
Centres

Customers



Finance &  
Accounts



Shared  
Services



Corporate  
Functions

# STRATEGY AND RESOURCE ALLOCATION

## Strategy Planning and Deployment Process

We follow an Integrated Strategy Planning and Deployment process through which the planning and deployment is standardised across all our business processes and the value chain described under our Business Model.

It is a four - tiered approach which consists of the following two phases:

- **Development Phase:**

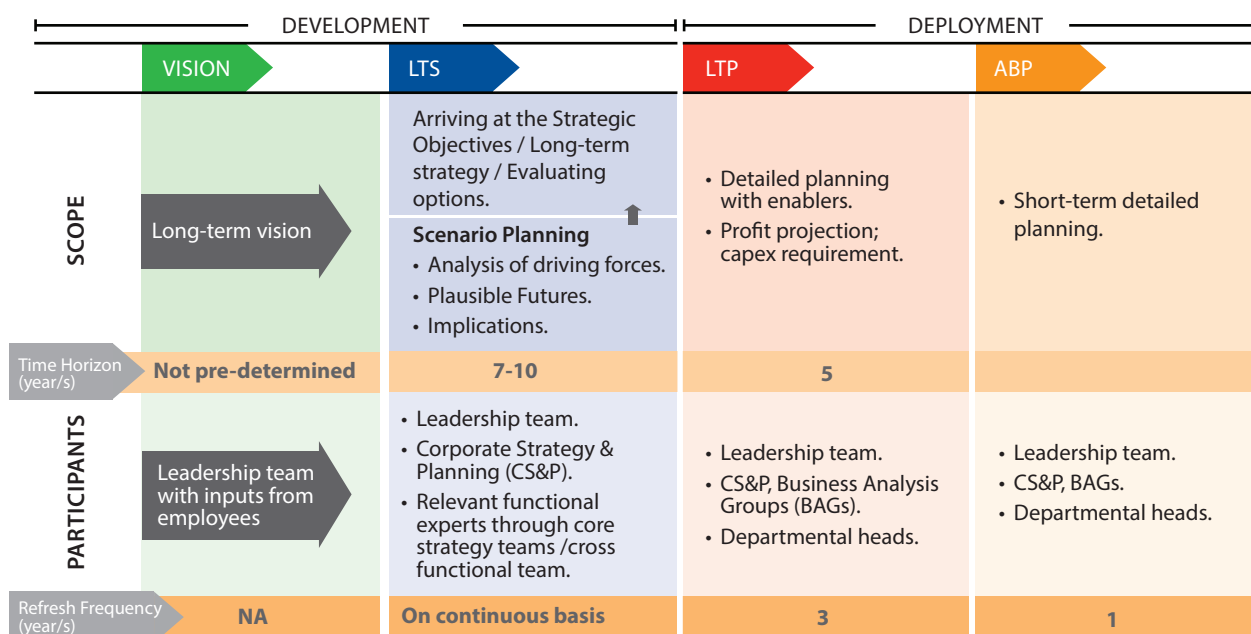
We set our Vision and Strategic Objectives and also the Long-term Strategies (LTS) to achieve them.

- **Deployment Phase:**

Strategies are converted into action plans through the process of Long-term Planning (LTP) and Annual Business Planning (ABP). Further, during this phase, requisite resources are allocated to achieve the stated objectives.

## Integrated Strategy Planning Process

### for Strategy Formulation and Resource Allocation



Planning and time horizons are defined for each, based on the lead time for action and urgency required to effectively respond to deviations in the external or internal environment. Strategic objectives are an outcome of the Strategic Planning Process.

The Company's strategies are clearly linked to its Vision, Mission and Values. The planning process takes cognizance of both external and internal business environment and suitably factors the opportunities, challenges and past learnings. The overall strategies and plans are cascaded down to individual divisions/ departments with clearly defined responsibilities, connected to the last mile with employees' Key Result Areas.

### Strategy Governance process

The strategy governance process enables us to identify and test the robustness of our strategic initiatives against possible scenarios in the future. Strategic projects identified through this process are evaluated and approved by the Strategy Committee and then are included in the Long-term Planning Process for execution.

### Resource allocation to implement strategy

We have a business planning framework that enables us to identify the resources (IT, HR, Finance) required for achieving our stated strategic objectives. Functional teams take suitable actions in ensuring the availability of resources and these

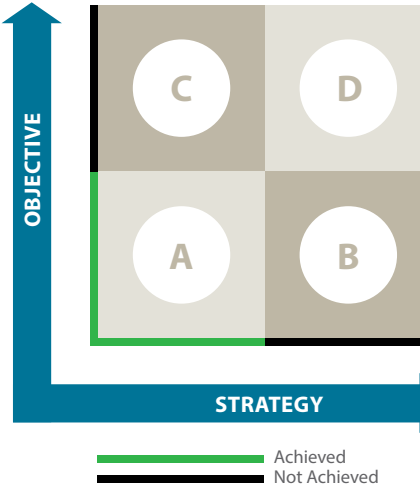
resources are allocated through the process of LTP and ABP. We also have a five year capital expenditure plan which is aligned to our LTS and LTP.

### Measuring achievements and target outcomes

We use the '4 Student Analysis' tool to measure the effectiveness of the strategies deployed and action plans. Key Performance Indicators (KPI) are identified for all objectives, strategies and action plans. The '4 Student Analysis' also helps us to evaluate the KPIs for actions and objectives at various levels in the organisation and to assess if relevant and sufficient interventions were deployed to achieve the objectives.

	BUSINESS OBJECTIVE	STRATEGY	
STUDENT TYPE	LEVEL OF KPI ACHIEVED	INTERPRETATION	FOUR STUDENT ANALYSIS
<b>A</b>	Substantial	Substantial	Appropriate strategic planning and its implementation.
<b>B</b>	Substantial	Low to medium	Objective achieved by low to medium level of strategy implementation and/or external factors.
<b>C</b>	Low to medium	Substantial	Strategy is inappropriate. Need to strengthen cause and effect and arrive at the appropriate strategy.
<b>D</b>	Low to medium	Low to medium	Strategy implementation needs strengthening. Target setting needs to be reviewed and strengthened.

OBJECTIVE



The diagram shows a 2x2 matrix with quadrants labeled A, B, C, and D. The vertical axis is labeled 'OBJECTIVE' and the horizontal axis is labeled 'STRATEGY'. A legend indicates that a green line represents 'Achieved' and a black line represents 'Not Achieved'. The matrix shows that in the 'Achieved' state, the top-left quadrant is C and the bottom-right is B. In the 'Not Achieved' state, the top-left is A and the bottom-right is D.

### Tracking Strategies and Plans

To enable the Company to respond with agility to changes in the environment, the progress of the strategies and plans is tracked periodically through various MIS / dashboards and reviewed at defined intervals by the apex level review forums.

#### 1. The Managing Director leads the following meetings / forums:

##### On a Monthly basis

- Meeting to review the monthly production target versus the plan and discuss areas of operational issues, KPIs, and service delivery performance to the customer.
- Meeting to review market trends, customer needs and expectations, business results and top priorities of ABP.

##### On a Bi-Monthly basis

Apex Environment Forum to review and discuss the Company's Environmental Performance.

##### On a Quarterly basis

Meetings with the Quality Board, Apex R&D, Apex Safety Committee, Apex HRD, Apex CSR Steering Committee to review and address areas of Quality, R&D and

Innovation, Safety Performance, Human Resources, CSR activities and policy respectively.

#### 2. The Managing Director / President lead the following meetings / forums:

##### On a Monthly basis

- Meeting to review the cost and operating KPIs, strategic cost management, benchmarking and competitors' analysis, and top priorities of ABP.
- Meeting to review improvement in savings for reaching the 25% EBITDA target without captive raw materials.

##### On a Quarterly basis

Meeting with apex forum to discuss strategic projects.

#### 3. The Managing Director / President / Vice President lead the following meetings / forums:

##### On a Quarterly basis

- Meeting to review the status of key projects and the enablers critical to the attainment of LTP.

- Peer Review Group & Capital Expenditure Committee (CEC) meeting to review capital management and growth.

### Challenges and opportunities arising from the Business Environment in FY16

During the year, we faced several challenges such as uncertainties in the external environment, excess supply of steel coupled with weak demand globally, increased imports of steel from China into India at unsustainable prices, steep decline in steel prices (in dollar terms) with international HRC prices plummeting to the 2003 levels, uncertainties around mining operations and higher costs owing to regulatory changes (such as contribution to District Mineral Foundation and National Mineral Exploration Trust).

In response to the challenges faced, greater priority was accorded to operational excellence through Shikhar-25, the accelerated improvement programme, maintaining cost leadership, focusing on product and service differentiation/ downstream business and safe, steady stabilisation and ramp-up of the Kalinganagar Plant.

## Medium term strategic objectives/goals

In the medium term, our key focus areas will be:

Leadership position in profitability	Growth	Product & Service differentiation	Benchmark in Corporate Citizenship – Safety, Health and Environment	Impact based Corporate Social Responsibility
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## Strategic objectives (medium to long-term) and key strategies pursued in FY16

Area	Strategic Objectives (Medium to Long-Term)	Strategy / Action	Capitals Impacted
VALUE CREATION	Maintain leadership position in chosen segments	Build and maintain the leadership position in new and existing chosen segments	Financial Social and Relationship Manufactured
	Improve product mix and service differentiation	Timely commissioning and faster ramp up of Kalinganagar Plant Phase 1	Manufactured Financial
	Maintain leadership position in profitability	Achieve operating profit as per plan	Financial Manufactured
		Shikhar - 25 – double the pace of improvement	Financial Manufactured
		Increase employee productivity through structural improvements	Human Manufactured Financial
	Strive for raw material self-sufficiency and extract value from waste	Ramp up of Khondbond mine (Iron Ore) and West Bokaro mine (Coal)	Financial Manufactured Natural
	Organic growth at 25% below baseline costs	Ongoing projects related to savings from approved capex	Financial Manufactured
CORPORATE CITIZENSHIP	Leverage digital across value chain	Identify and prioritise digital opportunities	Intellectual Manufactured
	Zero injury to workforce – Committed to Zero	Initiate safety leadership development, eliminate rail and road incidents, eliminate contractor induced risks	Human Social and Relationship
	Be the steel industry benchmark in India for environment performance	Installation / augmentation of fugitive dust extraction/ suppression systems	Natural Social and Relationship
		Solutions for solid waste utilisation	Natural Financial
		Achieve a Zero Water Discharge regime	Natural Social and Relationship
	Deliver impact based CSR	Improve access to health, education and livelihood opportunities for communities in the areas where we operate	Social and Relationship
	Employer of choice in the metal and mining industry in India	Diversity and Inclusion, capability building through learning and development	Human Social and Relationship

### Focus Areas

As we move forward, we work towards:

1. The ramp up and stabilisation of Phase 1 of our Kalinganagar Plant.
2. Scale-up our differentiated services and solutions to customers.
3. Improve despatch cost by reaching benchmark performance in KPIs; reduction in procured raw material and services cost.
4. Seed digital initiatives via organisation-wide mobilisation, pilots and capability building.
5. Continue to be a benchmark in environmental performance by reducing CO<sub>2</sub>, Dust Emission and increase Solid Waste Utilisation.
6. Continue with the “Committed to Zero” principle to improve the safety performance.
7. Improving employee productivity through various capability building initiatives.
8. Engage on Policy Advocacy.
9. Touch the lives of people through strong focus on livelihood, education and health as part of our Corporate Social Responsibility activities.



# MATERIALITY

## Basis of Materiality

We conducted a review of Materiality in FY13 to obtain inputs from external stakeholders and peer companies on Sustainability issues. This exercise was carried out to assist our senior management in defining material issues and to determine the extent to which sustainability issues impacted factors that contribute to our business success.

Three clusters of stakeholders were identified:

- **Business Partners** (Investors, Employees and Suppliers).
- **Civil Society** (NGOs working on social & environmental issues, community) and

- **Influencers** (Regulators, Politicians, Media, Industry Associations, Customers).

## Methodology of Materiality

The methodology entails carrying out each of following steps:

- Identification of sustainability concerns based on the opinions of peers and our internal discussions on the relevance of each concern with respect to our operations keeping in mind the environmental and societal considerations.
- Identification of our Business Success Factors (BSF) based on internal discussion and global research publications.

- Rating of each of the sustainability concerns by external stakeholders through one-on-one meeting and workshops.
- Rating of each concern vis-a-vis the identified BSFs.
- Development of a Business Case Matrix that determines the extent to which these sustainability concerns impact business.
- Plotting of sustainability concerns on a Materiality Map based on their level of societal considerations and impact on business and using this map to identify concerns material to our operations.
- Using feedback from external stakeholders and the Materiality Map to take further steps.

The step-wise process and the output materiality map is depicted below:



## Materiality Analysis



## Key Material Issues

### ENVIRONMENTAL

- F2** Resource Footprints during the entire Product Life cycle
- D1** GHG Emissions Reduction
- D2** Environment Performance Management

### SOCIAL

- E2** Community involvement, engagement & satisfaction
- E4** Local infrastructure development
- E1** Land acquisition & Resettlement & Rehabilitation
- A4** Stakeholder identification & management
- C2** Capability building of employees
- C1** Occupational Health & Safety

### ECONOMIC

- A2** Promoting Ethical behaviour
- E3** Benefit Sharing/ Socio Economic Benefits

# OVERVIEW OF CAPITALS



The primary purpose of this Integrated Report is to communicate to all our stakeholders, how we create value over time. To provide a holistic picture of the value creation process inside the organisation, we have provided a combination of quantitative and qualitative information of the six capitals that we deploy in our operations.

We use capitals as stocks of value that are transformed by our business activities to produce outputs. The six capitals we use in our operations are Financial, Manufactured, Intellectual, Human, Social and Relationship and Natural.

**Inter-linkages and spend between various capitals represented as percentage of revenue during FY16 to achieve the financial surplus.**



### Financial

**10.7%** surplus earned through effective use of capitals  
+ Equity and borrowing



### Manufactured

**33%** on Plant Operations  
**4%** on Depreciation, amortisation, impairment



### Intellectual

**0.3%** on R&D for optimisation and maximisation of use of Manufactured and Natural Capitals



### Human

**10%** on Employee benefit



### Social and Relationship

**16%** on Government levies,  
**3%** on Finance Cost



### Natural

**23%** on Raw Materials

**STRATEGIC INVESTMENTS IN VARIOUS CAPITALS**



# FINANCIAL CAPITAL

Financial capital is essentially a pool of funds used to create value through conversion into other forms of capital. This capital is raised through financing (equity, debt), operations and investments.



## Approach

The Company generates the financial capital annually in the form of surplus arising from the current business operations, financing activities through periodical strategic restructuring of debts aligned with the market conditions to minimise the interest cost and investing activities through monetisation of assets and investments.

Funds generated are utilised for operation of the business i.e., purchase of raw materials, finished, semi-finished and other products, employee benefit expenses, finance cost, operation and maintenance, Government levies, dividend and funding growth and strategic investments.

