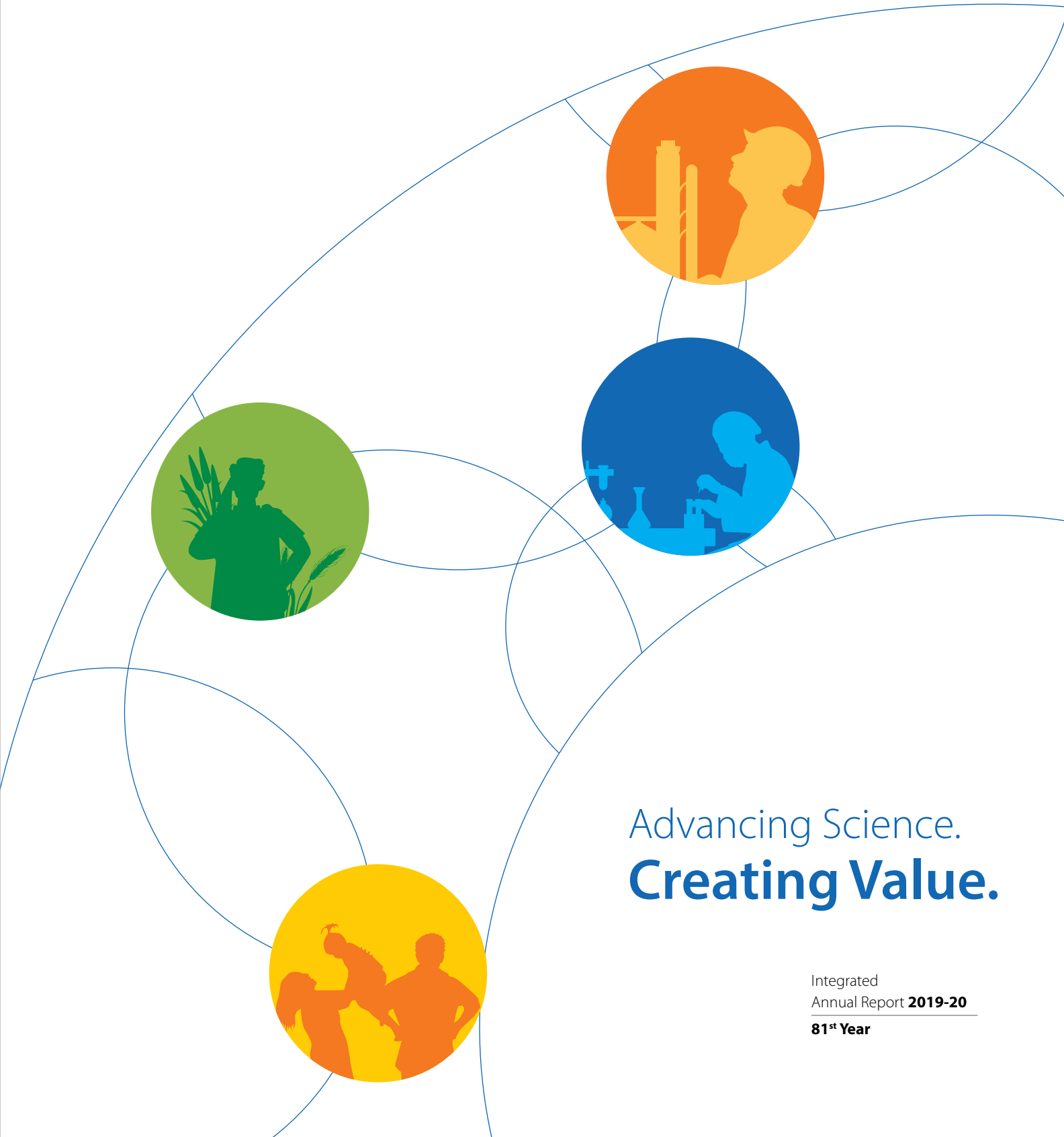
TATA CHEMICALS

TATA



Advancing Science.
Creating Value.

Integrated
Annual Report **2019-20**

81st Year

Basis of Reporting

The principles of Integrated Reporting <IR> have emerged as a benchmark for global best practice in corporate reporting. We have based our annual report on these principles for transparency and disclosures beyond statutory norms. FY 2019-20 is the fifth year of such reporting. Through <IR>, we intend to enrich our reporting for all stakeholders by providing information on our value creation process using the interlinkages of multiple capitals.

This report is prepared in accordance with the Companies Act, 2013 (and the Rules made thereunder), Indian Accounting Standards, the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 and the Secretarial Standards. We have also followed internationally recognised frameworks and guidelines of United Nations Global Compact, Global Reporting Initiative (GRI) and AA1000 Framework for Accountability and the Integrated Reporting <IR> framework of the International Integrated Reporting Council ('IIRC'). We apply the following principles of AA1000 AS (2008):

Inclusivity

We commit accountability to stakeholders who are impacted, directly or indirectly, by our organisation. We have mapped our stakeholders and have processes to ensure inclusion of their concerns and expectations. We continue to develop our stakeholder engagement and sustainability capacity at corporate and manufacturing levels.

Materiality

We cover key material aspects that have been identified through our ongoing stakeholder engagement and are addressed by various programmes or action points with measurable targets.

Responsiveness

Our reporting addresses a gamut of stakeholders, each having their own needs and interests. This report is one element of our interaction and communication. It reflects how we manage our operations by accounting and responding to stakeholder concerns.

Reporting period and scope

This report covers financial and non-financial information and activities of Tata Chemicals Limited ('the Company' or 'TCL') and key domestic and overseas subsidiaries during the period April 1, 2019 to March 31, 2020. The report's financial figures are audited by BSR & Company LLP, Chartered Accountants and the non-financial information are assured by Ernst & Young Associates LLP.

Assurance Statement

The non-financial information disclosed in this Report, on a voluntary basis, is as per the Integrated Reporting <IR> Framework of the IIRC and has undergone an independent assurance by Ernst & Young Associates LLP. This assurance has been done as per the 'Limited' criteria of the ISAE3000 assurance standard (International Federation of Accountants' International Standard for Assurance Engagements Other than Audits or Reviews of Historical Financial Information) as well as the 'Type 1, Moderate' criteria of the AccountAbility AA1000 AS assurance standard. The specific environmental and social performance data subjected to this assurance, approach, limitations as well as the assurance conclusion are presented in the Assurance Statement available at https://www.tatachemicals.com/IRAssurance201920.htm.

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 operations 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 assume any obligation nor intend to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

United Nations Sustainable Development Goals (SDGs) prioritised

Advancing Science. Creating Value.

For more than 80 years, we at Tata Chemicals have operated with a sense of purpose to play an active role in shaping a better world. We graduated from a manufacturing to a science and innovation-led entity. We seeded multiple new businesses and created extensive global footprint, manufacturing capacities and employment opportunities. We ensured prosperity of all stakeholders.

We are determined to build our solid foundation to meet the growing expectations of our stakeholders in the ever changing world.

We have undertaken important restructuring exercise – demerging consumer product business to create an innovative, pure-play science company which is our forte. This will augment our innovation index by delving deeper into science to develop unique solutions, besides making our business more efficient, streamlined and synergistic. We are also making strategic capex investments in high-potential and newly seeded portfolios as well as towards embedding sustainability in all our operations and decision-making.

Our efforts are strengthening our business model and positioning us to create value for our stakeholders at economic, social and environmental levels.

Our six capitals

Financial capital

Pool of funds (debt and equity) used to sustain and create additional value across all capitals.

Manufacturing capital

Plants, warehouses, logistics facilities and physical assets in which we have made financial investment to ensure sustained and efficient operations and generate long-term returns.

Intellectual capital

Scientific knowledge, research & development (R&D) capabilities and innovation quotient which is core to our business for product development and provides us competitive edge.

Social & Relationship capital

Initiatives we undertake for the welfare of the communities, supply partners, dealers and customers to secure our reputation as a trusted, long-term partner of choice and the license to operate.

Human capital

The knowledge, skills, experience and motivation of our employees on which we depend on for value creation.

Natural capital

Renewable and non-renewable natural resources such as raw materials, land, water and energy which we use in our operations to generate social and economic value; and which has unavoidable environmental impacts.

81st Annual General Meeting

Date: Tuesday, July 7, 2020

Time: 3.00 p.m. (IST)

Through Video Conference facility

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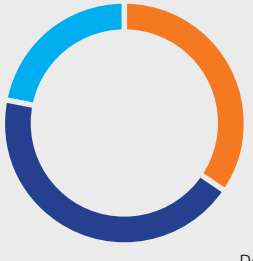
Tata Chemicals: An Innovative, Science-Led Sustainable Chemistry Company

A part of US$ 113 billion Tata Group, Tata Chemicals is a globally leading multinational company employing over 4,600 people and present in 40+ countries. In our eight decades of existence, we have brought to the fore our knowledge and expertise in science to develop innovative products that provide a competitive edge to our customers and have positively impacted the society. We enjoy a strong and established position globally in inorganic and crop protection chemicals.

Ownership structure (%)



34.59	Promoter and promoter group
43.50	Institutional
21.91	Non-institutional

Mission

Serving Society through Science

Vision

To be a leading sustainable Chemistry Solutions Company serving customers based on innovative, science-led differentiated products and solutions

Values

- S - Safety
- P - Passion
- I - Integrity
- C - Care
- E - Excellence

Our Reputation

3rd largest
Soda Ash manufacturer **(globally)**

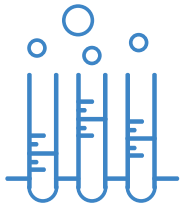
6th largest
Sodium bicarbonate manufacturer **(globally)**

~13 million
Farmer contacts **(India)**

Top 25
Ranked amongst top 25 India's Most Innovative Companies in 2019

Pioneer
In FOS/GOS products **(India)**

Basic Chemistry Products



Inorganic chemistry products like Soda Ash, Bicarb, Salt, Marine Chemicals, Crushed Refined Soda and Cement

End user segment

B2B – Industries

Value drivers

- Specialised portfolio in soda ash, bicarb and cement
- India's leading edible and vacuum salt manufacturer
- Strong partnerships with global glass and detergent companies
- Operational excellence and cost competitiveness

Specialty Products

Agri Sciences

Seeds, crop protection formulations and other agricultural inputs

End user segment

B2C – Farmers

Value drivers

- World class product development and manufacturing for global agro chemical supply
- Deep farmer connect
- Wide domestic reach covering 80% of India's districts

Nutritional Sciences

Ingredient and formulation solutions, including prebiotic dietary fibres for human and animal health

End user segment

B2B – Food processing companies

B2C – Consumers

Value drivers

- Strong product differentiation, patent protected
- Deep scientific know-how in nutritional innovation

Material Sciences

Value creating offerings in the niche area of advanced nano-material solutions

End user segment

B2B – Industries

Value drivers

- Green patented technology for manufacturing Highly Dispersible Silica (HDS)
- Nano zinc oxide with improved UV blocking, anti-microbial and anti-fungal properties along with water dispersibility
- Deep understanding of high performance innovative chemistries
- Strong R&D capabilities including nanotechnology
- Operational excellence

Energy Sciences

Cutting-edge and disruptive electro-chemistry solutions for Energy Storage

End user segment

B2B – Industries

Value drivers

- Capitalise on the emerging opportunities in electric vehicles and stationary applications, with circular economy concept around Lithium-ion technology - active materials manufacturing, cell & battery manufacturing and recycling critical materials from used batteries
- Collaborating with leading global battery makers for contemporary and next generation chemistries and Indian research institutes (ISRO, CSIR-CECRI)

Growing and Diversified Global Footprint

America

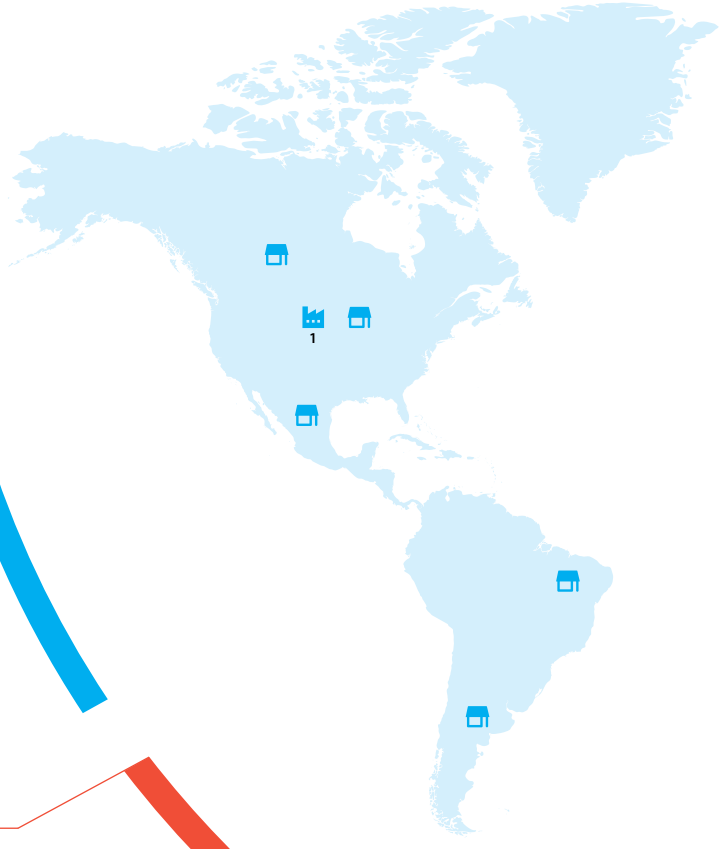
Revenue
₹ 3,403 Cr.

EBITDA
₹ 762 Cr.

1. Green River, Wyoming, USA

Canada, USA, Mexico, Brazil and Argentina

Tata Chemicals North America Inc. (TCNA) - Amongst the world's leading producers of high-quality natural Soda Ash



Europe

Revenue
₹ 1,356 Cr.

EBITDA
₹ 157 Cr.