## Financial Performance

During the year, the global growth and financial market conditions were challenging. Many large emerging market economies were stressed owing to difficult macroeconomic conditions, sharp decline in commodity prices, volatile capital flows, uncertainties and risks of instability of the financial system. We were also impacted with drop in steel prices due to demand-supply imbalance.

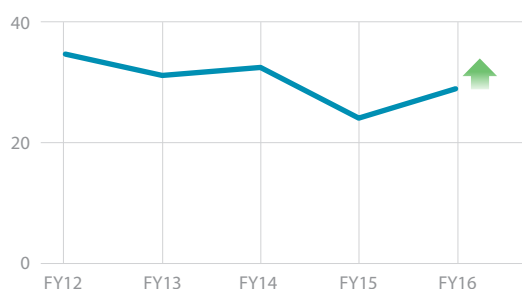
Detailed discussion on our financial and operational performance for FY16 is available in the Directors' Report and Management Discussion and Analysis.

**THE COMPANY HAS  
VARIOUS INITIATIVES  
TO IMPROVE THE  
OPERATIONAL  
PERFORMANCE  
THEREBY  
EXTRACTING VALUE  
FROM NATURAL,  
MANUFACTURED AND  
HUMAN CAPITALS.**

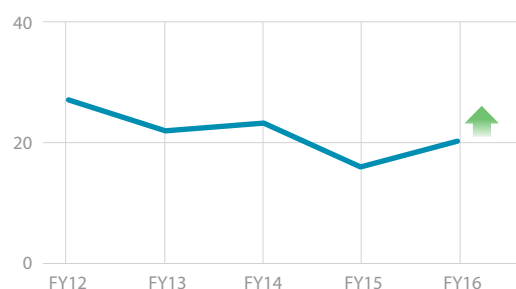


## Key Ratio Trends – Tata Steel India

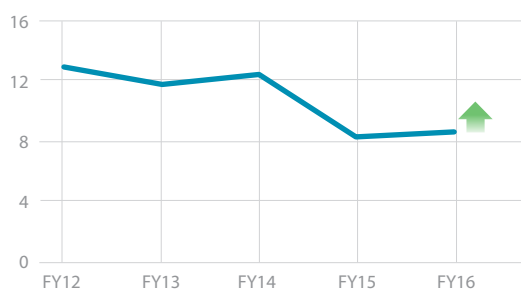
### EBITDA/Turnover (%)



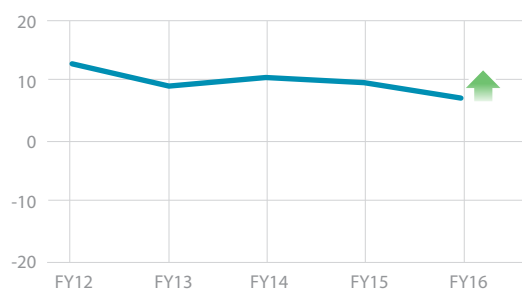
### PBT/Turnover (%)



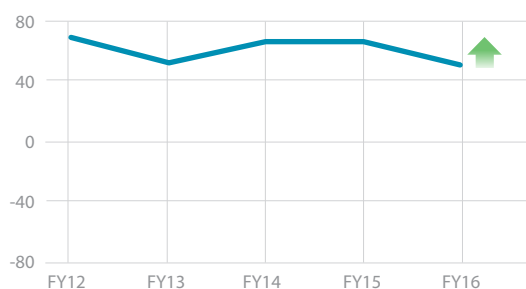
### Return on Average Capital Employed (%)



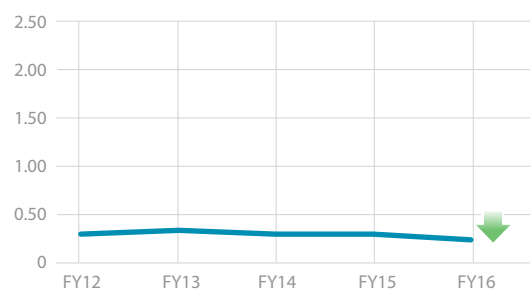
### Return on Average Net Worth (%)



### Basic Earnings per Share (₹)



### Net Debt/Equity (times)



# MANUFACTURED CAPITAL

Manufactured capital represents physical assets that are available to an organisation for use in the production of goods or provision of services.



## Overview

In recent years, we witnessed growth through Brownfield capacity expansion at our Jamshedpur Works (completed in 2012) and Greenfield steel plant at Kalinganagar, Odisha. The Kalinganagar Plant comprises of several facilities, many of which were installed by end of FY15. The Plant was ramped-up during the year for final commissioning.

## Approach

The milestones on the road map represent capacity expansions and addition of facilities to retain the Company's status as a market leader in a growing domestic base. As we progress, we have transitioned towards greener technologies in manufacturing with the objective of greater operational efficiencies and business excellence.

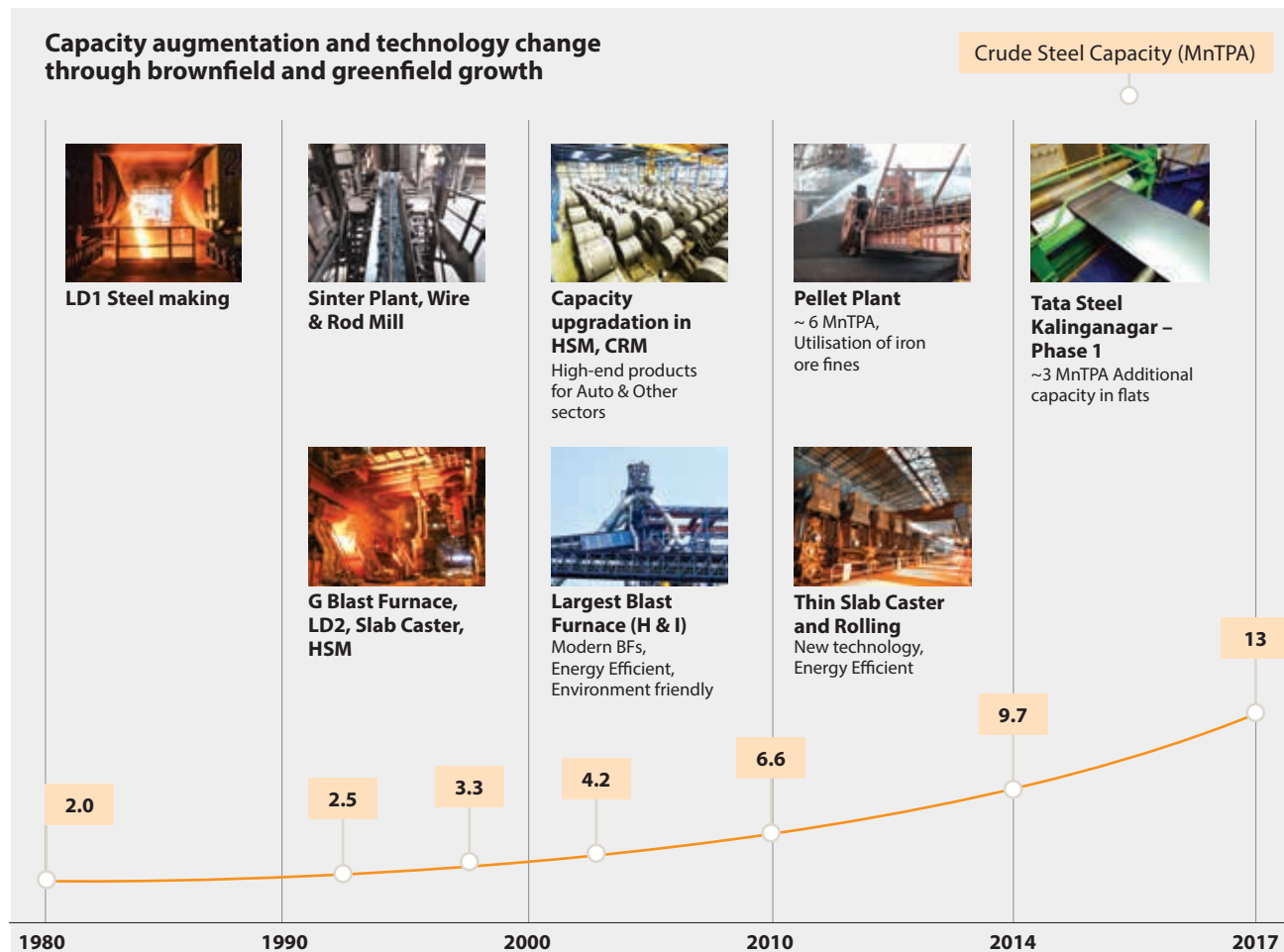
This also represents our focus on continuous improvement and expansion in rolling & finishing capabilities to diversify our product portfolio.

Our end objective is to meet the requirements of customers as the steel consumption in India expands in size and depth.



# Growth at Tata Steel India

## Capacity augmentation and technology change through brownfield and greenfield growth



### Safety Considerations

To ensure zero harm, a safety management system is deployed across the value chain. Requirements for the same are continually captured through various safety systems and processes such as Fatality Risk Control Programme (FRCP), safety observations, incident investigation, consequence management and these are deployed to promote and improve the safety culture.

### Environmental Considerations

Factors such as water conservation, energy efficiency, waste management and emission reduction have been integrated into each stage of the manufacturing and logistics processes. Over the years, we have embraced clean technology to reduce pollution levels. Some of the implemented projects and key facilities are as follows:

- Conversion of all Coal Fired Boilers to Gas Fired Boilers.
- Waste heat recovery from waste gases of stoves at Blast Furnaces.
- Dust Extraction / Dust Suppression (DE/ DS) system.
- Infrastructure development for Weathering of LD Slag.
- Central Effluent Treatment Plant (CETP) to treat 4 MGD (mn Gallons per day) of wastewater.
- Online Stack Emission & Effluent Monitoring to have better control on emissions from all the processes and de-dusting stacks.
- Industrial Vacuum Cleaning (IVC) system has been installed in all the major manufacturing units.



## Our Manufacturing Process





**Outbound Supply Chain to deliver finished products to customers**

80% of the demand is centred on consumption clusters with an average lead distance to serve being 1,700 km from the Jamshedpur Works.

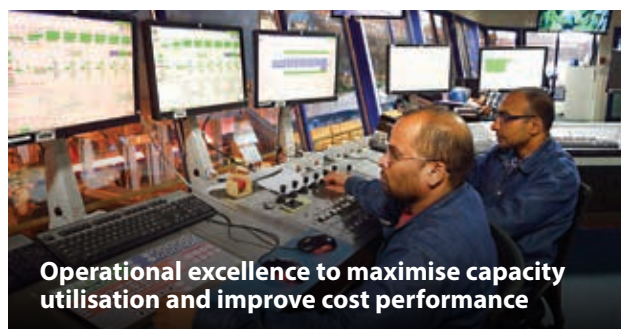
Customers are given just in time service from the Jamshedpur Steel Works and various Steel Processing Centres (SPCs) spread across the country through a network of 23 stockyards across India.

Various strategies have been developed and implemented to strengthen our supply network and quality assurance system to ensure damage-free products during transit, handling and storage. A Hub and Spoke (Stockyards) model with Hubs at Delhi, Faridabad, Chennai, Vijayawada, Nagpur and Kolkata is followed.

For greener transportation, rail transport is extensively used. Augmentation of an alternate source of bulk transportation through containers is also being explored.

**Some initiatives of FY16 were:**

- a) 100% dispatch of Cold Rolled / Galvanized / Hot Rolled Pickled and Oiled / Hot Rolled Pickled Skin Passed and Oiled through customised transportation in West Zone.
- b) Increase in rail coefficient by 8%.
- c) 3 new state-of-the-art stockyards inaugurated at Ludhiana, Kanpur and Prithla with world-class facilities.
- d) Reduction in sub-optimal despatches from Works.



**Operational excellence to maximise capacity utilisation and improve cost performance**

The complex value chain requires a customised approach to problem solving.




Our integrated TQM improvement framework provides a systematic approach for carrying out improvements. There is a dedicated team on problem solving and analytics that facilitates the process across the organisation.

Some of the projects implemented in FY16 are improving fuel rate at blast furnaces, screen size optimisation for BF and Nut coke to reduce fuel cost and zero dumping of coke fractions, speed increase through waiting time reduction at steel making, value enhancement of pooled Iron and release of high value scrap for sale.

'Value in Use' methodology is used for taking decisions on procuring goods and services for operations, maintenance and repairs. Examples of "value in use" concept applied in FY16 include – opportunistic use of cheaper coal without impacting coke quality and reduction in specific consumption of iron ore fines by replacing iron ore with other iron bearing material.



The key manufacturing processes, facilities, technologies are detailed below:

Process	Facilities & Equipment	Technologies
 <p><b>Captive Mining</b></p>	<ul style="list-style-type: none"> <li>• Iron ore Mines – Noamundi, Joda, Katamati and Khondbond.</li> <li>• Coal mines – Jharia and West Bokaro.</li> <li>• Heavy Earth Moving Machines.</li> <li>• Beneficiation, Logistics &amp; Handling facilities.</li> </ul>	<ul style="list-style-type: none"> <li>• Underground and open cast mining.</li> </ul>
 <p><b>Iron and Steel Making</b></p>	<ul style="list-style-type: none"> <li>• Coke Plants, Sinter Plants, Pelletizing Plant.</li> <li>• Raw Material Handling Facilities.</li> <li>• Blast Furnaces, LD shops.</li> <li>• RH Degasser.</li> </ul>	<ul style="list-style-type: none"> <li>• Stamp charging battery.</li> <li>• Coke Dry Quenching (CDQ).</li> <li>• Open bed sintering.</li> <li>• Fines utilisation as pellets.</li> <li>• Bell less top charge high capacity furnaces.</li> <li>• Basic Oxygen Furnace for steel making.</li> <li>• Online granulation of Blast Furnace Slag.</li> <li>• De-sulphurisation.</li> <li>• Secondary steel making.</li> </ul>
 <p><b>Rolling &amp; Processing</b></p>	<ul style="list-style-type: none"> <li>• <b>Rolling Mills Flats</b> - HSM, CRM, TSCR.</li> <li>• <b>Rolling Mills Longs</b> - Merchant Mill, New Bar Mill, Wire Rod Mill.</li> <li>• <b>Steel Processing Centres</b></li> </ul>	<ul style="list-style-type: none"> <li>• Slab to coil.</li> <li>• Billet to bar/ rod.</li> <li>• Rolling Tandem Mill for pickling &amp; rolling.</li> <li>• Hot dip galvanizing.</li> </ul>

Production for the last three years from our facilities is represented below:

Production (MnT)	FY14	FY15	FY16
Hot Metal	9.90	10.17	<b>10.66</b>
Crude Steel	9.16	9.33	<b>9.96</b>
Saleable Steel Production	8.93	9.07	<b>9.70</b>

## CASE STUDY

# Kalinganagar Steel Plant

The Kalinganagar Plant is all set to be our second integrated steel plant located in the Jajpur district of Odisha, India.

Our largest expansion after close to a century of operations in Jamshedpur, the Kalinganagar Plant is slated to become a mega greenfield project, with 6 MnTPA capacity. In line with our vision and commitment to nation-building, dedication of the Kalinganagar Steel Plant to the state of Odisha in November, 2015 was a defining moment in the state's history.

## Plant Details

The Kalinganagar plant is being established in two phases of 3 mn tonnes each. In the first phase with a Blast Furnace of 4,330 cum capacity, it will rollout high-end flat products. The plant has adopted state-of-the-art technologies to ensure higher productivity with minimal impact on the environment.

## Benefits

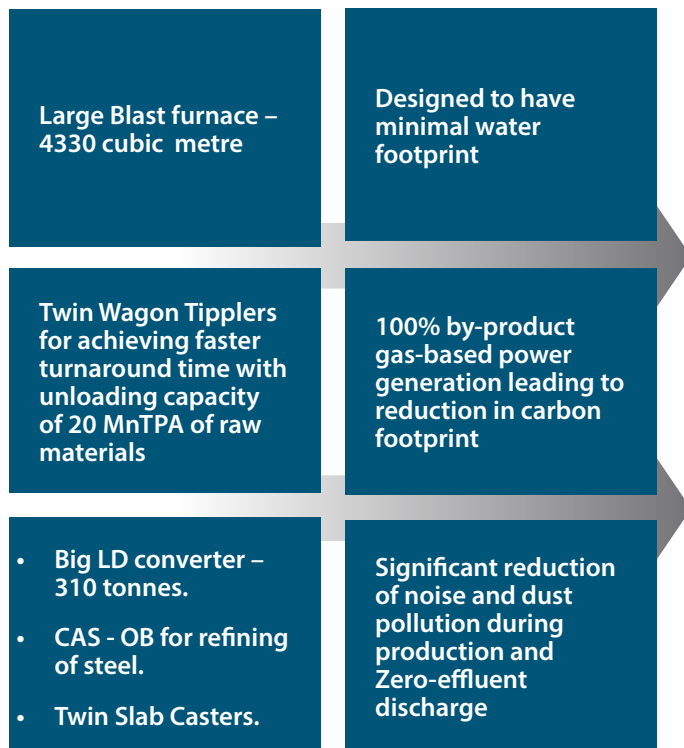
The Kalinganagar plant will give us the advantage in terms of product grades for new segments (oil & gas, ship building, defence), logistics advantage due to its proximity to the port and improved cost competitiveness in terms of higher employee productivity and operating KPIs.



## Key Highlights

<b>Blast Furnace</b>	<ul style="list-style-type: none"> <li>• Lower coke rate and slag rate.</li> <li>• Higher operational efficiency.</li> </ul>
<b>Pulverised Coal Injection</b>	<ul style="list-style-type: none"> <li>• Lower coke rate.</li> </ul>
<b>Gas Recovery Turbines</b>	<ul style="list-style-type: none"> <li>• Power generation of ~38 MW.</li> </ul>
<b>Stove Waste Heat Recovery</b>	<ul style="list-style-type: none"> <li>• Energy efficiency.</li> </ul>
<b>Cast House Slag Granulation System for BF - Granshot</b>	<ul style="list-style-type: none"> <li>• Use of granulated slag in cement making.</li> </ul>
<b>Waste recycling/reuse</b>	<ul style="list-style-type: none"> <li>• Lower raw material requirement.</li> <li>• Lower fuel requirement.</li> </ul>
<b>By-product gas recovery and utilisation</b>	<ul style="list-style-type: none"> <li>• Use in reheating furnaces.</li> <li>• Use in power generation.</li> </ul>

## Adoption of Best Technologies



## Driving High-End Products



Production of high-end grades of flat products to meet the increasing demand of high strength coils up to 2050 mm width and up to 25 mm thick catering to high-end applications in

- Automotive.
- Line-pipe segment (API).
- Defence.
- Infrastructure.



Ability to supply high-end application products in the market (e.g. HS 800, DP 600, DP 1000, API X70/X80, S355, ASTM A572) and develop unique grades with tighter dimensional tolerance.

### Key Milestones

**2004:** Memorandum of Understanding (MoU) was signed between the Government of Odisha and Tata Steel for a 6 MnTPA integrated steel plant at Kalinganagar.

**2005:** Commenced construction of the boundary wall following the transfer of the first phase of land to the Company in December 2004. However, work could not progress at the desired pace due to initial opposition from the local population.

**2006-2007:** Start of Rehabilitation & Resettlement with the launch of the 'Tata Steel Parivar' rehabilitation scheme in May 2007, the process of shifting the displaced families commenced and the construction of a rehabilitation colony at Trijanga began in 2007.

**2008-2009:** Intensifying community engagement activities with the celebration of Odia New Year Day, construction of Gobarghati and Sansailo rehabilitation colonies, conducting sports programmes and to support the local youth, sponsoring various local cultural and sporting events in Kalinganagar and its periphery like 'Pragati' Inter-village Football Tournament and 'Tejaswini' Women Self Help Group (SHG) Competition were commenced during the year. Members of local PRIs were invited to visit the Resettlement & Rehabilitation facilities and were taken for Exposure visit-cum-Empowerment Training Programmes to Gandhi Labour Foundation, Puri.

**2010:** Project gained momentum with an increase in the pace of work - construction continued on the boundary wall, followed by land levelling work, erection of electric

poles inside the plant area and work on roads inside the plant.

**2011:** Start of on-site construction work with ground breaking ceremonies for Steel Melting Shop, Main Step Down Substation in the blast furnace area and Hot Strip Mill. Also, work for the corridor road, civil work for blast furnace construction, civil building columns of the charging and converter aisle began.

**2012:** Significant work is accomplished with the structural erection in the mill aisle of Hot Strip Mill, inauguration of 100 MVA transformer at plant site and refractory brick laying in Battery # 2A of Coke Ovens. Concreting work in raft of caster foundation at the steel melting shop and shell erection of the blast furnace-1 also began during this year.

**2013:** Project makes rapid strides with work progressing on Coke Ovens, erection of equipment at Wagon Tippler, Oxygen Plant, Raw Water Treatment Plant, Raw Material Handling Section and other installations at the plant site. Other highlights included completion of pouring of 10 lakh cubic metres of concrete, erection of Finishing Mill Housing F7, commencement of work on the erection of 1st Mill Housing at Hot Strip Mill and ground breaking for an employee housing project at Bamnival was performed.

**2014:** Installation of several facilities was completed by the end of the financial year. Community engagement initiatives in and around Kalinganagar area were also stepped up.

**2015:** Progressive ramp-up of the installed facilities was undertaken during the year. The Kalinganagar Steel Plant was dedicated to the people of the State of Odisha by Shri Naveen Patnaik, Hon'ble Chief Minister of the State. A truly historic moment for the Tata family and the nation at large.

## Mining Operations

All our iron ore, chromite and manganese mines (except Malda) in Odisha are currently operational. Supplementary Lease Deeds have been executed for Joda East, Khondbond, Joda West, Manmora, Bamebari and Tiringpahar extending the lease period to March 31, 2030 and for Gomardih, a non-captive mine, to March 31, 2020. The Government of Odisha has decided and communicated extension of Sukinda lease on non-captive basis up to March 31, 2020. A supplementary lease deed is expected to be executed shortly. The lease execution process is on-going for Katamati iron ore mine. A decision on the extension of the Malda lease is awaited.

## FERRO ALLOYS AND MINERAL DIVISION (FAMD)

Our FAMD has been able to ramp up production in a challenging environment. The ramp up commenced post mining was resumed at Sukinda. FAMD generates value added and branded products such as 'TISCROME', 'SILICOMAG' and 'FERROMAG'.

The construction of the first phase of the ferro-chrome plant of 55,000 TPA in Gopalpur is in full swing and is expected to be commissioned in FY17.

## GOPALPUR

Strengthening our century-old relationship with Odisha further, we are setting up the Gopalpur Industrial Park (GIP) at Gopalpur under the district of Ganjam in southern Odisha. The park is expected to attract investments ranging from ₹10,000 to ₹15,000 crore and generate employment for around 10,000 people.

The GIP spanning over 2,970 acres of contiguous land includes a multi-product SEZ over 2,570 acres and an anchor project by us over 400 acres with the aim to attract various national and international investors to the industrial park, thus making the region the next industrial hub of the State. The Park will primarily attract investments in steel and allied downstream industries, engineering, chemicals and other emerging sectors. GIP will generate substantial employment opportunities and have excellent infrastructure facilities including reliable and adequate power, water along with social infrastructure like school, hospital, etc. thus contributing to the socio-economic development of the region.

## Focus Areas

As we move forward, keeping in view the business environment, challenges and our capabilities, we endeavour to focus on:

1. Stabilisation and ramp up of Phase 1 of the Kalinganagar Plant by FY17.
2. Expansion of Jamshedpur Works beyond 9.7 MnTPA.
3. Attain self-sufficiency for iron ore by augmenting Noamundi, Joda and Khondbond.
4. Increase captive coal supplies by augmenting West Bokaro production.
5. Increased use of inferior raw materials through enhanced focus on technology absorption.
6. Create adequate raw material handling facility for future expansion.
7. Reduce manufacturing cost through strategic procurement of raw materials and services.
8. Achieve benchmark operational efficiency through Shikhar-25.
9. Service new segments such as API, L&E, Construction & Projects from Kalinganagar.
10. Increase Downstream and Value added products.
11. Maximising bulk transportation through greener mode.
12. Integration of environmental considerations into each stage of manufacturing and logistics processes.



# INTELLECTUAL CAPITAL

Intellectual capital represents organisational knowledge-based intangibles.



## Approach

Our intellectual capital is evidenced through:

- a. New Product Development (39 products developed in FY16).
- b. Process improvements that enable us to improve resource and energy efficiencies and productivity while reducing the environmental impact and operating costs.
- c. Superior marketing enabling price premium over competition and most-preferred supplier for partnering by B2B customers.

We develop intellectual capital through strong process flows, collaboration with technology leaders and active encouragement by leadership for learning and experimentation.

## Objectives Driving Intellectual Assets Creation

### COST COMPETITIVENESS

The objectives of our research and technology initiatives are to support plant operations across the production value chain and make our manufacturing processes robust and efficient.

We have a long value chain – beginning at mining and running through raw material preparation, iron making, steel making, casting, rolling, finishing and finally delivering to the customer. While this makes it a complex business chain, it also offers opportunities for improvement along the length of the value chain. Our main focus areas are higher efficiency in iron ore and coal beneficiation, lower carbon consumption in iron making, optimised steel making mix, efficiency in lowering slag and CO<sub>2</sub> generation and improving steel quality to achieve superior steel properties.

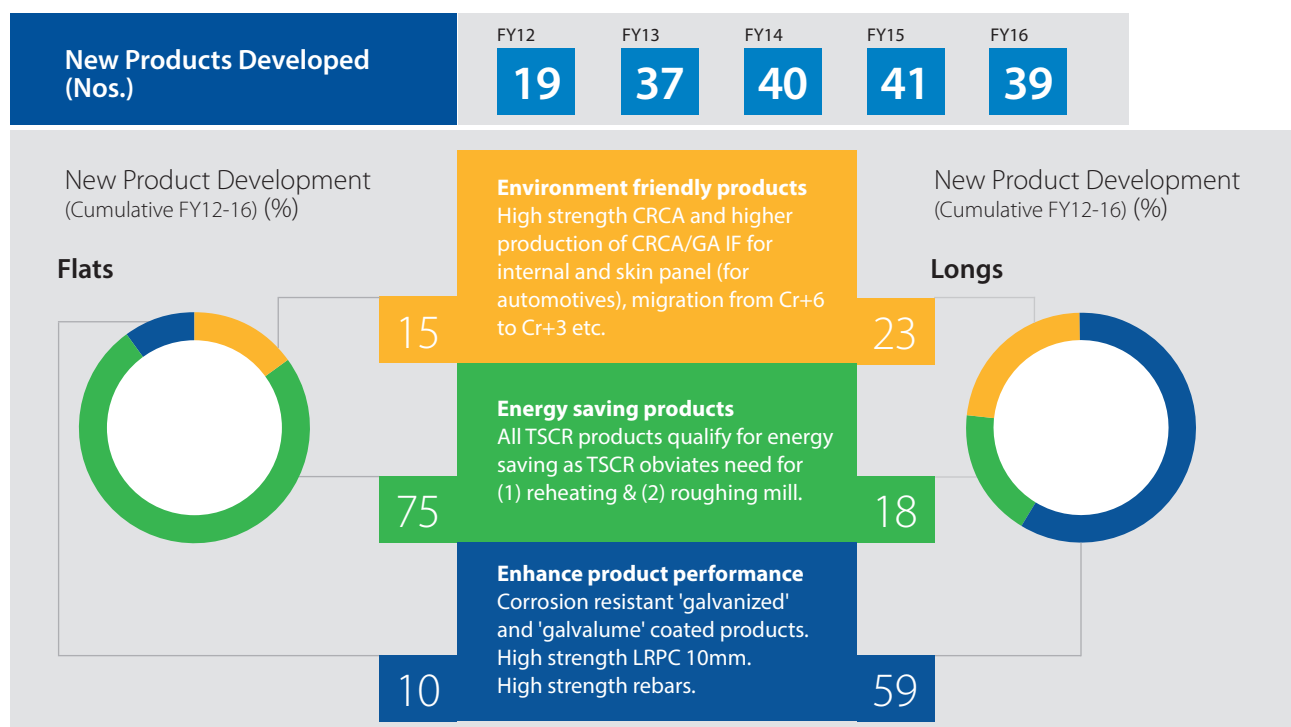
The technological initiatives driving cost efficiency across the value chain are:

### 1. Mining

Our main focus is to operate the captive mines more efficiently and responsibly through the use of latest technologies that suit our mining conditions.

To enhance the captive coal availability, initiatives such as high wall mining, shaft deepening, faster excavation methodology, use of high capacity equipment, GPS implementation and mechanisation, wherever possible, are being implemented. Likewise, we work towards increasing the clean coal yield through increase in combustible recovery and improvement in separation efficiency. In order to increase productivity of our open cast mines, we are implementing fleet management system (for efficient tracking and control of vehicles), advanced blasting techniques, etc. Further, to improve resource efficiency,





we are taking initiatives in the area of beneficiation of ores, reducing iron ore discard to below 45%.

From a safety and cost perspective, we are exploring the applicability of technological developments like autonomous haulage, remote operations centre, predictive maintenance and drones for mine planning for our mining operations.

## 2. Iron and Steel Making

The major thrust areas in iron and steel making are detailed below:

- Increase in usable agglomerates in iron making through reducing the sinter return fines to global benchmark level and increasing pellet productivity by 30 - 35%.
- Increase in coke strength after reaction through enriching blend with resin addition/shear crushing.
- Increase in Blast Furnace (BF) Pulverised Coal Injection (PCI) level (all furnaces) through hardware upgradation, BF control process

refinements, increase in flux content and burden quality distribution.

- Increase in BF productivity for large BFs through increase in dry coke %, more pellets, increase in Pulverised Coal Injection and reduction in slag.
- Reduce LD slag generation by 40-50% through designing and installing De-Si process in Blast Furnace cast houses, implementing double slag practice and other similar initiatives.