2. Lostock, UK
3. Winnington, UK
4. Middlewich, UK

Europe and the UK (Sodium Bicarbonate marketed globally)

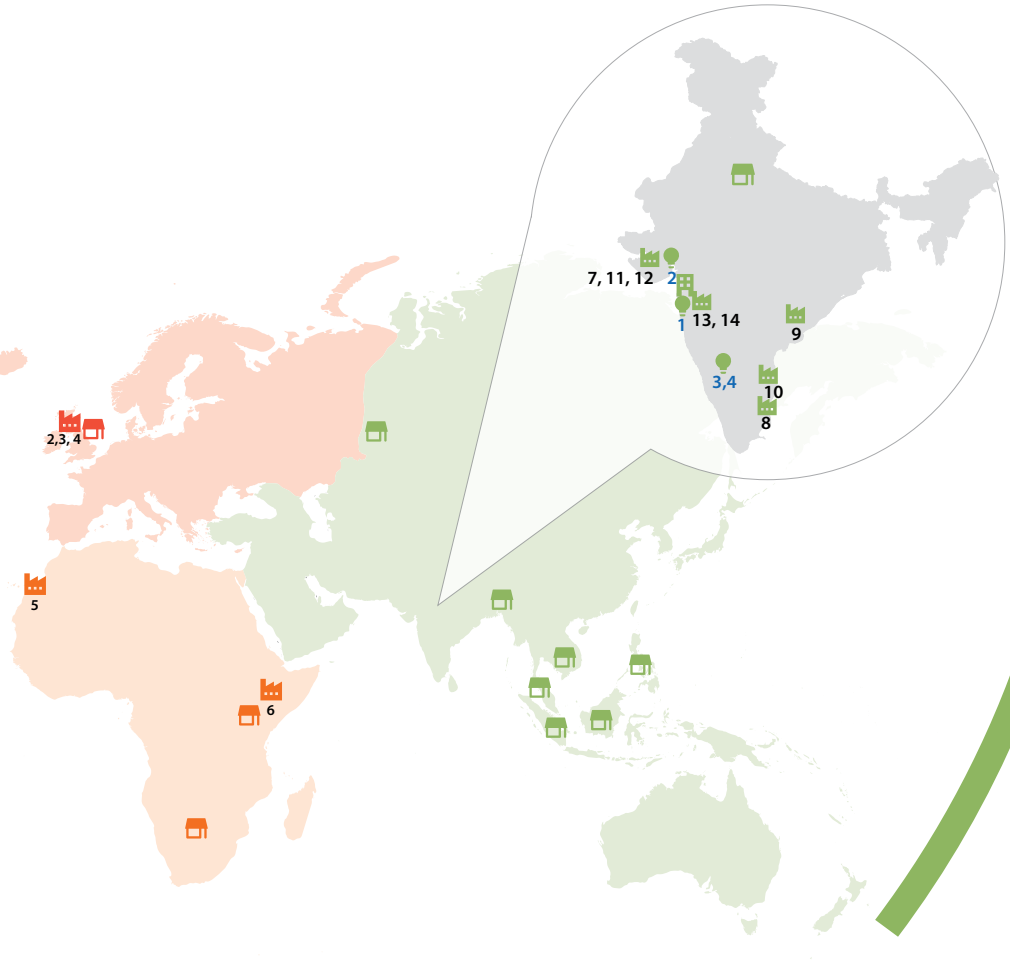
Tata Chemicals Europe (TCE) – Amongst Europe's leading producers of Sodium Bicarbonate, Salt (through British Salt) light Soda Ash and other products

Africa

Revenue
₹ 457 Cr.

EBITDA
₹ 49 Cr.

Note: Financials are after IND AS adjustments



Asia

Revenue
₹ 5,168 Cr.

EBITDA
₹ 975 Cr.

1. TCL Innovation Centre, Pune
2. TCL R&D Centre, Mithapur, Gujarat
3. Rallis Innovation Chemistry Hub (RICH), Bengaluru, Karnataka
4. Agri-Biotech R&D Facility (Seeds), Bengaluru, Karnataka

India, Bangladesh, Indonesia, Malaysia, Thailand, Philippines

Tata Chemicals International Pte. Ltd. (TCIPL) - Trading of Soda Ash, procurement of raw materials and holding investments of international subsidiaries

7. Mithapur-Gujarat
8. Cuddalore-Tamil Nadu
9. Nellore-Andhra Pradesh
10. Sriperumbudur-Tamil Nadu
11. Ankleshwar-Gujarat (Rallis)
12. Dahej-Gujarat (Rallis)
13. Lote-Maharashtra (Rallis)
14. Akola-Maharashtra (Rallis)

Mumbai

Legend

- Innovation Centre
- Head Office
- Manufacturing facilities
- Markets
- Operational subsidiary

5. Jorf Hasfar, Morocco (JV), North Africa
6. Magadi, Kenya

Sub-Saharan Africa

Tata Chemicals Magadi (TCML) – Africa's largest Soda Ash manufacturers and one of the leading exporters in Kenya

Tata Chemicals South Africa (TCSA) – A licensed bulk handling terminal, servicing a large part of customers' Soda Ash requirements and also a growing third-party cargo handling business

FY 2019-20 Operational and Strategic Highlights

Capacity expansion and debottlenecking programme in Mithapur with implementation phased to focus on rapid expansion of essential products and alignment with the new strategic imperatives brought on by the pandemic

Completed demerger of Consumer Products Business with smooth transitioning of employees to become a focussed science driven chemistry company

Acquired balance 25% stake in Tata Chemicals (Soda Ash) Partners Holdings from The Andover Group for US$ 195 million to increase ownership to 100%

Mithapur Saltworks

Operationalised and commenced trial production of the 5,000 MT greenfield biotechnology (Fructo-Oligosaccharides) manufacturing unit at Nellore, Andhra Pradesh. Products are under global approval process

Commenced commercial production of non rubber and rubber grade Silica at 900 TPM Silica plant in Cuddalore, Tamil Nadu

Commenced commercial production of the first phase expansion (500 MT) of Metribuzin plant. Second phase expansion (500 MT) underway

Secured land in Dholera, Gujarat with support of Gujarat government to set up a greenfield manufacturing facility for Energy Sciences vertical

Board of Directors

C

MR. BHASKAR BHAT

Non-Executive Director

A mechanical engineer from IIT Madras with a post-graduate diploma in management from IIM Ahmedabad, Mr. Bhat joined the Tata Watch Project (initiated at Tata Press) in 1983, which is now Titan Company Limited. He then took over as Managing Director of the Company on April 1, 2002 and held the position till his superannuation on September 30, 2019. Mr. Bhat has engineered the creation of many brands including pioneering the concept of franchising and retailing in Watches, Jewellery, Eyewear and Precision Engineering. He was awarded the Distinguished Alumnus Award of IIT Madras in 2008. He was inducted as a Director on the Board of Tata Sons in November 2017. He was appointed as Non-Executive Director of Tata Chemicals Limited in December 2016.

B E A C D

MS. VIBHA PAUL RISHI

Non-Executive Independent Director

Ms. Vibha Paul Rishi holds a BA Degree in Economics from Delhi University and an MBA with specialisation in marketing from the Faculty of Management Studies, New Delhi. She is an experienced business leader who has worked with Titan, PepsiCo, Max India and Future Group with stints in India, the UK and USA. Her last role was as the Executive Director, Brand and Human Capital of Max India. She has worked at senior positions in branding, strategy, innovation and human capital around the world. She serves on the Boards of several reputed companies and is also on the Board of Pratham, an NGO that works to provide education to underprivileged children in India and is the Non-Executive, Independent Director on the Board of Tata Chemicals since September 2014.

D A B E F

MR. S. PADMANABHAN

Non-Executive Director

Mr. Padmanabhan is a distinguished alumnus of IIM Bangalore, a Gold Medallist and alumnus from PSG College of Technology, Coimbatore and has also completed the Advanced Management Program at Harvard Business School. His career with the Tata Group companies spans over 35 years. During a 26-year stint with Tata Consultancy Services, Mr. Padmanabhan held several senior leadership roles. In the past, he has held the positions of Executive Director of Tata Power as well as the Group Chief Human Resources Officer at Tata Sons. He also serves on the Boards of several other Tata companies. Appointed as a Non-Executive Director of Tata Chemicals Limited in December 2016, he is currently the Executive Chairman, Tata Business Excellence Group (TBExG) and head of Ethics.

A C F

MS. PADMINI KHARE KAICKER

Non-Executive Independent Director

Ms. Padmini Khare Kaicker is a Chartered Accountant from the Institute of Chartered Accountants of India, a Certified Public Accountant (USA) and a Diploma holder in Business Finance from the Institute of Chartered Financial Analysts of India. She is the Managing Partner of B. K. Khare & Co., one of the leading Indian accounting firms. She has a wide and varied experience in the areas of audit, taxation, corporate finance, risk management, corporate governance, M&A and restructuring. She serves on the Board of several companies and has been a Non-Executive, Independent Director on the Board of Tata Chemicals Limited since April 2018.

C A

DR. C. V. NATRAJ

Non-Executive Independent Director

Dr. C. V. Natraj is a Ph.D. in Chemistry from the Indian Institute of Science, Bangalore. He also has postdoctoral research experience in biochemistry from the University of Michigan, Ann Arbor. Dr. Natraj has more than 30 years of experience in research. He headed the research function as Director on the Board of Hindustan Lever Limited and later went on to lead the Corporate Research function for Unilever as Senior Vice President. He is the Technical Advisor to the Society for Innovation and Development at the Indian Institute of Science. He was appointed on the Board of Tata Chemicals Limited as a Non-Executive, Independent Director in August 2019.

MR. RATAN N. TATA

Chairman Emeritus

Mr. Ratan Tata was the Chairman of Tata Sons from 1991 till his retirement on December 28, 2012. He was also Chairman of the major Tata companies, including Tata Motors, Tata Steel, Tata Consultancy Services, Tata Power, Tata Global Beverages (now renamed as Tata Consumer Products Limited), Tata Chemicals, Indian Hotels and Tata Teleservices. During his tenure, the Group's revenues grew manifold, totalling over US$ 100 billion in 2011-12. He is the Chairman of the Tata Trusts which are amongst India's oldest, non-sectarian philanthropic organisations that work in several areas of community development. He is the Chairman of the Council of Management of the Tata Institute of Fundamental Research and also serves on the Board of Trustees of Cornell University and the University of Southern California.

MR. K. B. S. ANAND

Non-Executive Independent Director

Mr. Anand, aged 64 years, is a Mechanical Engineer from the Indian Institute of Technology, Bombay having passed out in the year 1977 and then completed his Post Graduate Diploma in Business Management from the Indian Institute of Management, Kolkata in the year 1979 having specialisation in Marketing. Mr. Anand joined Asian Paints Limited in the year 1979 and worked in the Sales and Marketing function of the Architectural Coating and Chemical business, Industrial products manufacturing. He was made the head of the Decoratives Business in 2009 and Managing Director & CEO of Asian Paints Limited effective April 1, 2012. He superannuated as the Managing Director & CEO of Asian Paints Limited on March 31, 2020. He serves on the Board of Marico Limited and Borosil Glass Works Limited. He was appointed on the Board of Tata Chemicals Limited as a Non-Executive, Independent Director in October 2019.

MR. R. MUKUNDAN

Managing Director & CEO

An engineer from IIT Roorkee, he joined the Tata Administrative Service in 1990, after completion of MBA from FMS, Delhi University. He is also an alumnus of the Harvard Business School. He has extensive experience in the field of strategy, business development, manufacturing and general management. During his 30 year career with the Tata Group, he has held various responsibilities across the chemical, automotive and hospitality sectors of the group. He serves on executive committees of various industry forums.

MR. ZARIR LANGRANA

Executive Director

An economics graduate from the University of Madras with post-graduation in Business Management from XLRI, Jamshedpur, Mr. Langrana has also attended Advanced Executive Development programmes at Harvard Business School. During his association with Tata Chemicals of over 35 years joining through the Tata Administrative Service, he has led the Corporate Strategy and Business Development functions and headed the global marketing function for the chemicals business. Appointed an Executive Director in April 2018, Mr. Langrana currently heads the Global Chemicals Business and the new ventures in Specialty Chemicals. He also serves on the executive committees of various industry forums in the country.

Board Committees

A Audit Committee
B Stakeholders' Relationship Committee
C Nomination and Remuneration Committee
D Corporate Social Responsibility Committee
E Safety, Health, Environment and Sustainability Committee
F Risk Management Committee

Chairperson Member

Age 50-60 Age above 60

Management Team

Mr. R. Mukundan
Managing Director & CEO

Mr. Zarir Langrana
Executive Director

Mr. John Mulhall
Chief Financial Officer

Mr. R. Nanda
Chief Human Resources Officer

Mr. Rajiv Chandan
General Counsel & Company Secretary

Mr. Shohab Rais
Chief Operating Officer,
India Chemicals Business

Mr. Rino Raj
Chief Operating Officer,
Energy & Battery Business

Mr. K. R. Venkatadri
Chief Innovation & Digital Officer

Mr. M. S. S. Rao
Chief Safety & Engineering

Mr. Sanjiv Lal
Managing Director & CEO,
Rallis India Limited

Mr. Scott Ellis
Managing Director & CEO,
Tata Chemicals North America

Dr. Martin Ashcroft
Managing Director,
Tata Chemicals Europe

Mr. Harish Nair
Executive Director & COO,
Tata Chemicals Magadi

MD & CEO's Message

Dear Shareholders,

At the outset, I hope you and your family are safe. We are indeed living through very unusual times and your Company has faced the challenge of Covid-19 pandemic by immediately mobilising efforts to protect employees and our immediate communities. In line with the Tata philosophy of community being a key stakeholder in the business, we proactively pivoted our assets to serve our communities to face the pandemic. We stepped up our efforts to produce and supply disinfectants and masks, ensure food security and ramp up medical facilities in and around our plant at Mithapur, Gujarat. Our subsidiary Rallis temporarily transformed its chemical units to supply hand sanitisers across Maharashtra, Gujarat, Telangana and Karnataka.