## 3. Rolling & Finishing

We have taken up several technology initiatives to improve our product quality – such as RH Degasser, automatic scarfing, vertical bending caster and automotive galvanizing line, among others.

New products such as micro-alloyed high strength steels for automotive, high strength Interstitial Free (IF) steel and Galva Annealed for two-wheeler fuel tanks have been launched. We also achieved cluster of Hot Rolled high-strength steel and became the first domestic integrated skin panel supplier and the first branded cold rolled steel seller.

Our focus in this area is to improve steel cleanliness, achieve benchmark casting speeds, produce wider width rolling steel, eliminate shape issues in cold rolled close annealed coils, eliminate patch defects and standardise snout systems.

## CUSTOMER CENTRICITY

For B2B customers, we have developed the required 'know-how' to be a partner of choice. This has been achieved through deploying product application resource at customer facilities for real time understanding of issues. Further, cross-functional teams from operations (like product technology, product application and marketing & sales) work together with customers to improve product efficiencies and reduce costs; ensuring transparency and building a win-win culture with customer organisation.

For B2C customers, approaches that have helped us to a premium position with high market share is given in the table overleaf.

### The know-how behind high premiums for branded products has been developed through:

1. Understanding consumer needs.
2. Designing the brand promise around the consumer needs.
3. Developing the Ecosystem to deliver Branded offerings.
4. Dedicated and high capability channel network.
5. Ability to develop Services & Solutions addressing consumer needs.

### During the year, we developed the following products

#### Specialty Hot Roll

- **ASTM Grade 50:** Type 2 developed for Pre-engineered Building segment.
- **X56:** HSLA 500 grade developed for Long member.

#### Specialty Rebar/Application

- **Fe 500S Rebar** (10-16 mm).
- **Seismic Rebar** – High ductility.
- **Fe 600 Grade 36.**
- **40 mm** High strength for slender structures.

#### Coated

- **JAC440WN** for automotive companies.

#### Wire Rods: HC72A 5.5

- **Wire Rods** for fine Tyre Bead Wire.
- **Thick Motor Tyre Bead** (for Heavy Vehicles).
- **CAQ** for DRAMIX application.
- **High Strength LRPC.**
- **10 mm.**
- **EH-14** for Submerged Arc Welding.

#### CRCA:

- **Steelium 390W & 440R** for automotive companies.

#### Services & Solutions:

- **Affordable Housing Solutions** – Nest-in.
- **Innovative Pravesh Doors** with high durability and aesthetics and improved security measures.

To meet our customer requirements, we are pursuing new products to be developed under the following categories:

- Platform products for narrowing the technological gap with advanced mills: automotive, lifting & excavation, oil & gas, infrastructure and capital goods among others. For this, we are working on improvements in strength and reduction in the number of surface defects for wheels, internal, structural and fully finished parts, and reduction in hole expansion ratio for structural and wheel parts of automotive.
- Differentiated products: We are developing ultra hi-strength steels, high corrosion steel, super-hydrophobic steel and cost-effective ultra hi-strength steels. Additionally, we will increase our capabilities in downstream value added products by entering into new segments, such as defence, lifting & excavation.

### ENVIRONMENT-FRIENDLY PROCESSES

We are committed to minimising the environmental impact of our operations and products through the adoption of sustainable practices and continuous improvement in environmental performance. We have developed several new technological projects linked to

waste utilisation and energy conservation such as de-phosphorisation of LD slag, water consumption optimisation through treatment, recycling, process modification to reduce water wastage, energy efficient waste heat recovery, improving combustion efficiency and hot charging.

We are working towards implementing a number of projects, some of which are:

- Reduction in CO<sub>2</sub> emission by about 20% through various enablers, like the Top gas pressure Recovery Turbines (TRTs) in blast furnaces, Coke Dry Quenching in coke plants, increased use of pellets, reduction in carbon rate, refining of Basic Oxygen Furnaces (BOF) and hot metal treatment shop.
- Reduction in specific water consumption by 35% through effluent treatment plants, dry Galvanized & Coated Steel Products, dry slag granulation etc.
- Our new plant at Kalinganagar will deploy larger scale units such as 496 m<sup>2</sup> Sinter Plant (Jamshedpur 204 m<sup>2</sup>), 310 tonnes heat size (155 tonnes at Jamshedpur), 6 MnTPA Hot Strip Mill (2 MnTPA stretched to 4 MnTPA at Jamshedpur). This by itself will help reduce heat losses and the adverse environmental impact.

- Towards achieving zero discharge of effluents, we are developing a new approach of tertiary treatment of water discharged from the coke oven.

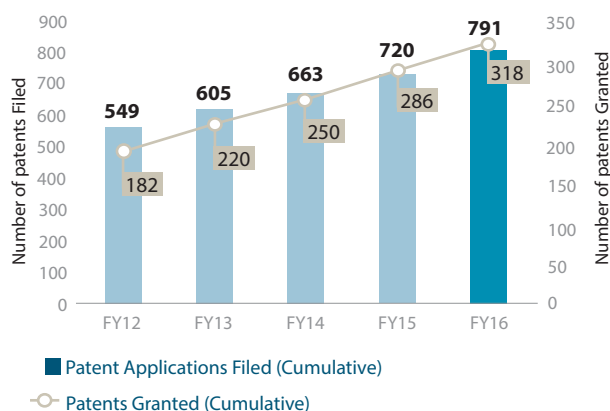
- In order to reduce landfills, we are reusing BOF slag as cement substitute, road construction and railways ballasts, paver blocks and recovering valuables through smelting.

- Use of environment-friendly, Restriction of Hazardous Substances (RoHS) compliant passivation movement from Cr+ 6 to Cr+ 3.

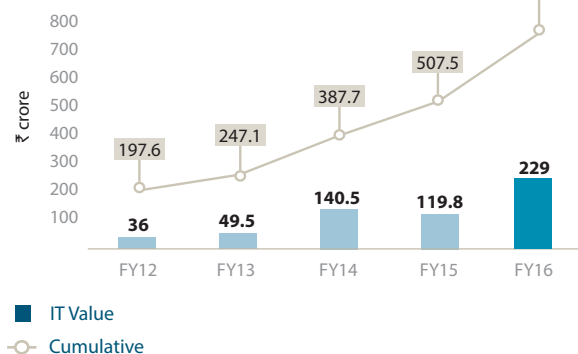
- An environmental research group has been formed in the R&D Division to carry out Life Cycle Assessment studies for the environmental sustainability of our products. A researcher is associated with World Steel Association as a fellow for expanding domain knowledge and networking within the steel industry.

The Company will continue to work on its strategy of 'Value from Waste'. We launched Ground Granulated Blast Furnace Slag (GGBS) and a downstream product of Blast Furnace Slag. We re-cycle GGBS into cement to make an even stronger concrete and use it as a partial replacement of Ordinary Portland Cement (OPC) for up to 70%, thus bringing down the cost of concrete. The concrete made by using

## Patent Portfolio (Filed & Granted)



## Business Value Generation assisted by Information Technology



GGBS is stronger, more durable and eco-friendly. The other benefits of using GGBS are higher ultimate strength, low permeability, resistance to chloride and sulphite attacks etc.

In order to use the waste material and enhance value from it, we are exploring many futuristic ideas ranging from 3D printing to glazing of ceramics made from such waste.

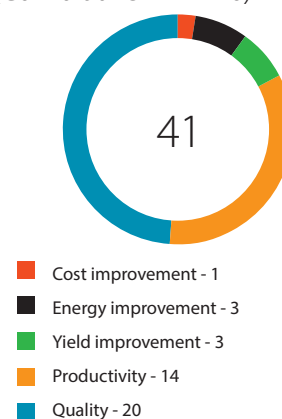
### PRODUCTIVITY

During the year, we incorporated appropriate technology to increase productivity. We leveraged information and communication technology

for efficient day-to-day operations, automated a few key business processes, developed hole detection system for cold rolled products and implemented IT systems to enhance business and workflow systems for employees, customers, suppliers and partners.

We have several forums (both internal and external) to capture futuristic themes leading to creation of value and intellectual assets. Our initiative 'Innovent' focuses on identifying customer requirements by using specific tools and developing them into business concepts.

## Automation Systems (Cumulative FY12-16)



## Focus Areas

In order to support our business and customer focused stakeholders, we aspire to:

1. Assist in developing new, improved products and reduce development cycle time.
2. Enable development of Optical Quality Analysis System (OQAS), an IT-based platform to analyse and process data in IF skin panel production chain, aided by appropriate knowledge management.
3. Assist in implementing technologies and processes that enable Zero Water Discharge in the life cycle of steel products.
4. Innovate and find cost effective alternatives to stainless steel through coating solution.
5. Enable the utilisation of low-grade manganese ore to profitably produce Ferro alloys through appropriate methodologies.
6. Develop methods to convert non-coking coal to coking coal.
7. Graphene-based coating solutions.
8. Initiate a project on coal beneficiation technology to get 8-12% ash from raw coal of higher ash, for operational savings and better utilisation of coal.
9. Develop Environmental Product Declaration for our products and use Life Cycle Analysis for eco-labelling.

# HUMAN CAPITAL

Human capital represents people's competencies, capabilities, experiences and their motivation to innovate.



## Approach

The value we place on our people has been reciprocated with over 87 years of industrial harmony and a leadership position in the area of Human Resource Management (HRM) in India. Our work culture ensures safety, good health, development of capabilities, quality of life and overall well-being of our employees. Human Capital comprises our full-time employees and our contract workforce who are looked after by the HRM, Safety and Health functions.

We pride ourselves in the fact that we have a large number of second generation and even third and fourth generation employees. In FY16, we received the All India Organisation of Employers (AIOE-FICCI) National Award for Outstanding Industrial Relations.

The foundation of long-term value creation rests on our philosophy of participative management between Management and the Union. Trust is the cornerstone on which industrial harmony has been built. The three-tier Joint Consultative Process, depicted on the adjacent page, consisting of Joint Departmental Councils at the departmental level, allows issues related to collective bargaining, production and productivity to be addressed effectively.

To drive forth our commitment to labour and human rights, we implemented the Social Accountability Policy encompassing Human Rights at the Workplace. Since 2004, the HRM has been certified to the Social Accountability 8000 standard and subsequently, other units have also been certified.

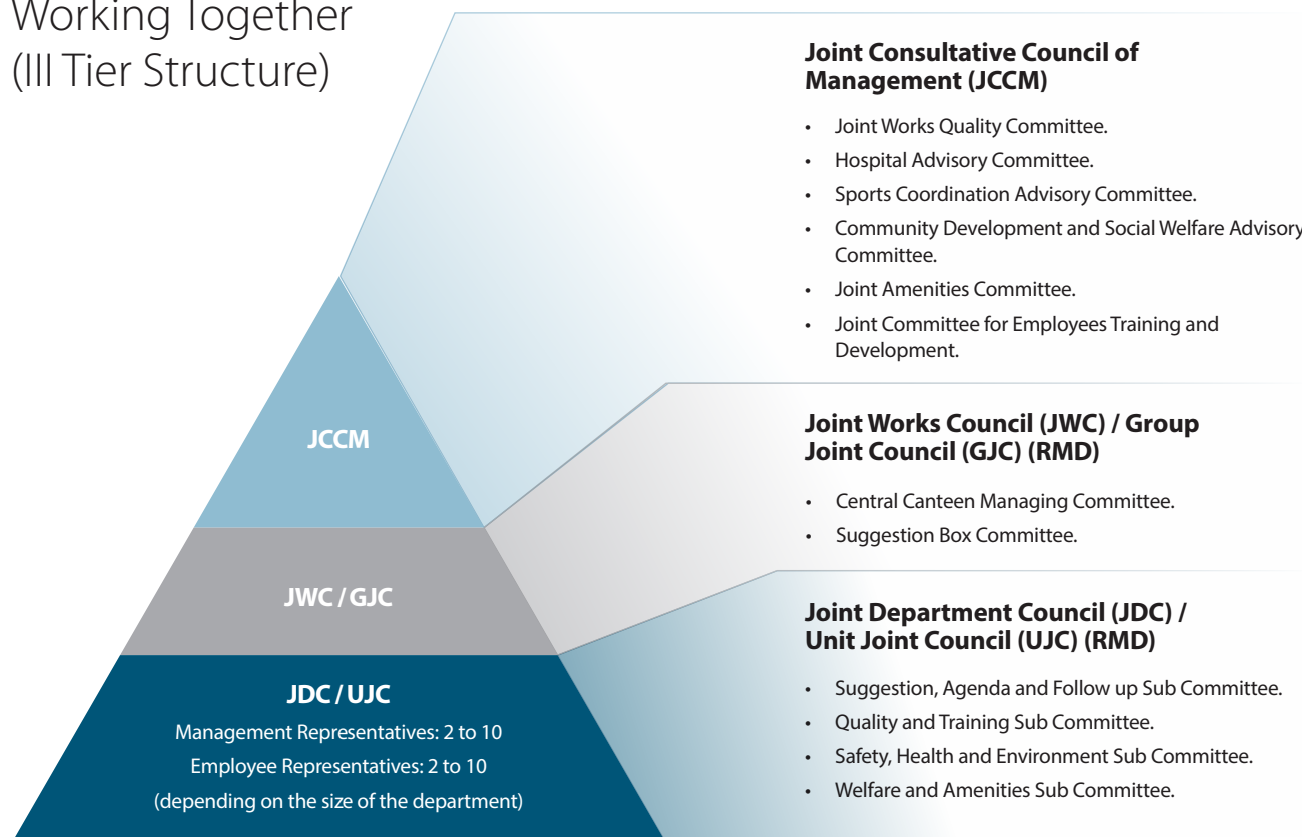
An equal opportunity employer, our basic salary, employee benefits, remuneration and career progression is the same for men and women. Our compensation and progression changes are aligned with our policies, agreements with the various Unions and Works Standing Orders.

Our Human Resource Policy, Health & Safety Policy, Affirmative Action Policy along with the SA 8000 policy are mindful of human rights, non-discrimination, freedom of association, collective bargaining, zero tolerance for Child Labour, forced and compulsory labour and respect for indigenous rights in all aspects of our business.

Further, the ethos of Fair Business Practices and commitment to principles such as the United Nations Global Compact, the World



## Industrial Harmony: Working Together (III Tier Structure)



Steel Sustainability Charter and Tata Code of Conduct have ensured that Human Rights consideration is well integrated into all our decision-making.

We are committed to practicing and propagating the SA 8000 standard, adherence to which is mandatory across our operations and supply chain. We voluntarily submit ourselves to periodic third party audits.

Safety is viewed as a key parameter to demonstrate commitment to people and the community at large. It is an integral part of our decision-making and is the prime consideration in all spheres of our activities including the performance management system for all employees. All our meetings begin with a focused Safety pause.

### Challenges

During the year, we faced challenges on various fronts. These included –

- Workplace Safety and Health.
- Improving employee productivity and maintaining competitive employee cost.
- Facilitating HRM policy implementation and issue resolution in Kalinganagar.
- Attraction and retention of talent.
- Maintaining and encouraging Diversity and Inclusion.





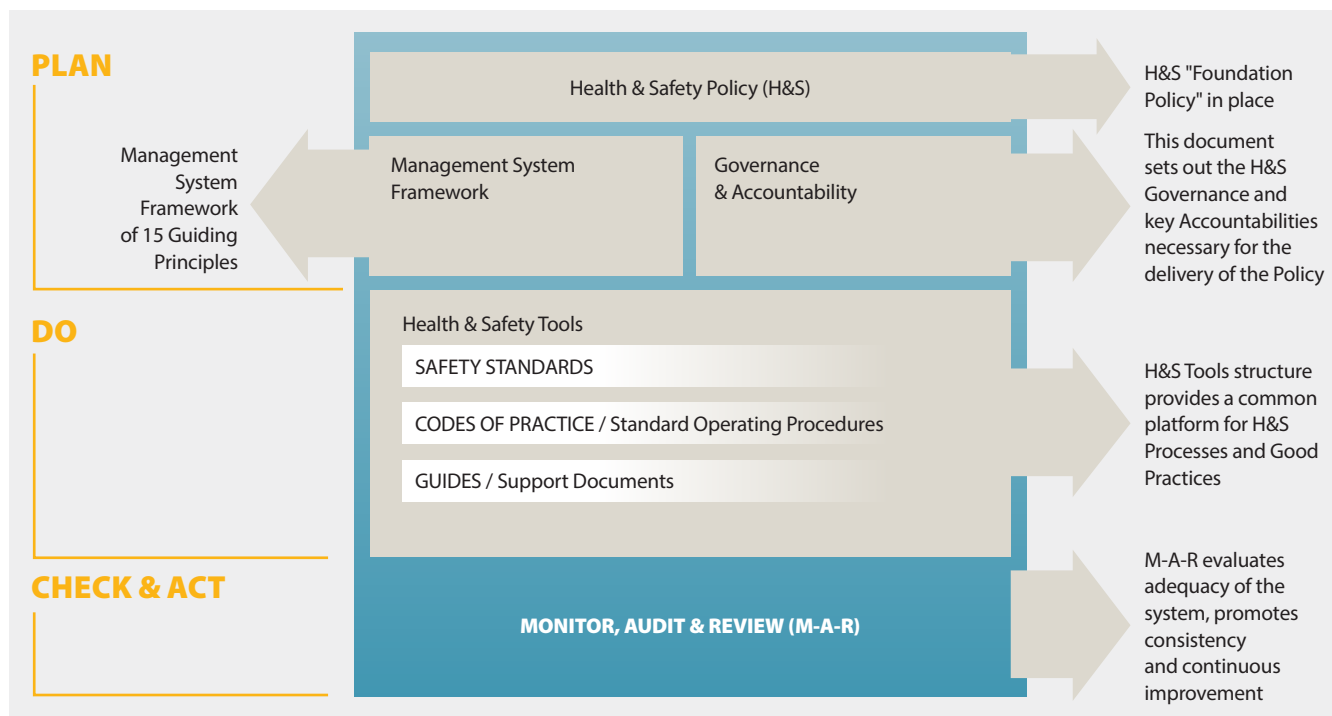
## Workplace Safety and Health Governance

Our Health and Safety Policy is the guideline for our "Safety Excellence Journey". Workplace Safety and Health is governed through:

- A Management system framework comprising 15 principles and a safety governance structure enabling us to drive the policy.

- The Safety Policy is the foundation for driving the safety principles. The Policy is implemented through safety standards and standard operating procedures at the operating level.

Major safety interventions over the years, under our "Safety Excellence Journey" (SEJ) have resulted in a significant drop in Lost Time Injury Frequency Rates (LTIFR).



KPI	UoM	Benchmark	FY14	FY15	FY16
LTIFR	Index	0.20	0.5	0.31	<b>0.23</b>
Fatality	Number	0	12	5	<b>2</b>
Lost Time Injury	Number	15	164	97	<b>67</b>
Health Index	Index	NA	12.8	12.21	<b>12.35</b>

## Human Resource Management

We have an integrated Human Resource Management system that caters to all the employees – officers and unionised. In the past several years, our growth and expansion strategy has given rise to staffing needs. These include (i) Capacity expansion of existing units and growth project, (ii) Closure of older units and (iii) Higher capacity units with technically upgraded facilities.

Our HRM structure enables us to be a strategic partner in business by –

- providing a single-window service to customers on all aspects of HRM,

- building HRM competencies,
- undertaking proactive research on strategic issues in the HRM function, and
- creating shared services to cater to all HRM service needs of employees.

HRM proactively aligns itself to the strategic directions taken by the business, by taking key decisions on People and larger organisational imperatives. The team has been striving to continuously improve work culture, employee engagement, maintain competitive employee cost, productivity to be the best-in-class organisation.

A key imperative during FY16 was implementation of HRM systems for the successful commissioning of the Kalinganagar Plant. Significant progress was made in building infrastructure, providing appropriate policies and workplace environment for our colleagues at Kalinganagar.



## Key HRM KPIs and Trends

KPI	UoM	FY12	FY13	FY14	FY15	FY16
Employee Productivity	Tcs/emp/year	455	512	597	623	701
Employee Engagement of Officers	Score	-	67	-	-	67
Employee Happiness (Unionised employees)	Index (Scale 0-4)	-	3.29	-	-	3.23
Employees involved in improvement activities	% of employees	74.1	79	82	89.4	85.3
Succession Cover Ratio	Ratio	1:4.2	1:3.5	1:3.8	1:4.0	1:3.7
Percentage of skilled manpower	%	-	-	69.6	91.1	93.9
Women Employees	%	5	5.2	5.4	5.4	5.5
Affirmative Action	%	15.7	16.3	16.2	16.3	16.9



## Key Achievements and Initiatives

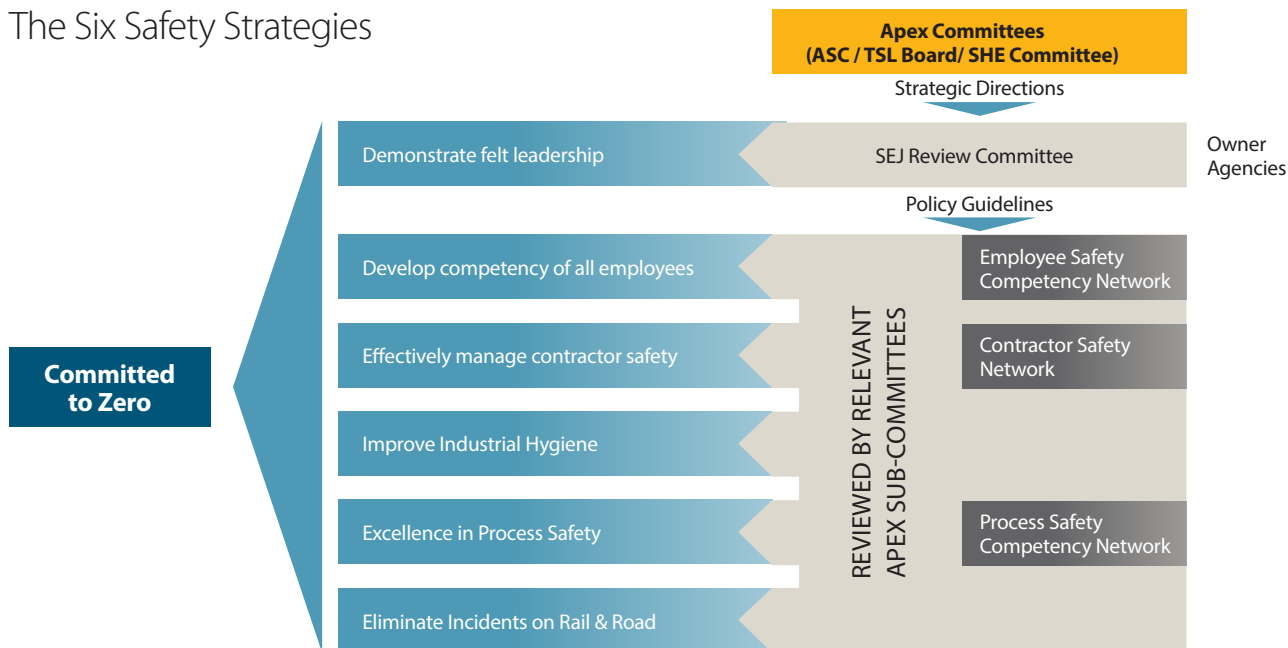
The year was marked by several initiatives that were rolled out for our employees and some significant achievements. Highlights of a few are given below:

### Workplace Safety and Health

To achieve our corporate objective of 'Committed to Zero', six long-term safety strategies were prioritised and are being implemented through apex safety sub-committees across the organisation.

A capable and competent line organisation, manned by Safety professionals and Safety experts provide the necessary support and guidance in the deployment of the six strategies. Progress is monitored and reviewed at different levels of the organisation from the departmental level to the Safety, Health and Environment Committee of the Board of Directors.

## The Six Safety Strategies



### Improving Health Awareness

We continually address key factors that impact employee health in the Mining and Metals industry. Apart from protective measures, we also have key initiatives and processes for preventive healthcare. Recent initiatives, based on evaluation and improvement, include Wellness at Workplace, Emotional Health, Stepathalon/ Marathons and Gyms at the workplace.

India's first accredited 25 km run, the Tata Steel Kolkata 25K and Stepathalon unlocked exciting new ways for employees to test and improve their fitness. The emotional well-being of employees and their families is taken care of through an Employee Assistance Programme, "Umang".

### Employee productivity and competitive employee cost

We assess our employees' Learning & Development (L&D) needs through the workforce capability and capacity assessment process. Individual development plans are addressed using the people development architecture depicted on the adjacent page. The plan is customised to address the needs of various categories of employees and covers all segments of the workforce including our

contract workforce, vendor partners and distributors.

We have adopted three approaches to improve employee productivity of our unionised employees:

- Training is imparted to enhance skills of employees requiring right skilling.
- Right skilling is intended to offset recruitment.
- Timely project completion and faster ramping up of units through staffing by reskilled employees.

Training and Development led to faster ramp up of new units. Experience gained in different projects during the expansion of the Jamshedpur Works was leveraged and used for performance and cycle time improvements in Kalinganagar.

Special focus was placed on Training and Skill Development to enhance employee productivity by over 12% compared with FY15 to touch 701 tcs/emp/year.

We also introduced an improved approach to Learning & Development using an academy approach for various functions. Employee Competency Building System, e-learning and Vendor Capability Development (VCAP), covered the training needs of the contract workforce as well as distributors. Over 85% of the employees are involved in improvement activities across the organisation.

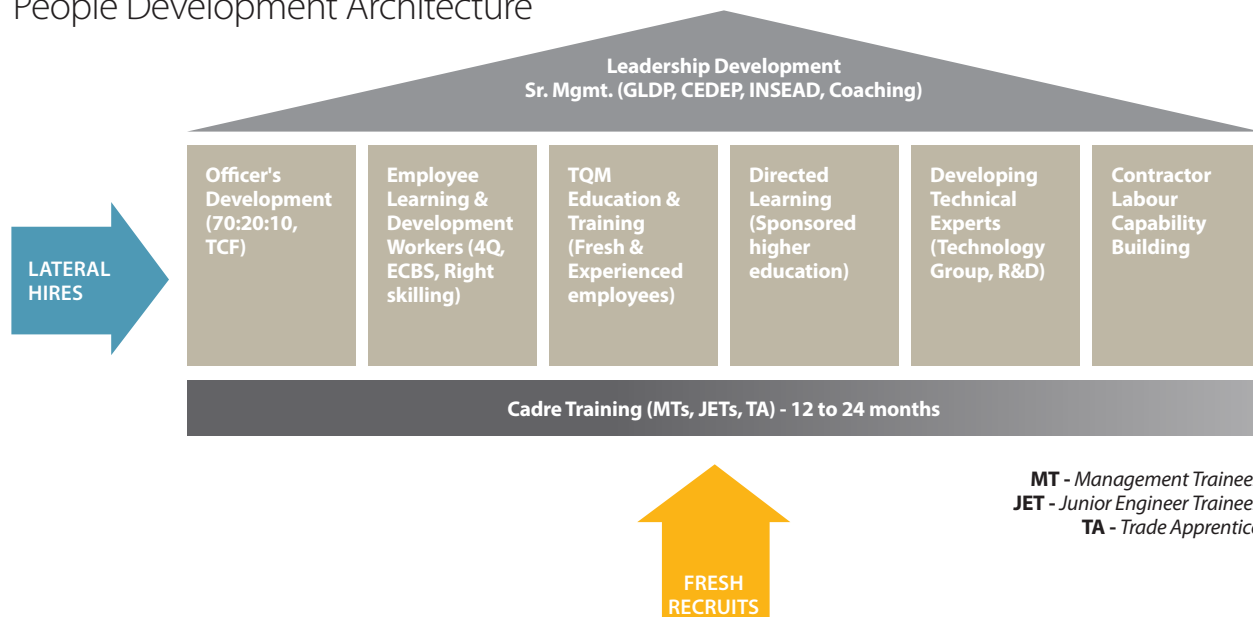
### Leadership Development initiatives

During the year, we conducted the Tata Outbound Leadership Convention, a programme on Transformational Leadership and the Tata Story and Nav Chetna programmes to entrench Tata Values among the employees, especially the large number of new recruits in Kalinganagar. We also implemented the Academy Approach for learning to drive the design and delivery of functional and managerial programmes.

### Introduction of New-age Policies

**Garnering talent:** We undertook several initiatives to garner the requisite talent. Talent was targeted through a variety of programmes for campus relations and events like 'Mind over Matter' for

## People Development Architecture



Technology schools and 'Steel-a-Thon' for Business Schools. A Pre-Placement Offer is our pre-hire step to attempt a two-way exposure in hiring where the candidate gets exposed to the organisation and the work culture, while the Company gets a fair glimpse of the candidate's performance and cultural fit. We aim to achieve 80% conversion rate of our pre-placement offer candidates.

**Retaining talent:** Our work culture encourages high performance through continuous development and opportunities for growth, in addition to enhancing engagement and motivation through distinctive reward and recognition programmes. We have nurtured a culture of diverse thinking, leading to an array of ideas and initiatives that result in sustained workforce engagement.

**Diversity and Inclusion:** Diversity and Inclusion and work-life balance were the premise for an array of policies that were rolled out in FY16. These brought about a cultural shift. Key steps taken to align HRM to contemporary needs of employees include:

- Five-day work week.
- Work-from-home policy.
- Satellite office operation for spouses.
- Paternity leave.

### Succession Planning and Mentoring

We have a robust succession and career planning process which is undertaken level-wise through coaching and mentoring. During the year, mentoring received greater focus through the

employee mentorship programme, christened "Disha" in Jamshedpur and "Bandhan" in Kalinganagar.

A very new practice, widely appreciated by employees, is the Reverse-Mentoring process with a focus on technology and digital. Gen Y engages with our senior leadership to assist them in the understanding and use of latest digital technology and Internet resources.