Our approach to the pandemic was centred around four key actions of:

1. Safety of our employees, communities, partners and assets
2. Rapid pivot to digital to ensure business continuity
3. Conservation of cash through cost control, working capital and capex reduction
4. Ensuring continuous support to our customers and supply chain partners.

At this point of time, all our plants and R&D centres are operational. I take this opportunity to thank our teams for their resilience and agility. While this pandemic has impacted economic activity, we are confident of emerging stronger as we come out of this challenge.

Advancing Science, Creating Value

This year we made significant progress in our strategy by becoming a sharply focussed science and chemistry-led organisation, with the smooth transition of our consumer business as a merged entity with Tata Consumer Products Limited. I want to thank all our stakeholders for their support and guidance through this process to create value for all our shareholders.

Our strategy going forward will be to build scale and value in the businesses of:

1. Performance Materials (Soda Ash, Marine Chemicals, Silica and Nano Products)
2. Nutritional Sciences (Food and Pharma grade Salt and Bicarb, Ingredients and formulations, Prebiotics, Probiotics and Natural Extracts)
3. Agri-Sciences (Crop care, seeds – through our subsidiary Rallis)
4. Energy Sciences (Battery recycling, actives and battery storage)

During the year, we acquired the balance 25% stake in Tata Chemicals (Soda Ash) Partners in North America for US$ 195 million. It is now our fully owned subsidiary, resulting in a simpler organisation structure and greater degree of strategic freedom. Our Soda Ash units in India, UK and USA delivered to the plan. The Kenyan unit has since overcome operational issues. Our Silica unit at Tamil Nadu launched new Technical and Food grades for diverse applications. Our supplies of Salt kept pace with demand in India and the UK. We will continue to accelerate capex to support growth in these markets. Our expansion and investments in Food and Pharma grade bicarb is progressing on schedule in the UK and India. Our Prebiotics FOS manufacturing plant at Andhra Pradesh began its commercial production in the last quarter of the year. Rallis delivered a strong performance and our focus is on new product launches and scheduled capex completion. Rallis completed the merger of Metahelix, thereby having a complete portfolio of products including seeds, crop care, etc. in its portfolio. We moderated our investments in EV Battery in tune with the pace of transition to electric in the auto sector, even as we began operations of battery recycling unit.

On the financial front, consolidated revenue from operations was flat at ₹ 10,357 crore in FY 2019-20. EBITDA increased by 9% to ₹ 1,949 crore, while PAT was ₹ 1,028 crore. Our business continues to generate robust cash flows at ₹ 1,780 crore which supported the Capex to the tune of ₹ 1,199 crore during the year. The total cash and current investment was ₹ 3,681 crore as on March 31, 2020.

We will continue to drive value through innovation, digitalisation and sustainability across our five business units. We will continue to invest in our R&D labs in Pune and Bengaluru to bring new products and offerings to our customers. The current pandemic has brought the importance of digital thrust and sustainability focus. Our newest plant in Andhra Pradesh has been designed with digital thread as a central core along with sustainability embedded in its operations. We see this as our future design and operational principle.

Going forward, we expect immediate market conditions to be challenging and your Company is well positioned to emerge stronger by leveraging the rethink in supply chain strategies around the world. I take this opportunity to thank you all for your continued support and trust in us.

Best regards,

R. Mukundan
Managing Director & CEO

Our Business Model and Interlinkage of Capitals

Inputs

Financial Capital

- Prudent financial management and strong balance sheet position – Cash and current investment: ₹ 3,681 crore(↓); Networth: ₹ 13,661 crore(↓)
- Cash generating business model
- On a standalone basis, the Company is debt-free

Manufactured Capital

- Capex – ₹ 1,199 crore(↑)
- Manufacturing facilities with large capacities – Soda Ash: 3,670 KT(↑); Sodium Bicarbonate: 222 KT(↑); IVSD: 1,078 KT(↑); Cement: 362 KT(↓)
- Inbound and outbound logistics infrastructure and processes
- Integration with supply chain

Intellectual Capital

- Investment in R&D (TCL, India + Rallis) – ₹ 65 crore(↓)
- Technically skilled people in R&D – 228(↑)
- State-of-the-art innovation centres
- Partnerships with scientific institutes for collaborative R&D

Human Capital

- Skilled, passionate and experienced people – 4,678(↑)
- Training days per employee – 2.9 mandays/employee(↓)
- Safety training – 2.82 mandays/employee(↑)
- Sustained investment in learning and development, health and safety and engaging work culture

Social and Relationship Capital

- CSR spending (standalone) – ₹ 38 crore(↑)
- Strong and collaborative relationships with customers, suppliers and contractors supported by technology and strong processes
- Extensive distribution network

Natural Capital

- Natural resources used in manufacturing – Trona 51,67,160 MT(↑), Solar Salt 21,03,068 MT(↑), Brine 95,91,778 KL(↑), Limestone 20,86,088 MT(↑), Energy consumption from Coal & Natural Gas – 47,736 TJ
- Prudent and sustainable use of natural resources along with recycling

Note: (↑/↓ indicate change over previous year, (-) means no change)

How we create value across two science-led, integrated business verticals

Basic Chemistry Business

Specialty Products Business

We are advancing our 80+ years of science knowledge and innovation capabilities to develop pioneering solutions and drive business growth

Basic Chemistry Business

Established business with strong foundation, client (B2B) relationships and steady growth. We enjoy market leading position in multiple markets globally supported by our robust manufacturing capacity, R&D capabilities, manpower and channel relationships. We have embarked on capacity expansion programmes to cater the growing global demand

Refer to page 44-51 for more information on value creation process

Specialty Products Business (Nutritional Sciences, Agri Sciences, Material Sciences and Energy Sciences)

High-growth potential business area. We are an established player in agri sciences with strong domestic market reach (to 13 million farmers covering 80% of India's districts), extensive R&D-led product profile and growing international operations that we are supporting with capacity expansion. Nutritional, Material and Energy Sciences are newly seeded business in emerging areas where we intend to establish our niche with pioneering solutions

Refer to page 52-56 for more information on value creation process

Supported by

- Strong governance
- Prudent risk management
- Trade off in managing the six capitals
- Effective strategy deployment
- Stakeholder engagement

Outputs

Key Products

Soda Ash
3,670 KT

Sodium Bicarbonate
222 KT

IVSD
1,078 KT

Cement
362 KT

Other Products

Crop Care (Rallis)

Seeds (Rallis)

Highly Dispersible Silica

Fructo-oligosaccharide

Galacto-oligosaccharide

Nano Zinc Oxide

Addressing material matters

Environment sustainability

Zero harm (to people, asset, environment)

Outcomes

Financial Capital

- Revenue – ₹ 10,357 crore(↑)
- EBITDA – ₹ 1,949 crore(↑)
- EBITDA / turnover – 19%(↑)
- Dividend per share (proposed) – ₹ 11(↓)
- Cash generated from operations – ₹ 1,780 crore(↑)
- Gross debt : equity – 0.56(↑)
- Net debt / EBITDA – 2.06(↑)
- Consistent value creation for the investors and shareholders

Manufactured Capital

- Sales – Soda Ash: 3,407 KT(↓); Sodium Bicarbonate: 211 KT(↑); IVSD: 1,057 KT(↑); Cement: 350 KT(↓)
- Globally leading manufacturer of Soda Ash and Sodium Bicarbonate

Intellectual Capital

- Strong intellectual property – 152 patents held (cumulative)
- Robust new product launches

Refer to page 28 of the report to know more on our innovation

Human Capital

- Employee productivity (PBT per employee) – ₹ 0.3 crore(-)
- Total Recordable Incident Frequency Rate – 1.69(↑)
- Incidents of labour unrest – 0(-)

Refer to page 34 of the report to know more about our employee initiatives and page 31 for health and safety initiatives

Social and Relationship Capital

- CSR beneficiaries – 1.5 lakh
- High customer satisfaction index score
- Quick and effective complaint resolution
- Multiple new customers added

Natural Capital

- GHG emission – 4,447 KT(↑)
- Responsible Manufacturing Index (global) – 2.4(↑)
- Energy savings – 1,104 TJ(↑)
- Water recycled – 86%(↑)
- Solid waste utilisation – 37%(↑) (only India operations)
- % Limestone recycled (India operations) - 87%(↓)
- Biodiversity preservation

Refer to page 40 of the report to know more on our sustainability initiatives

Strategy for a Sustainable Future

Our strategy is developed based on the opportunities and risks in our operating environment. It helps us to remain focussed on growing our business and market position, while setting a clear path for long term sustainability and maximising stakeholder value.

Strategic Objective 1

Sustain market leadership and focus on being the most cost-efficient in the Basic Chemistry Business

Enabler

- World's 3rd and 6th largest Soda Ash and Sodium Bicarbonate manufacturer, respectively
- Global presence and access to world's largest natural reserves in the US
- Supplier of choice to global glass and detergent companies

Progress in FY 2019-20

- Ongoing capex for capacity expansion and debottlenecking at Mithapur with implementation phased to focus on rapid expansion of essential products
- Environmental Impact Assessment (EIA) approval for Soda Ash expansion at Mithapur
- Acquired remaining 25% stake in Tata Chemicals (Soda Ash) Partners Holdings from The Andover Group Inc for US$ 195 million, thereby increasing Tata Chemicals' ownership to 100%

Priorities going forward

- Debottlenecking / capacity expansions for Soda Ash, Bicarb, Salt, Cement, Caustic, Chlorine derivatives
- Growing value-added products under portfolio
- Exploring adjacencies and forward integrate across Soda Ash value chain

KPIs

₹1,949 Cr.
EBITDA

₹1,248 Cr.
PBT

₹1,028 Cr.
PAT (before NCI)

19%
EBITDA Margin

3,670 KT
Soda Ash production

222 KT
Bicarb production

362 KT
Cement production

1,078 KT
IVSD production

Strategic Objective 2

Aggressively grow the Specialty Products Business through a strong science differentiated, innovation pipeline

	Agri Sciences	Nutritional Sciences	Material Sciences	Energy Sciences
Enabler	• Wide reach covering 80% of India's districts and ~13 million farmer connects by Rallis • Diversified portfolio covering crop protection solutions, plant growth nutrients, seeds and agro services • Strong brand image among farmers	• India's 1st and only Nutritional Sciences business for FOS and GOS manufacturing • Solutions for microbiome modulation with global scale capacities for Short chain FOS & GOS	• 'Green' patented technology for manufacturing Highly Dispersible Silica (HDS) for tyres • Wide range of customised Conventional Silica products • Patented process for Nano Zinc oxide and strong R&D capabilities including nanotechnology	• Build on technologies in Lithium-ion battery/ cell manufacturing and Next Generation chemistries • Partnership with Tata Technologies to establish own Battery Engineering Centre in Pune
Progress in FY 2019-20	• ₹ 800 crore investment approved for growth in key molecules and enhancing of formulation plant capacity • Metahelix Life Sciences-Rallis merger to enhance shareholder value and leverage synergies of businesses	• Commissioned state-of-the-art Nutraceuticals plant at Nellore	• Commissioned 10 KTPA precipitated Silica manufacturing plant at Cuddalore post upgrading the plant infrastructure & systems • Accelerated R&D and commercial engagement with tyre companies • Capacity enhancement for manufacturing of Nano Zinc Oxide and increase in customer engagements	• Land acquisition and development at Dholera, Gujarat • Development of batteries at our engineering centre for 2W and 3W OEMs • Engagements with power and telecom companies for Energy Storage Solutions • Commenced pilot scale Lithium-ion battery recycling operations and commercial sale of recovered, metal salts

	Agri Sciences	Nutritional Sciences	Material Sciences	Energy Sciences
Priorities going forward	• New product development across segments like crop protection, nutrition and seeds • International Business Development through partnerships with customers • Succeed with New formulation technology, GMO & Non-GMO traits	• Investing in microbiome and fermentation-based ingredients, prebiotics, probiotics and enzymes • Shifting from traditional to synthetic biotech and promote co-development model with customers • High quality Natural Extracts for food and pharma industry	• Focussing on HDS for tyre and other high-growth applications and exploring adjacent innovative materials • Evaluating and executing phased capacity expansion of Silica • Scale Nano Zinc Oxide business into coatings and additive applications • Expansion of portfolio into other nanomaterials aimed at healthcare and advanced applications	• Building < 1 GWh cell line by 2021 with technology from a global leader • Completing 2-3 commercial scale energy storage projects • Scaling Lithium-ion battery recycling operations • Setting up pilot line to manufacture cathode active materials
KPIs	New Product Development-NSDI % revenue from new products	Revenue from FOS Number of new projects / Applications added Number of scientific publication	Net sales from new business New key customer accounts won Adherence to milestones in key customer engagement journey	Net sales from new business Start of Production for own cell line Order pipeline for OEM business

Strategic Objective 3

Focus on Sustainability, Innovation and Digitisation as key platforms for transformation

	Sustainability	Innovation	Digitisation
Enabler	• Strong foundation of SDG, product stewardship • Corporate sustainability policy • CDP, UNGC & IR framework for reporting performance • Science-Based Target Initiative (SBTi) commitment to reducing absolute carbon footprint • Active member of ICC, BCCI, CII, CIA, ESAPA, EU Salt Association	World-class R&D facilities: • Innovation Centre, Pune • Rallis Innovation Chemistry Hub (RICH), Bengaluru • Innovation Centre - Seeds Division *Refer to page 28-30 for more details on R&D facilities*	• Technical expertise in analytics and process automation • Culture for leveraging digital assets across the organisation

Progress in FY 2019-20	• Announced UK's first industrial scale carbon capture and utilisation plant with £16.7 million investment at TCE
	• Established Centre for Sustainable Agriculture and Farm Excellence (C-SAFE) and Centre for Sustainable Conservation Action for Protection of Ecosystems of the Seas (C-SCAPES)
	• Plastic waste used as alternate fuel source at Cement plant supporting the circular economy concept
		• Agri Sciences
		  ○ Portfolio expansion: Paddy crop protection products viz. Zygant (pesticide) and Ayaan (fungicide) were introduced; and Rapid regeneration technique for rice was implemented
		• Nutritional Sciences
		  ○ New product pilot completed and ventured into skin domain (built novel prototypes)
		  ○ Developed staple food fortification premixes
		• Material Sciences
		  ○ New grades of Silica for garment and oral care applications
		• Energy Sciences
		  ○ ISRO Lithium cell technology transfer completed
		  ○ NCA cell prototyping work completed at CSIR-CECRI
		• Analytics for R&D
		  ○ Developed analytics roadmap
		  ○ Bioinformatics to support field study and diagnostic projects at Rallis for seeds
			• Optimal Rake logistic planning and Salt Pan Automation at Mithapur
			• Prescriptive analytics for factory operations in Soda Ash manufacturing
			• Agri Sciences
			  ○ Implemented Dealer Management System and Sales Force Automation
			• Synergising IT operations across businesses - Financing and accounting support harmonised

	Sustainability	Innovation	Digitisation
Priorities going forward	• Continue on climate change mitigation • Innovative solutions to capture carbon from coal-based boilers • Promoting sustainability in the supply chain • Digital enablement to track KPIs • Implementing circular economy in business	• Leveraging academic ecosystem for technology acquisition and building infrastructure for Specialty Chemistry Business • Leveraging synergy benefits across all R&D centres • Building Centre of Excellence (CoE) to cater to computational and analytical requirements of all R&D centres	• Sharing global IT/digital teams and building common IT operation and delivery • Business Process Reengineering for process harmonisation • Implementing new tools, software and techniques • Leveraging digital expertise for business transformation
KPIs	**61.25** Sustainability Assessment Index (SAF) **87%** Limestone recycled (India operations) **86%** of water recycled **4,447 KT** GHG emission **1,104 TJ** Energy savings	Commercialisation of technologies developed Scientific support to new business **152** Cumulative Patents filed **₹65 Cr.** Investment in R&D (TCL, India + Rallis) Joint projects between R&D centres	Digital Maturity Model (DMM) Score Business benefits as a result of digital projects implementation Value delivered by synergy of IT operations

Material Issues Impacting our Strategy

As we define our goals and strategic priorities, we identify and analyse material matters that may impact our value creation and stakeholders over the short, medium and long-term. They provide better understanding of our business impact on stakeholders and vice versa.

Materiality study and process

We conduct extensive materiality study every four years by engaging with all our internal and external stakeholders. We regularly update the position of these material aspects in the materiality matrix, as we keep analysing their status with our management committee. We address highly critical aspects through a structured roadmap and increased engagement with respective stakeholders. In FY 2019-20, we adopted a new approach to finalise material matters for the study carried out in previous years that consists of the following:

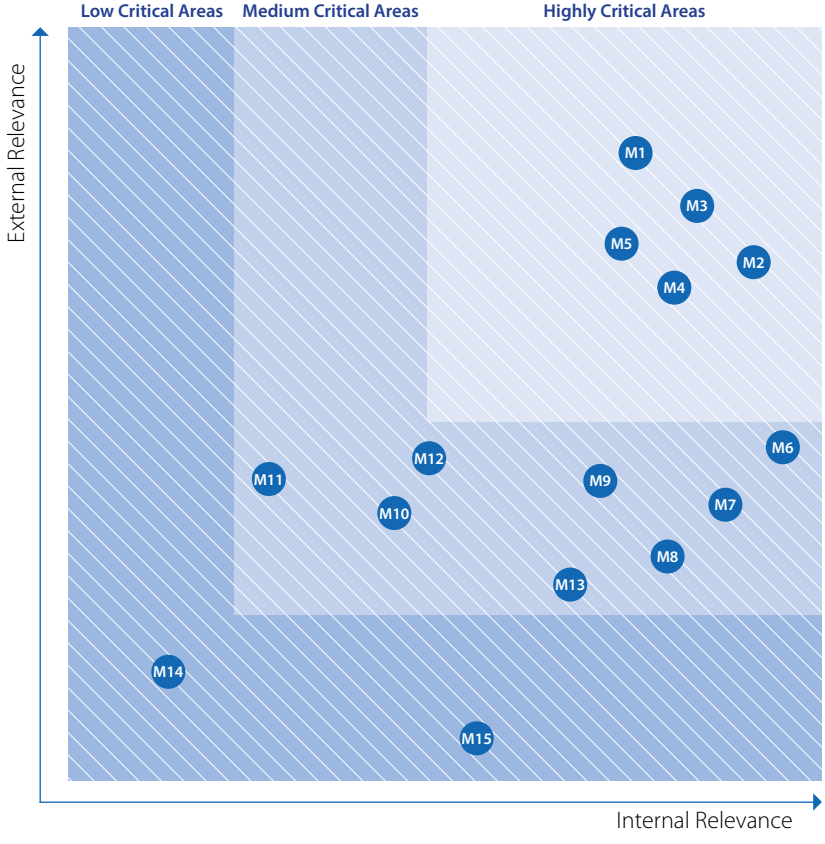
- Internal strategy workshops and calls with all locations to analyse the progress of each material topic
- Discussing and prioritising issues in monthly Management Review Committee
- Analysis of global trends and local environment, chemical sector and social challenges

Identifying material issues	Evaluating present status of material issues	Mapping ambitions against materiality issues	Identifying critical and key action areas based on gaps to be covered
Study of: • internal and external factors • SWOT analysis carried out by all group companies	• Engaging with internal cross-functional teams • Evaluating the long-term strategy plan and its progress	• Prioritising actionable themes for now and by 2030 • Revamping the strategy and aligning all the geographies	Prioritising the key areas into short, medium and long-term needs, as per internal and external relevance

Importance of material issues in business context and how we address them

Highly Critical Material Aspects

Material aspects	Its context for now and future	Impact on our value creation	How are we managing
M1 Energy	The chemical industry being energy-intensive, it is significantly impacted by volatility in energy prices and macro-economic uncertainty. There is also a growing demand for cleaner fuels.	Inefficient production processes can increase our costs and carbon footprint, diminishing our competitive advantages.	We are working towards transitioning to cleaner fuels. We continuously focus our efforts in energy audits and energy saving drives across geographies. *Refer to page 41 for more inputs on energy management*
M2 Health & Safety	Dealing with twin issues – handling of hazardous chemicals and employee occupational health & safety (OHS). Complacence in individual behaviour creates more vulnerability.	Any process safety gaps and OHS incidents may lead to loss of life, lost days and damage to assets, environment and business reputation. It may lead to discontinued business relationships, increase in insurance premium, etc.	We are committed to continual improvement in responsible manufacturing to achieve Zero Harm to people, assets and environment. We are promoting a safety culture through felt leadership and stakeholder engagement. *Refer to page 31-33 for more inputs on health & safety*
M3 Climate Change	Rising focus on climate change and Nationally Determined Targets and a shift from disaster recovery to climate resilience.	Climate change can impact the operations directly and indirectly. From operational efficiencies to logistics, the whole value chain can be impacted.	We have conducted several vulnerability studies, including the extreme 2-Degree Scenario analysis at our Mithapur plant, located near coast, to protect the operations and local communities. *Refer to page 36-39 for more inputs on sustainability*



Material topics

Highly Critical Areas

- M1 Energy
- M2 Health & Safety
- M3 Climate Change
- M4 Biodiversity
- M5 Water & Waste Management

Medium Critical Areas

- M6 Customer Engagement
- M7 Community Engagement
- M8 Product Stewardship
- M9 Performance Standards for Contractors / Suppliers
- M10 Spills
- M11 Diversity
- M12 Ethics and Governance
- M13 Employee Engagement

Low Critical Areas

- M14 Logistics
- M15 Employee Benefits

Material aspects	Its context for now and future	Impact on our value creation	How are we managing
M4 **Biodiversity**	Increased expectations from stakeholders and community. Biodiversity is also our focus to preserve the ecosystem.	Our extensive work in the vicinity of our operations has led to a positive impact on the local environment and our reputation.	Focus and alignment on: • Responsible mining/supply chain • Species conservation • Elimination of commodity-driven deforestation in supply chain • C-SCAPES Centre at Mithapur *Refer to page 38 for more inputs on our biodiversity initiatives*
M5 **Water & Waste Management**	Rising concern about plastic waste and unprecedented threats to land and marine ecosystems.	Water and waste management are two critical areas we are working on with our value chain partners, government, and the community.	Focussed assignments on: • Integrated watershed management and rainwater harvesting • Water recycling and reuse • Use of plastic waste as fuel in cement plant • Recyclable packaging material • Bulk transportation to reduce consumption of packaging materials *Refer to page 42 for more inputs on water and waste management initiatives*

Medium Critical Material Aspects

M6

Customer Engagement

Being an innovative science-led company, our business depends on understanding the needs of existing and potential customers. This assists in developing products that provide a value-added proposition. Higher engagements with customers happen through satisfaction surveys, contact programmes, e-customer care, ChemConnect call centre, senior leadership visits, annual distributors' conference, COO club, etc.

M7

Community Engagement

A focus on the community in our territories enables society and our business to grow. It enhances our reputation among global investors and helps us meet regulatory requirements. We undertake interventions in building economic capital, ensuring environmental integrity, providing enablers for development and cross cutting themes of diversity, empowerment and affirmative action.

M8

Product Stewardship

There is an increasing demand for sustainable products, from both regulators and customers to tackle climate change. We, together with our value chain ensure that our products are manufactured, stored, transported, used, disposed of and recycled with high regard for human health, safety and environmental stewardship. This makes our products competitive in a strictly regulated scenario.

M9

Performance Standards for Contractors / Suppliers

Our business performance and that of our contractors, suppliers, and partners are inter-dependent. We have set high onboarding standards and ensure they have appropriate skills to do business with us. We conduct Suppliers Audit programme for critical suppliers and sustainability assessments during pre-boarding of new ones. Further, we support them in building robust systems.

M10

Spills

Oil and chemical spills can cause serious damage to the environment and our business. We have set high standards for product handling, storage, transportation, and distribution, and also train and inform distribution value chain. Incidents related to product spills, transport accident, bad products and packaging quality are tracked and assessed for continuous improvement.

M11

Diversity

Diverse perspectives within organisations lead to faster problem-solving and higher innovation. Our commitment to sustaining a diverse workforce is helping us expand our global operations. We embrace programmes like Tata LEAD and Tata Affirmative Action and undertake employment, entrepreneurship and education initiatives.

M12

Ethics and Governance

We are renowned for our integrity and ethics. Our employees ensure integrity and ethics in all business conduct and dealings. We also encourage value chain partners to raise the bar on human rights, anti-bribery and anti-corruption measures. We are constantly striving to improve our governance framework and policies by benchmarking to best practices. Deployment of ethics policies is done through our Ethics Counsellor. Greater awareness of Tata Code of Conduct is created during Ethics Month.

M13

Employee Engagement

It is essential to nurture the passion and commitment of our workforce, as their interactions with stakeholders have a direct bearing on our business outcomes. We provide learning opportunities, cross-geography deputations, reward and recognition, and feedback platforms. Developing team management skills is another area of focus.

Engaging with our Stakeholders

Engaging effectively with stakeholders enables us to understand and respond to their interests and expectations. It is an important driver for building long-term relations which facilitates us in delivering on our strategy.

Importance of material issues in business context and how we address them

Highly Critical Material Aspects

Key stakeholders and their relevant matters	Relevant Material Issues	Various Platforms/Forums of Engagement
Shareholder and Investors Appreciation in share price and growth in dividends, business profitability and sustainability, high-level of corporate governance, environmental sustainability, financial stability and development prospects	M3 M12	Annual General Meeting (AGM), Integrated Report to shareholders, investor/analysts meets, quarterly results, media releases, company website, reports to stock exchanges
Customers Consistent quality, responsiveness to needs, aftersales service, sustainability, responsible guidelines, climate change disclosures, Sustainability Performance, Responsible Mining Code, product quality and high-value products, Health & Safety, Responsible marketing	M1 M2 M5 M6 M7	Distributor /retailer/ direct customer meets, senior leaders customer meets/visits, customer plant visits, COO club, achievers meet, KAM workshops, focus group discussion, membership in trade organisation /associations, complaints management, helpdesk, conferences, joint business development plans, information on packaging, customer surveys. CDP climate, water and supply chain reporting
Suppliers/Partners Quality issues, timely delivery, sustainability performance, safety checks, compliances, ethical behaviour, ISO and OHSAS Standards, on time payment	M2 M9 M12	Supplier prequalification/vetting, suppliers meets, supplier plant visits, partnership meetings, MoU agreements, trade association meets/seminars, professional networks, Bhagidhari Sabha, contract management/review, product workshops/on site presentations, framework agreements
Government Climate change roadmap, sustainability frameworks, policy advocacy, discussions on Plastic Waste Management Rule, framework beyond compliance and responsible care, timely contribution to exchequer, proactive engagement, contribution to local infrastructure, skill and capacity building, sustainable livelihood, clean and safe environment	M3 M5 M10 M11 M9 M12	Advocacy meetings with local/state/national government and ministries, seminars, media releases, conferences, membership in local enterprise partnership, membership in industry bodies such as ICC, BCCI, CII, etc.
Employees Responsible care, innovation, operational efficiencies, improvement areas, employee engagements, Long Term Strategy Plans, employee benefits, training, awareness, brand communication, Health & Safety	M2 M9 M12 M13 M15	Senior leaders' communication/talk, senior leadership forum, town hall briefing, goal setting and performance appraisal meetings/performance review, exit interviews, arbitration/ union meetings, wellness initiatives, focus on workplace safety, employee engagement survey, email, intranet, flat screens, websites, poster campaigns, house magazines, confluence, circulars, quarterly publication, intranet, theatre workshops (oorja), newsletters

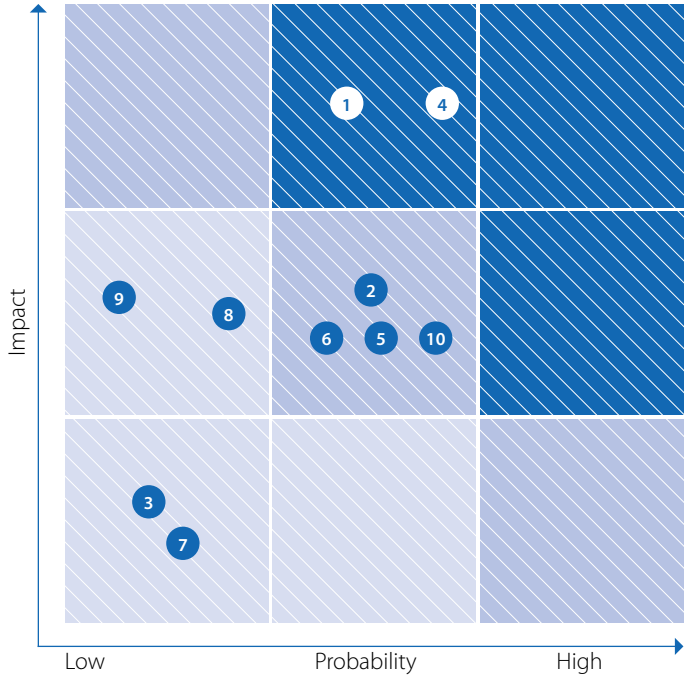
Risk Management

Risks are inherent to business. At Tata Chemicals, Enterprise Risk Management allow us to address business uncertainties as we strive for long term, sustainable growth. We are committed to effectively identifying and managing Enterprise Risks in our pursuit of our strategic business objectives aimed at enhancing stakeholder's value.