We have a strong job rotation process. Employees with some experience in the organisation are actively encouraged to take up different roles. Despite being a largely flat organisation, this process offers immense opportunity to people to handle different responsibilities under the same band.

### Focus Areas

Our aspiration is to provide our employees with the best-in-class work environment. To achieve this, we are working towards strengthening our health and safety practices through various initiatives. We are also focussing on Human Resource Management aspects relating to employee productivity, employee cost, talent management, diversity and inclusion, capability development, employee engagement, contract workforce management and engaging activities to improve employee morale.



# SOCIAL AND RELATIONSHIP CAPITAL

Social and Relationship capital represent co-operative ties between a Company and different communities and stakeholders' groups that engage with each other for societal welfare.



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

— OUR FOUNDER, JAMSETJI NUSSERWANJI TATA

**₹204 crore**

spent on Corporate  
Social Responsibility  
activities during FY16.



# SOCIAL CAPITAL

## Approach

Social capital for us has always been of paramount importance. It is manifested in the form of formal and informal institutions and associations established and supported by the Company to serve the cause of the Nation, the States where we have operations, the local communities and the surrounding ecosystem. We endeavour to conduct our business responsibly, mindful of our social accountability, respect the law of the land where we operate and with regard for human dignity.

Our approach to CSR is guided by the CSR and the Affirmative Action policies. Over a period of time, our social initiatives have evolved from being focused on "giving to society" to "creating an enabling environment" and presently, with empowered communities willing to participate in partnering with us to "create self-sustained communities". Long before the law mandated corporates to incur CSR expenditure, we have been spending approximately 2-3% of our profits on community-centric initiatives.

During the year, we spent ₹204 crore on societal activities. We also strongly encourage our employees and partners in fostering a sense of social commitment for stakeholders through various volunteering programmes and projects guided by the Tata Group.

## Governance

We have a CSR Advisory Council that comprises of eminent personalities from the academia and the development sector which meets annually with our senior management. The members of the Advisory Council, with their years of experience and multi-functional expertise, provide deep insights on improving the effectiveness of our CSR initiatives.

Our CSR Committee (sub-committee of the Board of Directors) oversees and reviews our CSR initiatives. An Apex CSR Steering Committee, chaired by the Managing Director and comprising the senior management team, reviews the activities and monitors achievements against targets set at the beginning of the year.

## Social Context

Our operations are largely confined to areas that have a sizeable population, primarily scheduled caste and scheduled tribes, who are socially and economically marginalised. Government interventions alone cannot improve the socio-economic conditions of the local community. We, therefore, share the responsibility of meeting the needs of the local community through thematic interventions, designed in line with our vision.

## CSR: Areas of Operation

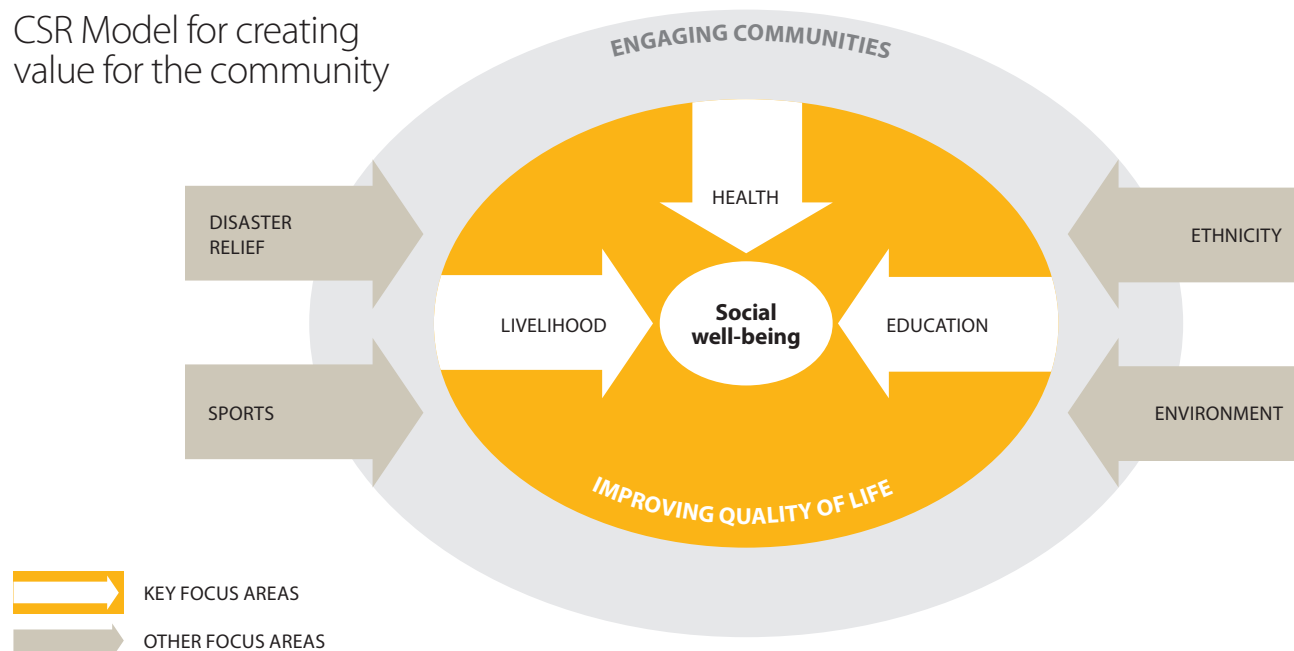
We shoulder the responsibility of meeting the needs of the local community in and around our manufacturing locations through various delivery arms the details of which are available in the CSR Report annexed to the Directors' Report.

Our areas of operation for CSR include:

**In Jharkhand** - Noamundi, Manoharpur, Jamadoba, West Bokaro, Jamshedpur.

**In Odisha** - Kalinganagar, Gopalpur, Joda, Bamnipal, Gomardih.

CSR Model for creating value for the community



### KPIs and Key Achievements:

Our CSR activities are aligned with the Company's business objectives. Based on the Business Objectives and Strategy, the areas of priority are:

**Livelihood** – through agricultural development, skill development and entrepreneurship;

**Health** – through primary healthcare, maternal and child healthcare, specialised

healthcare and adolescent health programmes;

**Education** – through improving the quality of education for all and scholarships for meritorious students;

**Empowerment** – through grassroots institutions such as Self Help Groups and Village Committees and youth empowerment.

# 1.1 mn lives touched

In FY16, our interventions had a positive impact on 1.1 mn lives.

### Key Performance Indicators

Thematic Intervention	Sub Strategy	UoM	Achievements			
			FY13	FY14	FY15	FY16
<b>Agricultural Development</b>	Farmers adopted SRI <sup>1</sup> Process	Nos.	250	2,200	5,948	8,350
	Area under 2nd and 3rd Crop	In Acres	3,177	5,032	5,510	5,086
<b>Entrepreneurship</b>	Business Volume of AA Vendors	(₹ crore)	20.3	29.5	30.8	39
<b>Health</b>	MANSI Project – Infant Mortality <sup>2</sup>	-	53.6	50.4	39.4	32.7
	MANSI Project – Neonatal Mortality <sup>2</sup>	-	40.7	32.6	27.4	22
	Primary Healthcare Beneficiaries	Nos.	3,72,000	4,19,000	4,85,384	5,33,597
	Cataract Operations	Nos.	2,890	5,230	6,198	4,099
<b>Education</b>	Fellowships	Nos.	2,477	3,169	3,567	2,985
<b>Irrigation</b>	Ponds Created	Nos.	-	92	426	200

<sup>1</sup> System of Rice Intensification.

<sup>2</sup> No. of deaths (< 1 year) per 1,000 births. Figures correspond to calendar year. Vital Rates Survey for 2015 is underway.

### Key Achievements

Community-centric initiatives based in the areas of priority have progressively changed the quality of life of the communities. We present below some of our key initiatives and achievements.

## LIVELIHOOD

### 1. Agricultural Development

The agricultural economy in the states is plagued by dependency on nature, low investment, low productivity, inadequate irrigation facilities and mono-cropping with paddy as the dominant crop. In accordance with the goal of adopting climate-resilient agricultural practices that can increase productivity we carried out the following –

**Paddy Cultivation:** To increase paddy yield, we trained over 8,300 farmers in Jharkhand and Odisha to adopt the System of Rice Intensification (SRI) method of paddy cultivation. The average yield has gone up from 0.5 tonnes/acre to 2.1 tonnes/acre. 40% of the farmers who have adopted SRI paddy cultivation are from the SC/ST communities. SRI method aims to increase rice yield through a





# 1,132 youth employed

In FY16, 1,573 youth out of 3,089 enrolled completed our skill development programmes.

low-water, less labour-intensive method. SRI technology also addresses climate change by reducing the methane gas emissions from the paddy fields by up to 60%.

**Vegetable Cultivation:** Efforts aimed at diversifying agricultural produce have led to over 4,200 farmers adopting vegetable cultivation as their second or third crop.

**Irrigation:** Attempts to increase the area under irrigation and reduce the dependence of farmers on monsoons resulted in 202 structures being constructed, including ponds, check dams and lift irrigation facilities.

**Farmer-Scientist Interface:** The second edition of 'Vaartaa – An Agriculture Meet' was held in Jamshedpur and Gopalpur. The meet brought farmers and experts on a common platform to facilitate exchange of knowledge and best practices in agriculture. Overall, about 1,200 farmers attended the agriculture meet.

## 2. Skill Development

Lack of employable skills deprives scores of youth of gainful employment opportunities. We offered skill development training courses through

- (i) Institutes run by Tata Steel Skill Development Society,
- (ii) Institutes that receive infrastructural support from us and
- (iii) Courses offered at select institutes.

All of these courses are meant to prepare unemployed youth to find employment in diverse fields such as construction, automobiles, motor driving, call centres, hospitality, apparel designing, nursing, etc.

## HEALTH

### 1. Infant Mortality

In partnership with the government health system and not-for-profit organisations' working on health, we have been working on Maternal and Newborn Survival Initiative (MANSI) Project in 167 villages of Seraikela-Kharsawan district in Jharkhand. This has reduced the neonatal mortality rate by 46% and infant mortality (up to one year of age) rate by 39% (Source: Vital Rates Survey conducted by SEARCH, Gadchiroli).

In FY16 several districts and blocks of Jharkhand and Odisha were covered under Project MANSI.

# 5,70,000 people aided

Primary healthcare services to nearly 5,70,000 people through static clinics and mobile medical vans offered in Jharkhand and Odisha.

## 2. Hospitals in Odisha

Work is underway for the setting up of a 500-bed hospital at Gopalpur and a 200-bed hospital in Kalinganagar. Sankara Eye Hospital is also setting up a 100-bed Super Speciality Eye Care Hospital in Ganjam.

## 3. Adolescent Health Programme

Project RISHTA on adolescent health reached out to over 23,000 adolescents in Jharkhand and Odisha to enable them to make informed decisions and choices about their sexual and reproductive health.

## 4. Primary and Specialised Healthcare

Our static clinics and mobile medical vans offered primary healthcare services to nearly 5,70,000 people in Jharkhand and Odisha, including those in far-flung areas of the two states. Over 30,000 patients availed specialised healthcare services from our multi-specialty health camps. Antenatal and postnatal check-ups benefitted over 7,800 women, while the immunisation drives covered 8,900 children. Free hospital-based surgery was provided for over 4,000 cataract patients who were identified through eye camps organised in rural Jharkhand and Odisha.

## EMPOWERMENT

### 1. Irrigation

Lack of irrigation facility in water-scarce regions adversely impacts farmers. Harvesting rainwater through the construction of ponds has helped overcome this challenge. We partnered with the village community in making the rainwater harvesting a reality. This has yielded three benefits: (i) empowering the rural community, (ii) giving people a source of livelihood and (iii) giving them a voice in their growth story. A village pond is not merely a water harvesting structure. Its utility extends beyond irrigation, with pisciculture, community building and multi-cropping being associated with it. With planning and technical advice, a pond is a sustainable water resource that has multiple benefits for the rural community.

## 2. Youth Empowerment

**Sports:** Over 44,000 youth and kids, especially from Jharkhand and Odisha, participated in different sporting events. 2 Jharkhand teenagers, found positions in the prestigious Tata Football Academy (TFA). 4 tribal boys trained at TFA were recruited by an infantry of the Indian Army.

**Leadership Camps:** Over 1,500 youth were taken on outdoor leadership and motivational camps in Uttarakhand.

## ENTREPRENEURSHIP

### 1. Affirmative Action

Our support of the Affirmative Action Community includes an Affirmative Action Vendor Development programme. The procurement department focuses on progressively improving the vendors' share of business from the SC/ST communities

by training them to match the Company's requirements for various products and services.

### 2. Rural Entrepreneurs

Capacity building programmes undertaken to make Self Help Groups (SHGs) more dynamic, organised and effective, covered 3,400 members of various SHGs in Jharkhand and Odisha. During the year, 130 local villagers became entrepreneurs benefitting from livelihood opportunities offered by us in collaboration with Bharatiya Yuva Shakti Trust at Kalinganagar.



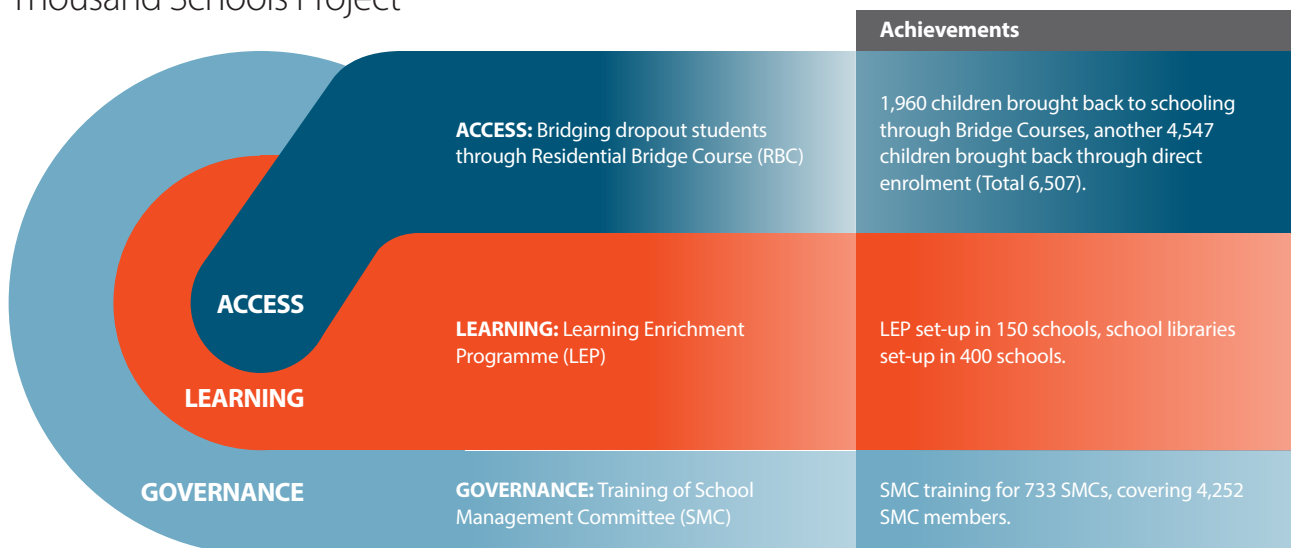
Odisha is aiming to improve the standard of education in government schools in three backward tribal districts i.e. Jajpur, Keonjhar and Sundargarh.