Sourav Ghosh
Controller - Risk

The risk-related information outlined in this section is not exhaustive and is for information purpose only. This section lists forward-looking statements that may involve risks and uncertainties. Our actual results including business' operational performance could differ materially on account of risks and uncertainties not currently envisaged or by risks that we currently believe are not material. Readers are also advised to exercise their own judgement in assessing the risks associated with the Company.

Risk mapping



Sr. No.	Key risk	Change in rating from FY 2018-19	
		Probability	Impact
1	Sustainability and Climate Change	No Change	No Change
2	Digitalisation	No Change	No Change
3	Succession planning	No Change	No Change
4	Failure/Delay in achieving business transformation objective	New risk	
5	Cyber Attack	No Change	No Change
6	Loss of market leadership and failure to scale up volumes	No Change	No Change
7	Financial risk	No Change	No Change
8	Regulatory changes	↓	↑
9	Government policy change	↓	No Change
10	Safety hazards	No Change	No Change

Approach to risk management

The Enterprise Risk Management framework provides mechanism for identification and prioritisation of risks including scanning the business environment and continuous monitoring of internal risk factors. Risk Management forms an integral part of the management's focus. On March 11, 2020, the world was disrupted when the World Health Organisation (WHO) declared Covid-19 as a 'pandemic'. Your Company is working on a resilient and adaptive Risk management strategy as events are unfolding and new information is emerging.

Relevant Risk registers have been suitably recalibrated to monitor mitigation plans related to disruption caused by Covid-19 related risks.

Information regarding Tata Chemicals' key risk and their mitigation strategies:

Strategic risk	
Sustainability risks Failure to respond to sustainability and climate change related risks **Linkage to Capital** Natural Social and Relationship Capital	**Mitigation** • We aim to be the benchmark standard • Dedicated investment to appropriately balance environmental targets and long term sustainable business growth • Regular monitoring of sustainability risks against business unit sustainability targets • Board Level quarterly review of Sustainability Roadmap and Environmental Compliance Status • The Company is a signatory to Responsible Care as well as CORE which guides the Company • Committed to EPR compliance through ~99% offset of plastic waste as per EPR action plan • Engaging with regulatory authorities, assisting the community on various Covid-19 related initiatives including funding support to government, manufacture and distribution of hand sanitizers, production and distribution of masks, earmarking isolation ward at Mithapur with around 100 beds
Digitalisation risks Failure to embrace digitalisation as a key lever of Business Growth **Linkage to Capital** Intellectual capital	**Mitigation** • There is clear focus and plan to incorporate digital technology as a core component of the Company's operations • A digital roadmap has been created with clear timelines, projects and business outcomes with the help of an external expert • Regular external assessments of our Data Maturity to identify improvement areas • Using technology to make processes simpler for customers, vendors and internal stakeholders • Digitisation initiatives are being undertaken by the Company to move from instincts to insights, focussing on improving efficiency with better analytics to make informed decisions • Projects are being implemented to create digital awareness across organisation, create digital culture across all levels • IT team reconfigured to focus on Core IT and Digital Projects with their active participation with business
Succession planning risks Failure to have a robust and flexible succession planning process **Linkage to Capital** Human capital	**Mitigation** • The Company has a succession planning process, which is reviewed and updated annually during the Global Leadership meet • A large part of the requirement of skills for new businesses have been drawn from existing businesses through SHINE+, ensuring capability building through role changes • The Company endeavours to provide many learning platforms and avenues to allow employees upgrade skill levels to meet future challenges • Succession planning builds a robust pipeline of people ready for the next level

Failure / Delay in achieving business transformation objective

Linkage to Capital
Manufactured capital

Mitigation

- Enter into new product lines which complement existing products and provides new markets
- Identify products having export potential to expand market reach
- Explore greenfield and inorganic routes to expand footprint

Operational risks

Loss of data & compromised operations resulting from cyber attacks

Linkage to Capital
Manufactured capital

Mitigation

- Regular security compliance checks, periodic third-party assessment, using robust threat monitoring systems, cyber insurance policy, regular patch management, cyber security awareness programme, Benchmarking to ISO 27001 (global standard for Information Security Management System) and upgrading the ISMS policies covering all entities within TCL
- Cyber security war room exercises for senior leadership team, cyber security training across plants and offices. Steps taken by the Management to address Cyber Security Risks is periodically reviewed by the risk management committee of the Board
- Additional monitoring measures including regular reviewing of logs, access of key applications and systems through encrypted VPNs to have enhanced cyber security during "work from home" for connected workforce and facilitating ease of conducting business in the current unprecedented scenario

Loss of market leadership and failure to scale up volumes

Linkage to Capital
Manufactured capital

Mitigation

- Continuing focus on cost leadership
- Scaling capacity both in India and Internationally through brown field expansion and debottlenecking
- Servicing Indian market through cost efficient supply chain
- Creating a portfolio of value-added products by focussing on converting customer needs into products through R&D and innovation

Financial risks

Disciplined capital allocation and cost effective financing structure inability to secure sufficient, cost effective funding

Linkage to Capital
Financial capital

Mitigation

- Continuous monitoring of cash flows with focus on the safety & liquidity of the investments
- Rigorous capital investment programme, focussing on adding economic value and improving ROCE
- Proactive use of the capital and debt markets
- Considering the current situation, conserving cash through host of new initiatives including further focus and balanced efforts towards containment of fixed cost across plant and non-plant activities, working capital management

Regulatory and Compliance risks

Frequent amendments to the statutory rules and regulations which could impact the Company's operation

Linkage to Capital
Social and relationship capital

Mitigation

- Monitoring of compliances through an e-enabled compliance management framework used in with periodic reporting and reviews at leadership forums
- Centralised capture of compliance requirements

Government policy change which could impact the Company's operation

Linkage to Capital
Social and relationship capital

Mitigation

- Ongoing dialogue, liaison meetings and conversations with regulatory authorities and Indian public affairs, attendance at seminars, memberships with Government and Industry Bodies
- In relation to current Covid-19 situation, active monitoring and adhering to various regulatory authorities guidelines is ensured

Reputational risks

Failure to ensure containment of safety hazards

Employee Safety (Behaviour issues), Workplace Safety (Fire Safety, Asset Integrity), Process Safety & Product Safety hazard chemicals –Transportation

Linkage to Capital
Human capital

Mitigation

- Safety risk mitigation plans are regularly reviewed by the Risk Management Committee
- Achieve Zero Harm by following world class standards of SHE Management systems, responsible care initiatives, good maintenance practices, enhancement strategies for the environment and prevention of pollution
- Various safety improvement initiatives are implemented and its effectiveness is evaluated
- Hazards identified using techniques such as Stop & Think Assessment (STOP), Job Safety Analysis (JSA), Hazard and Operability Study (HAZOP), Hazard Identification and Risk Analysis (HIRA), What-if-Analysis, Failure Mode Effect Analysis, etc. and addressed by following hierarchy of risk control E-enabled portal 'WSO' is implemented across the operations to capture near-misses and unsafe conditions
- GPS system installed in bromine tanker and migrated to ISO tankers for transporting Bromine; leading to product safety in transportation of hazardous chemicals
- Support to customers by conducting safety audits in their premises (chlorine handling)
- Provision of safety kits and awareness sessions for farmers through the "You are Safe" initiative focussed on the safe use of the products
- In relation to Covid-19 situation, various actions including the following are undertaken to ensure safe operations :
  - Relevant SOPs with do's and don'ts ensuring safety of employees and continuity of operations have been prepared, dedicated 24/7 helpline numbers to address medical related queries
  - Plants working with minimal workforce
  - Close monitoring on Government regulations and ensuring its adherence
  - All non-sites offices are closed Employees are working from home

Advancing Digitalisation and Innovation for a Better Tomorrow

We are pioneering cutting-edge technologies and nurturing innovation to retain our competitive edge. Better technology is helping us transform business and processes to improve efficiencies and customer experience. Innovation is accelerating product stewardship and in seeding niche product areas.

152
Cumulative Patents filed

59
Plant Variety Protection (PVP) in the process of registration under PPV & FRA

4
Publications in peer reviewed journals

SDGs impacted

Agri-Biotech R&D Facility (Seeds), Bengaluru, Karnataka

Insights into our R&D centres and key developments

	Innovation Centre – Bengaluru RICH (Crop care)	Innovation Centre – Bengaluru – Seeds	Innovation Centre – Pune
Key initiatives / development FY 2019-20	• Innovation Turnover Index (ITI) increased to over 16% in FY 2019-20 as compared to 10% in the previous year • Three new formulations launched – Zygant and Ayaan in Paddy and Sarthak in Potato and Chilli	• Innovation has led to reduced use of fossil fuel • The seeds ITI showed a score of 12.6% during the year under review	• Partnered with tyre companies for Silica application development • Commercialised new grades of Silica for garment and oral care applications • Internalised Lithium cell technology transferred from ISRO • Scientific support to new business • Staple food fortification Premixes • Ventured into skin domain (built new science)
Way forward	• Evaluate technologies to improve competitiveness and differentiation • Enhance technology to improve success rate	• Attain leadership position in select crops and build opportunities in cotton • Advance technologies in the genetically modified space and build gene editing capabilities	• Leverage Indian academic ecosystem for technology acquisition and development • Commercialise in-house developed technologies • New products and applications in material science, nutrition and energy

Innovation

Innovation priorities

- Progress on the R&D long term plan
- Drive synergies between all the R&D centres
- Balance innovation focus with 70% business-led and 30% science-led projects
- Build CoE to cater the computational and analytical requirements of R&D centres and enhance their efficiency
- Acquire and develop technology from Indian academic ecosystem

Goals

- Innovation leading to business growth through new products and new applications
- Creating R&D infrastructure for new areas of business focus
- Deployment of In-house developed technologies and products
- Advancing technology in seed space

Healthier and beautiful smile

We successfully developed TAVERSIL A50, a specialty grade precipitated Silica that is used as an abrasive agent in toothpaste for better cleaning and polishing performance with tailor-made abrasive properties. It also assists effective removal of pellicle film from teeth surface.

Making India healthier with fortified food

Malnutrition or lack of micronutrients is a key challenge in India. To address this issue, the FSSAI (through FFRC) has recommended fortification of common staple food items. While TCL has been at the forefront of this with its pioneering iodised salt, it has stepped up by developing food fortification premixes for all recommended categories. We have already launched micronutrient premixes for fortification of milk, oil, flour and rice.

How we are enhancing the performance of innovation function

- Leveraging digital and analytics
- Synergising competencies of the three R&D centres to work on cross-cutting opportunities
- Hosting iNNCOTECH symposium to drive new ideas and promote thought leadership
- Open Innovation with partnership by partnering global Research labs
- S&G for prioritising and tracking progress of projects
- Enhancing competencies of the scientists
- Meeting customers to enhance end-customer need understanding
- Strengthen IP strategy

We are focussed on developing sustainable and new technology solutions in line with the business strategy to benefit society and improve the Company's competitive edge. This is being done through internal and external collaboration, focussing on creating platform technology competencies and improving innovation index for the Company.

K. R. Venkatadri
Chief Innovation & Digital Officer

Digitalisation

Digitalisation priorities

- Realigning and renewing IT systems to meet the evolving business needs
- System simplification and creating synergistic platforms
- Strengthening Cyber Security
- Strengthening capabilities in data analytics
- Theme-based initiatives at Mithapur to facilitate effective utilisation of inventory and streamlining logistics
- Setting up Smart Labs with automation
- Digitisation of the finance function

Goals

- Strengthening Core IT for availability, reliability, security and optimising cost
- Set-up of common team to service SAP support and IT Security across entities
- Digitise all the functions

Key digital initiatives in FY 2019-20

- Rolled out supplier collaboration and sourcing platform across group
- Prepared IT Roadmap & Enterprise architecture to leverage industry standard digital technologies
- Initiated work on Laboratory Information Management system (for R&D labs), Transportation / Dealer (at Rallis) / Human Resource Management System modules
- Strengthening internal capability in digital and data analytics

Our bimodal IT strategy

a) **Core IT:** To deliver predictable and consistent performance of IT systems

b) **Business Enablement:** Exploring and implementing multiple solutions to business problems leveraging digital solution

SDGs impacted

Next level digitalisation

We have successfully piloted Industrial Internet of Things (IIoT) technology for a few processes at Mithapur plant and are replicating it across other equipment and processes. The new Nutrition business Mambattu plant was designed with state-of-the-art digital systems that meet global quality standards. To evolve to an insightful organisation and unlock the power of data, a data maturity assessment was done; implementation of recommendations is underway

Cyber Security

Cyber Security is a critical aspect. We are continually strengthening it through training, data loss prevention and war room exercises, etc.