The Thousand Schools Project comprises a huge capacity building exercise, including staff orientation, training of teachers and youth, training and exposure visits of School Management Committees (SMC) and members of Panchayati Raj Institutions.

## EDUCATION

With an aim of equitable and quality education, our interventions span all levels of schooling, i.e. from elementary school education to the high school level. The Thousand Schools Project in

## Thousand Schools Project



As part of the Affirmative Action agenda -

- We granted two fellowships viz., the Jyoti Fellowship and Moodie Fellowship to over 2,800 meritorious SC/ST students from economically-challenged families in Jharkhand and Odisha.
- The Tata Steel Scholars initiative helped 83 bright SC/ST students from low-income families realise their academic dreams.

- Our preparatory coaching initiative has helped nearly 5,500 underprivileged school students in classes 8, 9 and 10 to hone their skills in subjects like English, Mathematics and Science.
- We provided nutritious meals to 49,000 students in 383 government schools of East Singhbhum and Seraikela Kharsawan districts to counter classroom hunger.

## ETHNICITY

With the Company's operations spread over areas populated by indigenous tribes, we consistently endeavour to work with these tribes to preserve and promote their culture and heritage.

During the year, we organised the second edition of "Samvaad", a pan-India tribal conclave that showcased a holistic picture





Samvaad - A Tribal Conclave, 2015

of tribal culture and heritage. Around 1,500 tribal artists, academicians, eminent personalities and activists attended the event. The participants represented 35 different tribes from 20 states across the country. Samvaad showcased the cultural heritage of the tribal community through unique forms of tribal folk dances, panel discussions on tribal languages and literature, as well as paper presentations by research scholars.

Around 15,000 youth have learned the scripts of Ho and Santali tribal languages since we launched over 300 language centres.

## EMPLOYEE VOLUNTEERISM

We encourage our employees to volunteer for community-centric initiatives. In FY16, nearly 18,413 people contributed 26,290 hours and volunteered for a host of community activities and services during the Tata Volunteering Weeks held under the group-level Tata Engage initiative.

## SPORTS

Our zeal to nurture sporting talent began in the early 1920s when the erstwhile Chairman, Sir Dorabji Tata sponsored the first Olympic team from India. In keeping

with the legacy we set-up the Tata Football Academy. This academy runs training centres in at least 16 sports disciplines and 3 residential academies for football, archery and athletics. We have built an array of infrastructure matching international standards to support sports. In FY16, the Government of India awarded our employee Ms. Deepika Kumari a Padma Shri for her contribution to Indian Archery.

Over the years, our employees have won prestigious awards, like the Rajiv Gandhi Khel Ratna Award (1), Padma Shri (11), Dronacharya Award (5), Arjuna Award (40), Dhyanchand Lifetime Achievement Award (1), Olympians (34), Asian Games Medallist (26) and Commonwealth Games (11).

We are the only Company in the country to have been awarded the Rashtriya Khel Protsahan Puruskar by the Honourable President of India in 2009 and 2010.

During the year, a total of 5,600 employees participated in sporting events, health & fitness and lifestyle management programmes. The Company's training centres and academies engaged 1,601 trainees as part of its community outreach initiatives. Of them, 11 trainees got employment in Army and Jharkhand Police on the basis of their exemplary performance at National/ International events. Abiding by its Affirmative Action Policy, a total of 512 ST/ SC boys and girls were provided training in academies and training centres.

## SOCIAL INVESTMENT IN KALINGANAGAR – AN AFFIRMATION OF INCLUSIVE GROWTH

### Background

Our operations in Kalinganagar are equally driven by our business objectives and social commitments. A large part of the highly-trained and skilled workforce comprises individuals who belong to families displaced by the project. Our resettlement and rehabilitation programme for those impacted is anchored on compassion and empathy.

A total of 1,234 families were displaced due to the allocation of land towards the Project and these families were required to be resettled and rehabilitated. Our leadership team ensured development of an IT solution to systematically monitor the financial position, health situation and current occupation of each displaced family. Thereafter, each relocated family became a member of the Tata Steel Parivar, and was issued a tamper-proof

identity card specially designed to contain all relevant details of the family. "A New Life – a New Hope" was the commitment given by Tata Steel through the Tata Steel Parivar Resettlement & Rehabilitation Plan.

The 4 'R' theme of the 'Tata Steel Parivar' covers:

- Reassuring Communication – 'The Vision for a Better Tomorrow'.
- Resettling the displaced population with care.
- Rehabilitation – Ensuring better quality of life, income and happiness.
- Recheck implementation through self and independent social audits.

Initiatives of the following areas have upheld the intent of inclusive growth by the 'Tata Steel Parivar'.

### **Civic Infrastructure**

Three rehabilitation colonies were set-up at Trijanga, Sansailo and Gobarghati, each of which is equipped with all-weather, motorable roads, electricity, clean running water from taps, a well laid-out drainage system, community halls, recreation areas for children and designated spaces for religious ceremonies.

### **Primary Education and Scholarships**

The most significant achievement has been the 100% enrolment in primary education in the schools set-up. Colony students have continuously excelled in the Matriculation Examinations. Since 2007, the Tata Steel Parivar Scholarship has funded the education of meritorious children.

### **Medical Facilities**

A team of doctors, aided by paramedics, community health assistants and facilitators (Swasthya Mitras) provide round the clock, free medical services to 1,033 families in the three rehabilitation colonies, including pathological services and ambulance facilities.

Specialised healthcare is available at the hospital at Gobarghati Resettlement & Rehabilitation colony, and is assured via tie-ups with hospitals in Bhubaneswar and Cuttack. We hosted the Lifeline Express at Jajpur in 2010 and 2014, for the families in colonies and others from peripheral areas.

A 200-bed Tata-Medica Specialty Hospital is now being set-up at Kalinganagar.

### **Economic Rehabilitation**

Economic rehabilitation is progressively taking place through:

- Technical training leading to employment in different industries and ancillaries.
- Training and engagement in non-farm based SMEs.
- Farm-based activities using traditional skills.
- Upgrading of skills leading to self-employment.
- Nurturing entrepreneurship.

### **Training and Skill Development**

We conducted an education and capability mapping of the local youth. Based on the findings, the following measures were carried out –

- In 2006 group training and skill development began in technical areas, computers and other skill development options.
- Nominees were handpicked for vocational training in trades like welding, plumbing, masonry, carpentry, bar bending, etc.
- Graduate nominees were absorbed as Office Associates in different Operational and Service departments, while matriculates took on the role of Operations & Maintenance Assistants.
- Those with no formal training were trained at the Central Tool Room & Training Centre, Bhubaneswar, through a two-year programme on steel making.

### **Employment in non-farm-based SMEs**

We organised Self Help Groups to train and initiate women into thrift and credit, later leading to bank linkages. Exposure to Income Generation programmes like tailoring, pickle-making, poultry etc. enabled them to feel confident and empowered to take on projects to augment their family incomes.

### **Business opportunities**

Contracts are awarded to members of the Tata Steel Parivar for services in areas like cleaning and maintenance of Resettlement & Rehabilitation colonies, housekeeping in the Company's premises, waste disposal, water supply, grocery supplies etc.

### **Transformation**

In less than a decade, our approach has led to significant transformation in Kalinganagar. Some key changes are as follows:

- Members have moved from living in thatched houses to multi-storeyed concreted homes. Members have gone from having no electricity connection or medical facility to round the clock access to electricity and medical facilities.
- Children who had dropped out of schools now have access to free quality education.
- Families who depended only on rain-fed agriculture have multiple sources of income including employment with the Company, contracts for work at the Company, alternate income for women through SHGs, business opportunities such as shops etc.
- Families enjoy food security due to the grocery maintenance allowance provided by the Company.

### **Focus Areas**

Our future focus is to improve the effectiveness of our spends and seek support from the Government and other sources for our initiatives. Going forward we will be leveraging technology and innovation for our CSR activities in order to achieve greater impact in terms of reach and scale.

# RELATIONSHIP CAPITAL

## Approach

For us, Sustainability means another century of inclusive growth.

Our sustainability practices are guided by our Vision, Mission, Values, governance and sustainability policies so as to have an integrated approach to address the needs of People, Planet and Profits.

Through our values & ethical practices, we aim for mutual value creation by engaging with all stakeholders.

## Stakeholder Engagement

We have three main categories of stakeholders:

### Business Partners

– **investors, employees and suppliers.**

### Civil Society

– **NGOs working on social & environmental issues, community.**

### Influencers

– **regulators, politicians, media, industry associations, customers.**



Vendor Meet

The interaction with stakeholders is General (relationship building), Issue Based (related to specifics of projects or Consent to Operate) or revolves around communication of the Company's Vision, Mission, Values, capability building, directions and expectations.

We have in place, active engagement mechanisms at the various stakeholder oriented functions, for example HRM (employees), Marketing & Sales (Customers, distributors and dealers), Procurement (Suppliers), CSR (Community), Corporate Communication (Media), Centre for Regulatory Effectiveness (Government and Bureaucrats), Planning departments (Steel Processing Centres).

We have entered into long-term strategic contracts with various utility providers for augmenting the requirements, for running the process or for upkeep of the township, e.g. Tata Power and Damodar Valley Corporation for power requirements of the plant and township, Linde for

providing process oxygen, railways, road logistics providers, consignment agents for transportation, storage and handling of raw material and finished goods. For effectively meeting customer demands we have entered into contracts with external steel finishing factories called "Steel Processing Centres".

We have also forged multiple collaborations with various prestigious academic and research institutes for procuring cutting-edge knowledge on various research and development initiatives in the areas of products and processes and for capability building in the area of Intellectual Capital.

The frequency and forum of engagement depends on the stakeholder and the nature of the concern. Our senior leadership also communicates and engages with the Government, Customers, Investors, Suppliers, Media, Regulatory Authorities, Employees & Unions, Thought Leaders and Community through various forums.

We strongly leverage technology in communication and actively use social media platforms to connect with a larger gamut of stakeholders, particularly on key corporate events and dissemination of key corporate updates.

As part of our sustainability practices, the stakeholder engagement process was reviewed by a large consulting firm during the Materiality exercise in 2013. The various stakeholders that we engage with, their concerns, and formal engagement mechanisms are listed in the table overleaf.



Tata Steel Kolkata Literary Meet, 2016

## Stakeholders, Related Material Concerns and Engagement Approaches

Stakeholders	Impact	Concerns	Approaches for Engagement	Frequency of Engagement
<b>Human Capital</b>				
Employees	Key workforce – engaged in production & services Unions are representatives of non-officers and help in maintaining harmonious industrial relations	<ul style="list-style-type: none"> <li>Safety &amp; Health, Ethics, Environment.</li> <li>Infrastructure &amp; Amenities.</li> <li>Career Planning.</li> <li>Compensation.</li> <li>Career Growth.</li> <li>Training &amp; Development.</li> </ul>	<ol style="list-style-type: none"> <li>Managing Director Online Communiqué</li> <li>Dialogue with officers</li> <li>Joint Works Quality Committee</li> <li>Joint Works Committee</li> <li>Joint Departmental Councils</li> <li>Joint Consultation Forums</li> <li>UCM Meetings</li> <li>Ethics and Quality month</li> <li>Mass meeting</li> </ol>	<ol style="list-style-type: none"> <li>Monthly</li> <li>Half-Yearly</li> <li>Alternate month</li> <li>Annual</li> <li>Monthly</li> <li>Monthly</li> <li>Quarterly</li> <li>Yearly</li> <li>Need-based</li> </ol>
Contract workforce	Support workforce – engaged in production & services	<ul style="list-style-type: none"> <li>Safety.</li> <li>Wage Certification.</li> <li>Infrastructure and amenities.</li> <li>Skill development.</li> </ul>	<ol style="list-style-type: none"> <li>Safety Mass Meetings, Sumilan, Parivartan Contractors Safety Management</li> <li>Wage certification by PEs</li> <li>Grievance forum at Contractor Cell</li> <li>Training and competency building</li> </ol>	Need-based
Prospective Employees	New ideas, knowledge and experience from outside	<ul style="list-style-type: none"> <li>Competitive work environment.</li> <li>Incentives.</li> <li>Work-life balance.</li> </ul>	<ol style="list-style-type: none"> <li>Campus recruitment</li> <li>Job opportunities through internet</li> <li>Employee ward exam etc.</li> </ol>	Yearly/ Need-based
<b>Customers</b>				
<ol style="list-style-type: none"> <li>Business to Business</li> <li>Business to Consumers</li> <li>Business to Emerging Corporate Accounts (SME)</li> </ol>	Drive growth objectives Revenue generation	<ul style="list-style-type: none"> <li>Consistent availability of quality products and effective solutions.</li> <li>Reliable Delivery.</li> <li>Product conformity to specification.</li> <li>Technical Support.</li> <li>Products and solutions for new applications.</li> <li>Safety.</li> <li>Ease of doing business.</li> </ul>	<ol style="list-style-type: none"> <li>Parivaar Meet</li> <li>Customers /Influencers Meet</li> <li>Steel conference</li> <li>Customer Service Team</li> <li>Senior Management Meetings</li> <li>Events for Focus Groups and End Users</li> <li>Plant visits, reviews, call centre</li> <li>Customer Visit &amp; Report</li> <li>DPCR (Daily Product Application Group Communication Report)</li> <li>LINKS (Learning Interaction Networking Knowledge Sharing)</li> <li>GalvaKnow – Building technical capabilities of sales forces</li> <li>Wired2Win – Knowledge sharing for wire rod customers</li> <li>Suraksha – Safety excellence programme</li> <li>Value in Use – Better understanding of SME Customers</li> </ol>	<ol style="list-style-type: none"> <li>1-2. Annual</li> <li>3-6. Alternate year</li> <li>7-8. Need-based</li> <li>9-14. Ongoing</li> </ol>