Build Resilient Approach in Response to Covid-19 Epidemic [BRACE]

IT function is fully geared up for tackling the challenge of Covid-19. Employees are enabled to work from home securely. All the critical transactions including financial closures are completed without any challenge. IT roadmap has been revisited and projects are prioritised based on challenges and opportunities considering Covid-19 impact

We are driving transformational change with IT to have smart factories, smart labs, smart offices along with a KPI-driven digital and insights mindset. This will create a digital and analytics led enterprise and will help us drive the productivity of various business functions. It will further aid in reimagining the business model for organisational transformation.

K R Venkatadri
Chief Innovation and Digital Officer

Enhancing Health and Safety Practices

Safety is an essential part of Tata Chemicals' value system. Our 'Zero Harm' approach – Zero Harm to People, Asset and Environment – guides the safety roadmap for the operations and assists us in achieving our business targets.

We are guided and governed by the Tata Code of Conduct:

We shall not compromise safety in the pursuit of commercial advantage. We shall strive to provide a safe, healthy and clean working environment for our employees and all those who work with us.

Safety Priorities and Goals

- Enhance Safety Culture by reinforcing Safety Leadership for achieving Target Zero Harm – Zero Harm to People, Asset and Environment
- Improved Asset Integrity Programme for the safety of physical assets
- Strengthen the Safety Risk Assessment, Audit and Process Safety Management
- Focus on improving employee engagement through Line Function Accountability
- Standardisation of safety reporting through e-enabled data management system

Our Approach to Safety Target Zero Harm

Zero Harm to People

Reduces serious injuries and eliminates disabilities and deaths

- Take responsibility and care of teammates by building safety culture
- Drive health & safety improvements across business

Zero Harm to Assets

Ensures assets reliability and longevity

- Adhere to Long-term Asset Management Plan (LAMP), safety standard operating procedures and maintenance practices
- Routine inspection, condition monitoring and change management

Zero Harm to Environment

Advocates environment-friendly business practices

- Eliminate activities having adverse impact
- Monitor, benchmark and work with third parties
- Adopt workflows and technologies that improve environmental performance

Key initiatives for operational health and safety (OHS) in FY 2019-20

Initiatives	Impact
Felt leadership programme to strengthen safety culture Programme focussed on risk thinking, safety cuture and root cause analysis	• 25 Senior Leaders trained • 62% compliance to strategic commitment plan under the leadership influence
Focus on employee engagement • Several initiatives covering safety, behaviour, hazard identification etc. undertaken • Cross Functional Teams (CFTs) are formed to deploy safety initiatives like Process Safety and Risk Management etc. Joint management-workmen committees at sites to focus on OHS areas with active participation of Senior Management	• 1.0 Nearmiss reported per employee per month • 90% closure of nearmiss • 124 people trained in Process Safety
Operational Safety – Asset Integrity, Risk Assessment, Audit and Inspection • Long-term Asset Management Plan and structural safety programmes are in place • Draft 'Guidelines for Safety Risk Assessment over Organisation Life Cycle' released • Cross site safety audit for Indian subsidiaries completed • Internal / external audits, inspections, surprise checks and engagement with experts to identify lapses and improvement areas	Responsible Care® Retained for India operations • One new site certified for ISO 45001:2018 and one for ISO 14001:2015 • 82% - closure of audit action points
Digitisation and Data Analytics • Global e-enabled portal, 'WSO' for safety data management. Exploring data analysis and development of predictive models to identify vulnerable areas, early warning signs to reduce safety incidents • Explored IoT solutions for lone working areas	• 100% - implementation of WSO at TCL and its subsidiaries • Successful completion of pilot for safety wearables in lone working areas

Way forward

- Sustaining the ongoing safety improvement programmes
- Standardisation and certification of Health & Safety Systems
- Strengthening of training and certification modules for key trades associated with high risk activities
- Enhanced focus on Lead Indicators through progressive Safety Index for measurable systematic improvements in Health & Safety

Safety Governance and Working Structure

Board Level

(Board of Directors; Safety, Health, Environment and Sustainability Committee; Risk Management Committee; Audit Committee)

Providing direction and guidance to the Management to ensure due addressal of safety implications & risks in all ongoing and new strategic initiatives, budgets, positive assurance, audit actions and improvement plans

Management Level

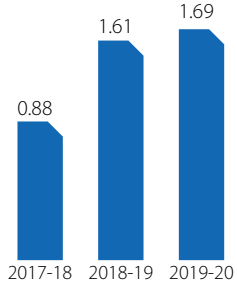
(Management Review Council; Global Chemical Council; Risk Management Group; Strategic Business Unit Council; Site Apex Committee; Steering Committee)

Reviewing safety performance, risks and their mitigation plans implementation, audit closure and improvement plans and key safety priorities

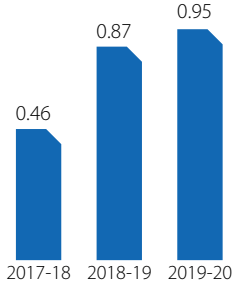
Working Committees & Line Functions

(Joint Safety Committees; Departmental Safety Committees
Office Safety Committees and all Line function including individual company and contract employees)

Implementation of safety as per Management & Board requirement, adhere and ensure that the mandated safety requirements are followed



Total Recordable Injury Frequency Rate*
(No. of TRI / million man-hours worked)



Loss Time Injury Frequency Rate*
(1-day away from work)

*Includes all subsidiaries

UN SDGs

We witnessed one unfortunate fatal incident in FY 2019-20. A detailed investigation was carried out and critical gaps were identified to prevent such incidents in future.

People are Critical in a Science-led Future

The experience and expertise of our multi-generation, multi-nationality and gender diverse teams is the key to achieving high performance benchmarks and delivering unique science-led solutions. We are restructuring our organisation, re-engineering our people processes and investing in people capabilities to create more value for them, the organisation and our stakeholders.

SDGs impacted

HR priorities

- Organisational restructuring for transformation
- Talent on-boarding and capability enhancement
- Nurturing engagement among the multi-generational workforce
- Enhancing HR operational effectiveness

Key initiatives undertaken in FY 2019-20 and outlook for future

Organisation restructuring for transformation

With our structural re-alignment into Basic Chemistry Products (BCPB) and Specialty Chemicals Products (SCPB) businesses, we are undertaking business-specific changes in our people management approach in order to make ourselves leaner, agile and flatter. For our SCPB, self-managed teams have been institutionalised to foster collaboration, speed and customer-centricity in the workforce. We have also restructured our Innovation Centres (IC) and are focussed on driving greater synergy among Metahelix and Rallis' operating teams post their merger.

Talent onboarding and capability enhancement

We continue to strengthen our core competencies of customer-centricity and operational excellence through training and implementation of 5S and Business Excellence tools. To provide access to contemporary concepts, we offer platforms like edX and certification courses from the best global universities. On the leadership development front, we invested in executive coaching, leadership journeys for high potential women, immersive programmes on Felt Leadership and manager development. We continued with the 'iNNCOTECH' platform to facilitate outside-in perspective and bridge Innovation and Technology through Collaboration. We are using 'Tech Talk' platform to share information on latest developments in our Innovation Centres.

As we envisage scaling new businesses, investing more in digital initiatives and building niche/specialist skills, we focus on hiring skilled talent and enhancing the capabilities of our people. Our intent going forward is to further R&D capabilities and collaborate with academia and premium research institutions to drive focussed innovation and create science-led solutions.

Nurturing engagement

We launched an online Reward & Recognition platform 'Kudos', HR Helpdesk for timely resolution of employee queries and a biometric-based self-managed attendance system, 'SMART'. We provide employees a platform to opt for career changes through our 'SHINE+' programme while also emphasising on various elements of diversity to create a more inclusive organisation.

Several changes in HR policies and process are updated and relooked to modernise them based on recommendations received by cross functional teams under the 'Refresh 2020' initiative.

Enhancing HR operational effectiveness

Our migration to an integrated HRMS solution in FY 2020-21, will enhance employee experience and improve the operational efficiencies of the HR function, while driving both workforce and workplace transformation.

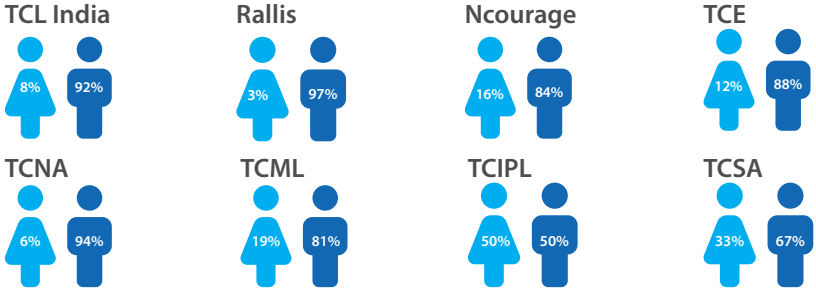
Improving outcomes of new hires

Our campus to corporate induction programme for Graduate Engineer Trainees was enhanced and re-branded as 'Aarambh'. Using a mobile based platform, we are engaging with the new batch of GET's even before they come on board, giving them an overview of the organisation and our values through carefully crafted learning content. Their year-long learning journey covers experiential learning, CSR and technical projects and access to a programme on foundational leadership competencies – 'ValYOU Starter' enabling them to lay a strong foundation to their budding careers.

Diversity and inclusion at Tata Chemicals

As on March 31, 2020 (on-roll employees)	White Collared	Blue Collared	Total
TCL India	1,176	644	1,820
Rallis	1,547	63	1,610
Ncourage	19	0	19
TCE	86	321	407
TCNA	183	390	573
TCML	221	0	221
TCIPL	4	0	4
TCSA	24	0	24
Total	3,260	1,418	4,678

Gender ratio



Our key performance indicators

	UOM	FY19	FY20
Gender Diversity	%	7	7
Employee Engagement	%	73	NA*
Functional Training Coverage (unique employees)	%	72	72
Training days per employee	Mandays/employee	3.4	2.9
Employees in R&D (Intellectual Capital)	Nos.	224	228
Voluntary attrition#	%	10	10
Employee productivity (PBT per employee)	Crore /employee	0.3	0.3
Incidents of labour unrest	Nos.	0	0

*Employee engagement survey is conducted every two years by an external partner.

#Voluntary attrition for India pertains to white collared employees.

As we continue our transformation journey towards becoming a leading sustainable science-led solutions company, our key theme for human resources this year is to create an organisational climate that nurtures diversity, operational excellence, innovation and greater cooperation and synergies among teams within and across businesses and functions. We will continue to invest in our workforce to enhance their skills and competencies required for the organisation of the future.

R. Nanda
Chief Human Resources Officer

Driving Prosperity of the Communities

Our CSR programme are closely aligned to the United Nations Sustainable Development Goals. It encompasses our enduring commitment to stimulate economic activity and enrich the quality of life, while sharing its lasting benefit in the regions we operate in and strengthening relationships with the communities.

CSR priorities

- Enriching the quality of life by creating sustainable livelihoods
- Maintaining and conserving environment and bio-diversity
- Enabling the aspects of health, sanitation, nutrition, education
- Building Social Capital for long term sustainability

Development that enables Sustainability and Community Empowerment

Building economic capital

Farm based livelihoods

In FY 2019-20, we engaged with more than 9,800 farmers on capacity building, exposure visits, field demonstration and livestock management system training programmes. Seeds and agri-equipment support was provided for enhancing the productivity. We facilitated registration of Okhamandal Farmer Producer Company Ltd. which would benefit approximately 1,200 farmers.

Non-farm-based livelihoods

We are running skill development programmes in different locations to train unemployed youths and facilitate their employment or entrepreneurship development. Vocational skill training includes fashion technology, welder, fitter, domestic electrician, beauty and wellness, etc. We set-up a technical skill training institute at Mithapur affiliated with NSDC which also supports Tata Strive Centre at Aligarh and the ITI at Dwarka.

With the objective of creating sustainable livelihood opportunities for rural women artisans, Okhai is bringing them to the customer. 2,366 artisans across India have benefited with a market linkage to 40,000 online customers. Okhai is now a recognised and sustainable online fashion brand with over 1,92,000 online followers. Its first flagship store in Mumbai will be launched shortly.

We organised entrepreneurship development training for women members of self-help groups. At Mithapur, six clusters / group enterprises were formed engaged in Bandhani, Rexene & Leather, Bead work, Jute, Block print and Coconut Fibre products. They are linked to Okhai for market development and also have two retail outlets. In Kenya, TCML engaged 60 women in bead work to help them earn a sustainable livelihood. Lake Magadi Eco-tourism project is helping to finance local community projects.

Our CSR impact - FY 2019-20

Parameter	Impact
Building economic capital	
Farm-based livelihoods:	
Number of farmers benefited	9,840
Number of cattle covered	56,250
Non-farm-based livelihoods:	
Number of youths covered under skill development programme	1,576
Number of artisans impacted under traditional handicraft promotion initiative	2,566
Sales of traditional handicraft (₹ lakh)	651.14
Ensuring environmental integrity	
Number of people sensitised	7,568
Number of mangroves planted	1,03,700
Whale sharks rescued	44 this year, total 787
Litres of Water harvested (MCft)	31
Enablers for social, economic and environmental development	
Good Health & Well-being:	21,718
Number of people covered under general healthcare	3,194
Nutrition – No. of women covered	8,549
Nutrition – No. of children covered	9,975
Education:	
Number of students supported (LAMP)	6,952
Number of students supported	13,918
Clean Water and Sanitation:	
Number of families supported for drinking water and toilets (Mithapur)	1,060
Number of people supported for drinking water (Ncourage)	48,000

Self-sustaining entities driving our CSR activities

- **Social enterprises:** Okhai Centre for Empowerment (Okhai), Tata Chemicals Society for Rural Development (TCSRD) and Ncourage Social Enterprise Foundation (NSEF)
- **Centres of Excellence:** Centre for Sustainable Agriculture & Farm Excellence (C-SAFE) and Centre for Sustainable Conservation Action for Protection of Ecosystems of the Seas (C-SCAPES)

Ensuring environmental integrity

In Mithapur, we run biodiversity conservation programmes like recovery of coral reef, conservation of whale shark, mangrove plantation, rejuvenating indigenous flora and fauna and environmental education initiatives.