Financial Stakeholders				
Shareholders, banks, credit rating agency	<ol style="list-style-type: none"> <li>1. Source of financing</li> <li>2. Credit worthiness for investments</li> <li>3. Growth</li> </ol>	<ul style="list-style-type: none"> <li>• Financial and Environment, Social &amp; Governance Performance.</li> </ul>	<ol style="list-style-type: none"> <li>1. Annual General Meeting/ Corporate sustainability report/ Annual Report</li> <li>2. Analysts/Press Meets</li> <li>3. Meetings with senior management</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual</li> <li>2. Quarterly/ Half Yearly</li> <li>3. Need-based</li> </ol>
Business Partners				
Suppliers, vendors, distributors and retailers	Support the business objectives of the Company	<ul style="list-style-type: none"> <li>• Transparent and Ethical Practices.</li> <li>• Transactional Issues.</li> <li>• Safety and Health.</li> <li>• Ease of doing business.</li> </ul>	<ol style="list-style-type: none"> <li>1. Annual Vendor meets/ Annual Partner meet / Distributor meet</li> <li>2. Meetings with key suppliers, retailers and partners</li> <li>3. Supplier Relationship Management</li> </ol>	<ol style="list-style-type: none"> <li>1. Annual</li> <li>2. Ongoing</li> <li>3. Need-based</li> </ol>
Regulatory Bodies				
Regulatory, Central and State Government Departments and Authorities	Regulatory matters, including various approvals, consents	<ul style="list-style-type: none"> <li>• Compliances to regulatory requirements and CTO obligations.</li> </ul>	<ol style="list-style-type: none"> <li>1. Corporate Relations Department</li> <li>2. Liaison Cell</li> <li>3. HRM Legal Cell</li> <li>4. Environment Management Department</li> <li>5. Local heads of operations</li> <li>6. Meeting with Key Managerial Personnel (Managing Director, Chief Financial Officer and Company Secretary)</li> </ol>	Need-based
Communities				
Thought leaders, practitioners, local communities, opinion leaders and traditional chiefs	Social License to operate	Socio- Economic uplift through: <ul style="list-style-type: none"> <li>• Sustainable Livelihoods.</li> <li>• Empowerment.</li> <li>• Education.</li> <li>• Employment.</li> <li>• Employability.</li> <li>• Access to social and physical infrastructure.</li> </ul>	<ol style="list-style-type: none"> <li>1. Interaction with key community leaders and media</li> <li>2. Participatory Rural Appraisals</li> <li>3. Cultural events - 'Padyatra', Public Hearings, 'Samvaad'</li> <li>4. Meetings with PRI members, traditional chiefs, SC/ST intellectuals</li> <li>5. CSR Advisory Council</li> </ol>	<ol style="list-style-type: none"> <li>1. Ongoing</li> <li>2. Local area interventions by Head of locations</li> </ol>
Displaced Families	Social License to operate	<ul style="list-style-type: none"> <li>• Resettlement and Rehabilitation.</li> </ul>	<ol style="list-style-type: none"> <li>1. Tata Parivar Scheme</li> <li>2. Resettlement and Rehabilitation teams</li> <li>3. Public Hearings</li> <li>4. Grievance Redressed Group</li> </ol>	Ongoing
Industry Associations				
World Steel Association, Confederation of Indian Industry, etc.	Support proactive engagement in policy-making and provide a platform for advocacy	<ul style="list-style-type: none"> <li>• Growth of steel industry.</li> <li>• Competition from abroad.</li> <li>• Global development.</li> </ul>	Meetings / seminars	Ongoing

# NATURAL CAPITAL

Natural capital represents all renewable and non-renewable environmental resources such as water, land, minerals, forests, biodiversity and health of the ecosystem.



## Approach

We have always been committed to conservation of natural resources, preservation of biodiversity and abatement of climate change impacts due to our operations. There is visible commitment to environmental care and climate change as stated in our Environment, Climate Change, Energy and Sustainability policies.

Recently, we have concluded an assessment of the Biodiversity at our select raw material locations and have plans in place to enhance the same. We have an Environment Management Department (EMD), a dedicated corporate function, for management of environmental performance of the Company. While we meet regulatory compliances, we are also conscious of the growing emphasis laid by

industry associations like World Business Council for Sustainable Development (WBCSD), multi-stakeholder consortia like Natural Capital Coalition and NGOs towards protection of Natural Capital.

## Our initiatives and achievements during FY16 towards protecting Natural Capital were:

### EMISSION ABATEMENT

The CO<sub>2</sub> emission intensity at the Jamshedpur Steel Works has reduced by over 27% in 11 years and by 10% in the last five years. We achieved our best ever monthly performance @ 2.19 tCO<sub>2</sub>/tcs in February 2016, surpassing the previous best of 2.27 tCO<sub>2</sub>/tcs in March 2015.

A significant contributor to a lower CO<sub>2</sub> intensity in FY16 was a lower coke rate at the blast furnaces. During the year, under the TQM initiative, Shikhar - 25 energy efficiency measures secured abatement of CO<sub>2</sub> emissions (approximately 6% reduction of emissions intensity). We also conducted trials at the 3 MW Solar Photo-Voltaic Power Plant at Noamundi (showcased on the adjacent page).

### WASTE HEAT RECOVERY

Waste Heat Recovery from the Sulphur Recovery Unit (SRU), yielded cumulated emission abatement of 19,534 tCO<sub>2</sub> since it began operations in the last quarter of FY14 till FY16.

We have implemented Waste Heat Recovery System (WHES) in our BF Stoves and used Top gas pressure

Recovery Turbines (TRT) at the G, H & I Blast Furnaces which deliver 80% of the Hot Metal. Coke Dry Quenching has been installed at Coke Oven Battery Nos. 5, 6 & 7. These systems have helped us significantly reduce the energy consumption.

### ZERO EFFLUENT DISCHARGE

With the enhancement of recovery systems, we achieved our lowest ever specific effluent discharge, amounting to a 36% reduction of discharge in the last five years and 27% reduction in water intensity over the same period. 27 of our 46 operating sites are Zero Effluent Discharge sites.

### SOLID WASTE UTILISATION

We focus on extracting value from waste through our practice of reduce, reuse and recycle. Further, we are also pursuing innovative applications with special focus on LD Slag utilisation in agriculture, construction and other sectors.

Our objective of zero waste mining is driven through processes such as ore characterisation, ore-body modelling and block modelling of mining deposits done, LCI studies for mines, etc. State-of-the-art beneficiation plants are in operation and studies are underway for beneficiating slime and low-grade ores.



3 MW Solar Plant at Noamundi Iron Ore Mine

### BIODIVERSITY MANAGEMENT

Biodiversity Management Plan for raw material locations is a collaborative effort between Tata Steel and the International Union for Conservation of Nature (IUCN). The Management Plan is intended to provide practical guidance for the progressive restoration and enhancement of biodiversity within the mines and to the extent possible, within the adjacent impacted areas. The measures proposed in the plan will be subject to annual reviews which will strive for a system of continuous, adaptive improvement.

The guidance provided in the plan has been derived from our commitment to restoration of biodiversity, the experience derived from the recent mine closure proceedings, biodiversity assessment, companion preliminary community consultation process and the guidance received from IUCN, International Council on Mining and Metals, Indian Bureau of Mines, World Bank/International Finance Corporation guidance on mine reclamation and closure.

### Usage of various wastes generated

MATERIAL	USAGE
<b>Jamshedpur Steel Works</b>	
Solid Waste (Majority is BF slag & LD slag)	<b>Recycled:</b> Sold to Cement makers and recycled in steel making
<b>Mining</b>	
Overburden Dump (toe-wall, garland drain)	<b>Reused:</b> Partially used for backfilling of demineralised pits used for reclamation and rehabilitation, also exploring usage of carbonaceous shale
Tailings	<b>Reduced:</b> Management of Tailing Pond <b>Reused:</b> Onsite storage, de-watering, agglomeration <b>Recycled:</b> Tailing from Washeries are sold to third parties
Reject Coal	<b>Reused:</b> Used in captive power plants <b>Recycled:</b> Sold outside
<b>Other Locations</b>	
Slag	<b>Recycled:</b> Half of the slag quantity is sent out for SiMn production by EPA <b>Reused:</b> Balance is landfilled



**The primary objectives of the Biodiversity Management Plan are:**



Avoid / reduce impacts to biodiversity.

Progressive reclamation of mine-altered sites in a manner which restores biodiversity and associated ecosystem services.

Long-term improvement in targeted biodiversity components from pre-mine conditions.

Community engagement and its insights in the process of environmental management and mine closure.

**The unique features of the Biodiversity Management Plan are:**

Inter-dependence of physical, biotic and cultural elements.

Listing of commitments and supplementary guidance to address biodiversity and associated ecosystem services.

In-depth procedural guidance

Use of combination of flora salvage plugs, Miyawaki method and conventional re-vegetation techniques.

Broad range of measurable biodiversity performance indicators.

Strong emphasis on community involvement/engagement.

Provision for third party review (air and water)

Raw material locations have taken up projects as part of the Annual Business Plan, for implementation of biodiversity management plans such as the:

- Butterfly Park at Sukinda and Joda.
- Niche Nesting (Artificial bird nesting boxes) at Noamundi.
- Developing local forest in dump area at Sukinda.
- Integrating rain water harvesting structures in periphery for improving aquatic life at Sukinda.
- Agro-biodiversity enhancement at Jharia.
- Dump reclamation using Mulberry Plantation at West Bokaro.

Some of the other stakeholder engagement initiatives are 'Spot the Species', 'Green Therapy', 'Jaiba Kala Vividhata', 'Prajiya Khadyotsav' and 'Snakes are Friends'.

Biodiversity assessment done with IUCN has revealed that in some of the mining sites, biodiversity in our lease area is better than outside our lease area and that is a testimony of our efforts towards maintaining greenery and water harvesting. Environment management plans and progressive mine closure plans are also in place and are being monitored and reviewed internally by Indian Bureau of Mines.

**Key Technological Developments and Innovations**

Some of the key technological developments and innovations for

improvement of natural capital while caring for the safety and productivity of human capital are as follows:

- Surveillance of service vehicles through GPS-based tracking system and speed monitoring device was implemented at Joda East Iron Mine.
- Steps taken towards green energy - Installation and trial of 3 MW Solar Power Plant completed at Hill #1 of Noamundi.
- 13.7% reduction in energy consumption in Ores, Mines and Quarries township areas achieved through various initiatives like replacement of conventional light fittings with LED lights, installation of energy-efficient fans/air conditioners, monitoring and communication (through SMS)



of energy consumption of individual houses etc.

- Introduction of pre-fabricated vertical drains for embankment construction of Slime Dam at Noamundi. The vertical drains will enhance the stability of the dam after the augmentation of the slime storage capacity.
- Advanced blast monitoring and vibration management projects were successfully conducted for excavation of critical top benches of Banspani hill at Joda East Iron Mine and Khondbond Iron Mine.
- Aquifer-based Water Harvesting technology used for the Bokaro River project to supply 1,000 KL of water per day to seven surrounding villages with 7-8 km piping laid out.
- Installation of the Man-Riding system for transportation of man and light

load in underground mines. It has been commissioned in Sijua Colliery and has reduced the average travel time by 70%, eliminated exhaustive travelling and has resulted in productivity improvement of employees. Similar systems may be installed in two other collieries of the Jharia Division.

- An air-cooling system to be installed in the Digwadih Colliery to enable reduction in the temperature of underground mines, and thereby help increase the productivity of mines.

Our compliance to most stakeholder expectations has yielded significant benefits such as early issuance of permits for Mines, Steel Works at Jamshedpur and Kalinganagar. As a result of our dedicated efforts, we have significantly improved in the areas of energy consumption, CO<sub>2</sub> intensity and Stack (dust) emissions.

#### Water Performance (Tata Steel India)

WATER AND EFFLUENT MANAGEMENT	UoM	FY14	FY15	FY16
Water Withdrawal	mn m <sup>3</sup>	76.99	74.38	63.06
Effluent Recycled and Reused	%	17.8	22.2	29.4
Effluent Recycled and Reused	mn m <sup>3</sup>	16.70	21.28	26.30

#### Emission Performance (Jamshedpur Steel Works)

EMISSION TRENDS AND ENERGY INTENSITY	UoM	FY14	FY15	FY16
Specific Particulate Matter Emissions (stack)	kg/tcs	0.88	0.57	0.50
Specific Effluent Discharge	m <sup>3</sup> /tcs	2.31	2.31	1.20
Specific Make-up Water Intake	m <sup>3</sup> /tcs	5.57	5.54	4.39
Solid Waste Utilisation	%	78.0	78.3	80.6
CO <sub>2</sub> EMISSION INTENSITY				
Direct Emissions (scope-1)	tCO <sub>2</sub> /tcs	2.23	2.26	2.11
Emission (Direct + Indirect)	tCO <sub>2</sub> /tcs	2.43	2.42	2.26
Energy Intensity <sup>1</sup>	GJ/tcs	25.19	25.17	24.15

#### Focus Areas

Our aspiration is to be the 'Indian Steel industry benchmark in Environment Performance' and to achieve this we are focused on:

1. Implementing Zero Effluent Discharge solutions.
2. Reducing GHG emissions through coke rate reduction.
3. Implementing solutions/ initiatives to improve Solid Waste Utilisation.
4. Abating dust emissions through installation/augmentation of fugitive dust extraction/ suppression systems.
5. Managing biodiversity, an emerging focus area and of significant relevance to us due to our mining operations.



# MANAGEMENT SPEAK



**Mr. T.V. Narendran**  
**Managing Director**  
**(India and South East Asia)**

Despite extremely challenging economic conditions, we achieved our highest ever sales at 9.5 MnT. This resulted in us successfully consolidating our market share in India. We witnessed a strong growth in our key segments viz. automotive and branded products. Our investments towards growing our markets and building our equity continue. We have made a good beginning on the digital journey and notable progress in productivity and work process improvements. Productivity, Safety and Profitability have been built into the union agreements in place of metrics like production and profits.

Our Kalinganagar plant has picked up pace and is expected to aid in further consolidating our presence in existing high-end market segments. We are well-positioned to leverage the demand arising out of India's economic growth.

Our South East Asia operations had encouraging performance. Our interventions on cost rationalisation and portfolio optimisation have started delivering results.

We continue our commitment to industry-leading CSR practices. A safety and environment conscious culture has been successfully imbibed across the organisation. This is reflected in many of our metrics. We continue to balance business goals and sustainability in all aspects. Going forward, we will continue to focus on cost improvement initiatives and downstream value-addition across our products and market segments.



**Mr. Koushik Chatterjee**  
**Group Executive Director (F&C) and**  
**Executive Director – Europe**

We continue to make efforts to deliver sustainable value to stakeholders, even during testing times. During the year, we have managed our liquidity and financial exposure carefully with adequate balance to create long-term assets including capital expenditure of ₹11,486 crore, largely towards completion of our greenfield project in Kalinganagar and capability enhancement projects in IJmuiden. Despite this, our net debt increase is not sharp and our liquidity position remains strong. During the year, we took steps to continue our operational excellence initiatives, undertook portfolio actions and monetised investments to sustain our business performance amidst very volatile market conditions. Most of our subsidiaries and joint ventures in India and South East Asia also improved their performance and helped the overall performance of the Company. In the near-term, our focus would be on ramping up our operations in our Kalinganagar Plant, restructuring of the European portfolio and strengthening our financial position.

From this year we are formally migrating from compliance based reporting to governance based reporting. Our Integrated Report will give you, the owners of financial capital, visibility into our sustainability and people practices. We believe that fundamental to comprehensive value creation is integrated planning and execution of business strategy across all the capital sources available to the organisation. We will endeavour to expand the coverage of the Integrated Report and disclosures in phases in the coming years to cover the wider Tata Steel Group.



### **Tata Steel Limited**

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