Our Whale Shark project focusses on its habitat study and research on migratory pattern and breeding biology. We are working with the Eco Clubs in local schools to raise awareness on environment conservation.

TCL participated in UN Convention on Migratory Species – COP13 held in Gandhinagar. In the Green Program, we planted 1.03 lakh mangroves in Dwarka, Gujarat and Sundarbans, West Bengal. We have established C-SCAPES in Mithapur as a dedicated knowledge, research and field implementation institution.

Land development, water management and conservation programmes like recharging by well recharge structures, water harvesting by check dam and community pond structures, etc. were carried out at Gujarat. A dry waste processing plant was installed at Mithapur, launched under the Swachh Bharat Abhiyan.

Enablers for social, economic and environmental development

Good health and well-being

During the year, 3,194 people benefited through health and nutrition camps. In Sriperumbudur and Mambattu, a herbal-based kitchen garden was promoted as preventive health measure. In Kenya, TCML supported Magadi Hospital provided health care services to 30,000 community people. TCML also supported with 15 tonnes of unimix for 3,000 nursery school children in Magadi. In UK, TCE organised fund-raising volunteering activities for charity-funded St Luke's Hospice. TCL implemented 'Holistic Nutrition' project in Amravati and Barwani targeted at the child's first 1,000 days.

Education

TCL undertook need-based educational programmes across locations focussed on ensuring zero drop-out and improving educational quality in schools, starting from pre-primary. Initiatives like eLibrary, Learning Enhancement Program, teacher training, scholarships, Child Learning and Improvement Program, Shreemati Nathibai Damodar Thackersey Women's University and Career Resource Centre benefited ~13,900 children. The Learning & Migration Program, focussed on strengthening the community school management system and improving the learning capabilities of students, benefited ~6,900 children.

In Kenya, TCML provided infrastructure support to schools and scholarships to more than 100 students at various levels. In UK, TCE provided career information with emphasis on STEM to 300 students in all-girls Loreto Grammar School in Altrincham, Cheshire. TCE has collaborated on a joint CSR project with Passion for Learning, who mentor 400 children across schools in the North West of the UK (TCE's locality). Our team of volunteers go into local primary schools on a weekly basis, to mentor groups of underprivileged Year 5 and Year 6 children, and help open their minds to the possibility of a career in the manufacturing and chemical industry.

Safe water and sanitisation

We facilitated clean water supply through our Samridhhi and Swachh Tarang projects under which roof rainwater harvesting structures were developed, hand pumps were repaired, and households were supported with water purifier systems. During the year, 830 households were provided tap connection. Behaviour change programme – Swachh Bharat Mission Cleanliness Drives and construction of toilets and sanitation units improved sanitation in the rural areas.

In Kenya, TCML supplied 60,000 litres of treated drinking water per day to 18 public primary schools, 40 ECDE (early childhood development education), 7 dispensaries and 17 community waterpoints using its water boozer. TCL supplied 150,000 litres of treated drinking water per week to remote regions between Magadi and Singiraine.

Building social capital

We work towards inclusion and empowerment of women, scheduled caste, scheduled tribe and other vulnerable sections of society. TCNA undertook programmes to support single mothers, senior citizens, children in need and veterans. TCL has set-up two social enterprises, Okhai which facilitates sustainable livelihood for artisans and Ncourage which promotes affordable, clean and safe drinking water through Tata Swach range of water purification systems as well as animal health and nutrition. This year, the Magadi Soda Foundation carried out needs assessment and launched a participatory strategy development process to inform community development priorities.

Other initiatives

During the year, TCL provided relief support to disaster affected people in Maharashtra. We provided ample opportunities to employees and family members to volunteer on different social and environment issues.

Supporting the nation to combat Covid-19 pandemic

We have adopted a two-pronged approach to tackle Covid-19 – one, supporting the government and two, supporting the local communities. We manufactured and supplied more than 1.17 million Litres of disinfectant to the Government of Gujarat and 600,000 Litres to BMC, Mumbai alongside augmenting Mithapur Hospital by setting up temporary additional facilities. Self Help Groups and artisans associated with our Okhai initiative were engaged to produce over 2 lakh masks in Mithapur and Cuddalore for distribution to police and local communities, providing livelihood to 275 women. We have supported over 47,000 people from vulnerable communities across our plants with dry ration kits. We also engaged with the local communities for increasing awareness about the pandemic and safety measures, using posters and videos.

Fulfilling aspirations

Nutan, a bright student, completed her 12th grade and wanted to pursue medical studies. Her father motivated her to pursue this dream but was unable to fund her education. We supported her with scholarship for pursuing MBBS from medical college in Baroda which she has successfully completed. She is now a practicing doctor and is preparing for MD examination. Nutan's journey has inspired many girls from her village to follow their dreams.

At Tata Chemicals, social development is an important goal, we touch the lives of millions globally and strive to be a neighbour of choice. We focus on sustainable community development to address the UN SDGs and development challenges through programmes that are replicable and scalable, while empowering communities.

Alka Talwar
Chief CSR and Sustainability Officer

Stepping up Sustainability Commitment

We are taking bold steps, evaluating all our operations and investments, and embedding sustainability in our strategic priorities to protect the environment and the communities. Our sustainability goals are closely aligned with the UN SDGs and reflect our commitment to be a transparent and responsible organisation.

Sustainability priorities

- **Carbon emissions:** Capturing carbon in usable form
- **Circular economy:** Reducing waste and converting it to wealth
- **Biodiversity:** Being resource efficient, conserving habitats and focussing on tree plantation

Sustainability goals and how we are achieving them

	Goals and targets	How are we achieving
Economic	 • Maintaining business leadership position and focussing on cost efficiency • Focussing on high-return business and enhancing shareholders' value • Product stewardship	• Capacity expansion plan of major products with a focus on carbon reduction • Focus on developing value-added products (i.e. Bicarb, Highly Dispersible Silica) • Digital ecosystem to enhance operational efficiency and productivity • Reducing environmental impact by developing more water-based formulations than solvent-based products
Environmental	 • Commitment to Science Based Target initiative • Reducing environmental impact of our manufacturing operations through waste management and renewable energy initiatives • Focussing on reducing carbon emissiions, becoming water neutral and achieving 100% packaging material recycling	• Conducting climate change risk assessment and waste mapping study • Promoting smart agriculture • Revamping energy and emissions roadmap at plant level • Lowering product lifecycle impact • Energy audits • Transitioning to clean fuels and technology • Initiating carbon capture and conversion to usable form project at TCE. Conducting feasibility study for more such initiatives • Implementing continuous air emissions monitoring systems • Biodiversity conservation projects • Responsible sourcing • Innovating to manage waste, especially plastic
Social	 • 3 million tree plantations by 2030 • Promoting species conservation • Strengthening biodiversity around our operations for both natural and human communities	• Plantation on 500 acres of land (biodiversity reserve, mangroves, mines area, salt works, and wastelands, new sites, etc.) • Establishment of 'Prakriti' Mitra-Sakhi Mandals • Restoration and conservation of coral reefs: coverage of new reef in 2,000 m^2 area

Sustainability framework

Our sustainability strategy and policies support best practices and drives encouraging change across the business. They are underlined by our corporate strategy which aims to integrate sustainability across business, having in place robust systems and processes and focussing on operational efficiencies and carbon abatement plans. The Safety, Health, Environment and Sustainability and Risk Management Committees have oversight and ultimate responsibility for sustainability matters. They are regularly updated on performance across all internally defined sustainability-related material risk matters. We have facilitated e-enablement for tracking sustainability KPIs, the performance of which are used to review strategy on an annual basis.

Key sustainability initiatives undertaken in FY 2019-20

Energy conservation

Mithapur

- Replaced traditional lights with LED lights and undertook VFD conversion for HRT, HCT and slurry feed pump resulting in total power savings of 2,423,023 kWh
- Undertook technology switch-over of CCG Electrolysers from De Nora to UHDE which will save 500 kWh per tonne of Caustic

Magadi

- Replaced 160W mercury vapour flood lamp with 100W LED flood lamp for outdoor applications and 5ft fluorescent lamps with 5ft LED lamp for indoor application
- Replaced calciner refractories and furnace chamber
- Installed and commissioned a waste oil recycling system
- Installed two 1.2 kW solar powered high-mast lighting systems

North America

- Undertook energy efficiency projects, resulting in estimated yearly power savings of 6,364,156 kWh and 20% less coal usage. These projects include:
  - o Optimisation of boiler electrostatic precipitator (ESP)
  - o GR2 Dryer 2 Draft Fan VFD
  - o GR3 Fan Upgrades
  - o Baghouse on-demand purging
- Exploring applications for solar and wind opportunities

UK

- TCE has detailed list of opportunities to conserve resources and efficiency improvements planned with new boiler at Middlewich
- Project sanctioned to increase electricity generation on the Lostock steam turbine and expected to increase electricity generation of the turbine saving the site around £70k per annum with this steam-generated electricity displacing electricity generated from natural gas thus reducing the carbon footprint of the site
- Metering projects are underway across the sites to better understand their electricity consumption and implement focussed efficiency projects
- Use of highly integrated heating system avoids cooling of the water and helps to reduce our energy needs

Emission management

Mithapur

- Replaced CEHP 1 economiser, installed sonic soot blower in CEHP 1 & 2 and automatic blowdown system in HPB 3 boiler, resulting in approximate annual coal savings of 1,248 tonnes

Magadi

- Kajiado dust control project to reduce dust emission
- Ongoing project to instal CEMS (Continuous Emission Monitoring System) at ESP Plant

USA

- Exploring the elimination of coal by converting coal-fired boilers to natural gas along with potential to reduce GHG emission by 30% by installing new soot blower and exploring carbon capture/ offsets

UK

- Invested in a contemporary boiler plant at the British Salt plant that will have ~94% efficiency (80% currently) translating to 8,500 TPA reduction in CO_2
- Winnington CHP, part of TCE's Northwich operations, is developing a Carbon Capture and Utilisation scheme for capturing food and pharmaceutical grade CO_2 and will use it in the Sodium Bicarbonate plant. This global first initiative will contribute to a 40,000 TPA reduction in CO_2 emissions

Waste management

Mithapur

- Used plastic waste (96 tonnes) and waste/spent oil (9,300 litres) as alternative fuel for Cement plant
- Focussed on bulk transportation of products through railway, bulkers, and containers
- Ensured 100% fly ash utilisation and 87.6% effluent solids filtration and utilisation

Magadi

- Initiated recycling of waste oil, torn plastic and scrap metal
- Conducted ESIA (Environment Social Impact Assessment) study for waste disposal guidance

USA

- Implemented a new solid waste management policy that necessitates recording of waste volumes/streams and explores the potential for recycling
- Installed a Soda Ash recovery unit that increased operational efficiency of deca units
- Implemented a sulphate reduction project that captures additional purge from evaporator bodies to feed purge deca recovery units
- Rerouted mud stream so that it can be transported and processed in the paste plant

UK

- Continued to ensure that effluent discharges are within permissible standards and sent out waste ash and lime to third parties for reuse

Water conservation/management

Mithapur

- Replaced resin at water softening plant, curbing chemical consumption and effluent generation
- Continued water harvesting programme in the community

Magadi

- Ongoing project on domestic sewerage
- Installation of meters and push taps to control water usage

UK

- The British Salt site at Middlewich harvested rainwater for use within the plant. The Sodium Bicarbonate plant returns water abstracted from the river Weaver for cooling purposes, incurring a net zero consumption

Addressing climate change

Climate change is an important agenda for us. Being one of the leading chemical companies with vast global operations, we aspire to play an enabling role in transitioning to a low-carbon economy. To achieve this, we have signed up the commitment to Science Based Target initiatives and have in place Climate Change Strategy for 2030 aimed at reducing carbon emissions by 30%, becoming water neutral and achieving circular economy in our value chain. We have initiated this journey by conducting a climate change risk assessment for Mithapur and are working on an action plan. We are ensuring the effectiveness of our climate action through active involvement of the Board and top leadership. The Executive Committee of Board reviews and mentors sustainability and climate change initiatives. The Board also provides guidance and support to the management.

Sustainability is embedded in the way we do business. It is not just about energy & water efficiency, adopting circular economy principles, mitigation of climate change and biodiversity impacts of business; it's about seeing the complete picture, a 360 degree view that considers all stakeholders' needs and blends both financial and non-financial goals into key business strategies.

Alka Talwar
Chief CSR & Sustainability Officer

Rehabilitating waterfowls

The evaporation ponds at TCNA are a stopover site for migratory birds, especially waterfowl, which was a challenge as their bodies would be covered by soda ash. A 'Waterfowl Rehabilitation Programme' was undertaken, with permission from the United States Fish and Wildlife Service. The programme required TCNA personnel to keep waterfowl and other wildlife away from the evaporation ponds. The affected waterfowl were brought to the rehabilitation room and allowed to swim in a tank with warm water. This helped dissolve the soda ash on their bodies. They were then put through some rest and recovery steps and then released near the Blacks Fork River or Green River.
A total of 80 waterfowl were rehabilitated and released in 2019.

Sustainability Highlights

Sustainability area	Performance indicator	FY 2018-19	FY 2019-20	Status
Climate change performance	Scope 1 CO_2 emissions (Kilo tonnes)	4,322	4,446	↑
	Scope 2 CO_2 emissions (Kilo tonnes)	38.36	42.7	↑
	Scope 3 emissions (Kilo tonnes)	93.34	119.36	We have worked on improving the methodology to calculate the emissions which has led to increase in the scope 3
Energy performance	Direct energy (TJ)	46,190	47,736	↑
	Indirect energy (TJ)	254	315	↑
Water management	Fresh water withdrawal (Megalitres)	28,749	27,728	↓
	Sea water withdrawal (Megalitres)	76,442	70,535	↓
	% water recycled and reused	66	86	We have worked out the calculation methodology at TCNA which resulted in increase of recycled water
	Treated water discharged (Megalitres)	88,516.5	79,770	↓
Waste generated and disposed	Hazardous waste (MT)	3,175	4,832	Demolition of a section of the Winnington site at Tata Chemicals Europe for new projects has led to increase in waste which was re-utilised and also disposed with the recycler
	Non-hazardous waste (MT)	7,84,462	9,03,517	
	Solid waste utilisation (only India operations)	4,00,361	5,49,815	↑
Raw material consumption	Limestone (MT)	19,66,852	20,86,088	↑
	Trona (MT)	50,75,142	51,87,160	↑
	Solar Salt (MT)	16,79,232	21,03,068	↑
	Brine (KL)	70,55,585	95,91,778	↑
Recycled material consumed	% Limestone recycled at India Operations	89.74	86.69	↓
	Soda Ash recovery at TCNA	1,08,147	1,06,956	↓
Air emissions (in MT)	SOx	5,451	3,471	↓
	NOx	2,106	5,601	↑
	SPM	1,902	1,478	↓

This data covers Tata Chemicals India, North America, Europe and Kenya Operations.

Basic Chemistry Products

Stepping up as trusted partner for our customers

We are an essential chemical input provider for leading global companies with over eight decades legacy. Our customers trust us for our quality and services and expect us to play a more important role in their value chain. We are investing in capacities, capabilities, thought leadership and innovation to surpass their expectation by delivering unmatched value proposition to them.

Business overview

We engage in the manufacture of inorganic chemistry products with plants spread across four continents – America, Europe, Africa and Asia. We are the world's third largest Soda Ash and India's leading vacuum evaporated iodised salt producer. Our salt works, spread over 36,000 acres, are the largest in Asia. We produce soda ash using synthetic and natural mining process. Of this, 3/4th capacity consists of natural soda ash allowing us significant cost competiveness.

Customer centricity, operational excellence and sustainability are the key pillars of our strategies. We are a preferred choice of customers and continue to focus on building and consolidating relationship. Our portfolio comprises differentiated and value-added brands and products meeting the specific customer needs. We lead and succeed in the market through continuous improvement programmes, cost optimisation, and lean and innovative supply chain solutions. Safety is one of our core values as we strive to achieve our target of Zero Harm.

Read more Pg 4-5

Information on geographical spread and subsidiaries

Our product portfolio

Soda Ash – Light

End-user segments and applications

Detergent, Sodium Bicarbonate, Sodium Silicates, other chemicals, dyes and intermediaries

Brands / products

Light Soda Ash, STPP

Soda Ash – Dense

End-user segments and applications

Float glass – construction and housing, automotive sector, silicates

Container Glass - soft drinks, spirits, pharmaceuticals, tableware, glass

Brands / products

Dense Soda Ash, Granplus, Detmate

Bicarb

End-user segments and applications

Pharma (US/British/Indian Pharmacopoeia), Food, Animal and poultry feed, Food grade dust, Explosion suppressant, Haemodialysis, Flue Gas Treatment

Brands / products

Pharmakarb, Medikarb, Sodakarb, Alkakarb, Speckarb, Hemokarb, Briskarb

Salt [IVSD]

End-user segments and applications

Food Processing, industrial salt, de-icing, dairy products, water softening and industrial applications

Brands / products

Edible Salt, Glacia, Granulite (British Salt), Magadi Moore, Nyama and Moore Maziwa

Cement

End-user segments and applications

Construction, Pre-cast Pipes, Blocks, etc.

Brands / products

Tata Shudh OPC, Masonry Cement and PPC

Halogen Products

End-user segments and applications

Agri Chemicals, Pesticides, Pharma Intermediaries, Fire Retardants, Textile Processing

Brands / products

Liquid Bromine, Caustic Soda

Crushed Refined Soda

End-user segments and applications

Sodium Silicate, Animal feed additive, Lead processing, Mining applications, Effluent / Flue gas / Compost heap treatment

Brands / products

Crushed Refined Soda

Gypsum

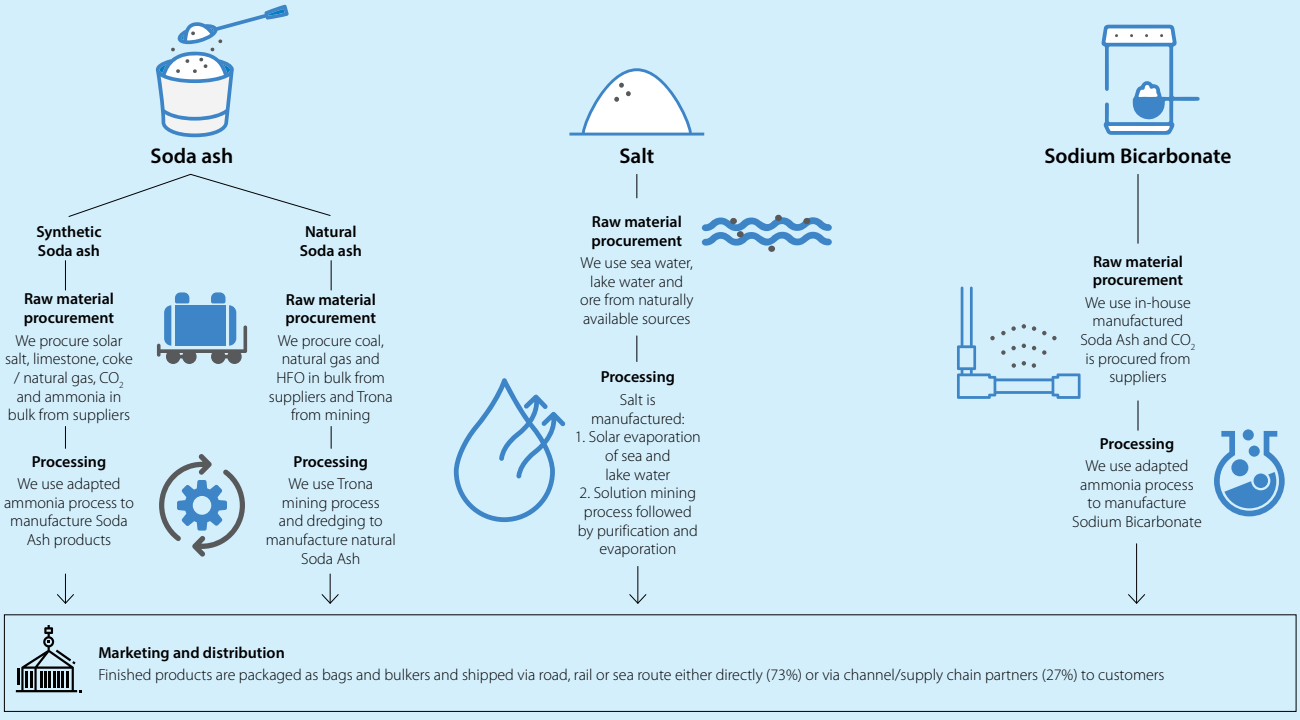
End-user segments and applications

Portland Cement, Soil Treatment, Inert Filler in paints, paper, pharma, etc.

Brands / products

Gypsum

Value Chain



Competitive Advantage

1

Reputation

Strong corporate brand and very high image score

World's – 3rd largest Soda ash manufacturer

2

Distribution

Lean supply chain and network of depots, pioneers in bulk movement of soda ash in India

3

Leadership

Market leaders in Bicarb and a major player in Soda Ash in India

TCNA has significant market presence in the U.S. and Canada

Market leader in Bicarb and Soda Ash in UK

4

Relations

Strong and Longstanding relationships with Blue chip customers spanning over several decades

High Marketing capability due to partnership with ANSAC

5

Operational excellence

Efficient, cost effective, safe and sustainable

TCE-ground-breaking HR practices to utilise 21st century processes for traditional industries

6

Technology and cost competitiveness

Use of technology for deeper customer connect and ease of doing business

World's leading state-of-the-art CHP power plant-Low carbon emissions in UK

Operational and strategic developments

TCL

- FY 2019-20 has been a year of mixed performance. The year began with strong momentum in demand and price. However, the demand and prices came under pressure due to increase in imports on removal of Anti-dumping duty (ADD) on Soda Ash, addition of new capacity from other players which caused oversupply due to Covid-19 pandemic outbreak
- Branded product sales grew by 30% with the commercialisation of the Speckarb and Detmate brands and increased penetration of Medikarb brand led by wider acceptance from pharma and haemodialysis segment
- Growth in cement volumes due to higher acceptability and deeper penetration of the relaunched version with value-added proposition of high one-day strength along with volume stabilisation of the newly launched PPC
- Focussed on improving customer experience by rolling out online customer portal – ChemConnect – across all distributors and many customers and introducing online channel finance facilities which received good response
- Entered into a long-term supply agreement for salt with Tata Consumer Products Limited ('TCPL') pursuant to the demerger of the Consumer Products Business to TCPL, making it one of our key strategic customers. We focus on providing them world-class service and value to establish deep relationship with them for maximising mutual value

Picture Credit: Abbot Logistic Group

- Progressing steadily on execution of Pragati Project involving a CAPEX spread for debottlenecking and brownfield expansion of our existing capacities of various products. Capex for debottlenecking of Salt and Bromine capacities has been completed
  The expansion of salt production is underway and envisages an additional 100Kt production in FY 2020-21
- Initiated a Climate Change Risk Assessment to combat and increase resilience to climate change issues.
  We plan to use SBTi methodology and adopting alternate energy solutions, carbon capture, energy efficiency and other programmes to achieve the ambitious absolute carbon reduction targets

TCNA

- Acquired remaining 25% stake in TCSAP from our minority interest partner (Owens-Illinois) for US$ 195 million
- Renewed Union Collective Bargaining Agreement through Q4 FY 2021-22, ensuring labour stability
- Growth in daily manufacturing as a result of debottlenecking and maintenance efforts

TCE

- Initiated building UK's first major carbon capture and usage plant (CCU) at our CHP operation
- Invested in a new power plant for salt operation with likely operationalisation in 2020
- Continued utilising electrical generation capacity to enable the decarbonisation of the UK National Grid and support intermittency challenges

Read more
Pg 103-109

Management Discussion and Analysis for more information on our operational performance

Strategies

Grow volume of current products and strengthen leadership through:

- Debottlenecking, brownfield expansions and maintenance of existing capacities
- Operational interventions, cost optimisation and investment in technologies and continuous improvement
- Portfolio choices to enhance value, improve efficiency and margins
- Exploring adjacencies and forward integrating across soda ash, chlorine and salt value chains
- Identifying white spaces and value accretive products where we can leverage our core competencies
- Use technology to drive operational efficiencies through predictive operating controls in main plants and automation of customer engagement cum analytics
- Develop our strong export capability in high-grade and high-end applications

Expanding and investing in value-accretive cement portfolio

As a step towards circular economy, we established our cement production facility in 1993 to utilise the solid waste generated in the manufacturing of Soda Ash and to realise value from it. Our strategic direction in the business has been to continuously add value to products to meet customer requirements. Subsequently, we expanded our portfolio to Masonry cement, a niche and unique product and OPC cement with high one-day strength.

Continuing this journey forward, we expanded our product offering by launching Tata Shudh PPC Cement in response to the changing customer expectations for blended cements. Made of high-quality fly ash, this cement can be used for all construction applications. With this, our cement portfolio cuts across wide application segments and offers widest range in construction in our core markets of Saurashtra and Kutch.

With rising demand, our PPC cement is gaining increasing acceptability due to its quality and versality. To serve this growing demand, we have planned to further augment our production capacity by 0.3 MMT by FY 2021-22.

Empowering customers with ChemConnect

ChemConnect is our cloud-based web application, providing real-time access and services on the go. A one-stop shop solution, it makes available information and data, facilitates transaction tracking and eases conducting business through facilities like order booking, MIS, banking, balance confirmation, complaint management etc.

Launched initially in the B2B context of Indian Chemical operations, ChemConnect today helps serve our customers (business partners) and goes right upto the next tier of our customers' customers i.e. the end customers. It powers our global chemical operations and remains at the forefront of redefining customer experience. Its success can be gauged from the fact that more than 99% of orders are effortlessly booked by our channel customers through it.

We continue to add more features to make the application more robust. During the year, we completely stabilised customer empowerment and business transparency. We also added online channel finance facility through banks for instant low-cost finance which has been well received by channel partners. It will be instrumental in growing theirs as well as our business.

Over 99% of orders are effortlessly booked by our channel customers using ChemConnect

TCNA advances energy efficiency and sustainability

Two legacy pulverised coal fired boilers at TCNA, the largest consuming unit that generate most steam to run the facility and generate power, became inefficient. Further, the soot blower cleaning devices in their Ljungström Air Heaters (LAH) were severely clogged with fly ash, restricting the heat transfer and non-utilisation of waste heat which instead rose up the stack. TCNA invested in replacing the LAHs of both these boilers to improve their efficiency and operation. It resulted in the stack temperatures declining from 390°F to 325°F and hence 14,000 tonnes / year of lower coal usage translating into ~US$ 700,000 annual savings. Additionally, it enabled boilers to operate at full production and curbed SO_2 emissions by 187 tonnes per year.

TCE aspires to be the world's lowest carbon footprint sodium bicarbonate producers

From 2021, Tata Chemicals Europe will be making one of the lowest carbon footprint sodium bicarbonate and sodium carbonate products in the world by investing in a carbon capture and utilisation (CCU) technology.

The CCU plant will capture CO_2 from the flue gases emitted from its combined heat and power plant (CHP) and transform it into a key raw material for manufacturing sodium bicarbonate, thereby reducing emissions. It will be capable of capturing up to 40,000 tonnes per year of CO_2 i.e. ~10% of TCE's carbon emissions at the CHP plant. It will support the annual manufacture of over 120,000 tonnes of high purity sodium bicarbonate used in haemodialysis, pharmaceuticals, food, animal feed and many other applications.

The project could pave the way for other industrial applications of CO_2 capture and is an important step in decarbonising industrial activity. The TCE CCU plant will play a major role in supporting the Government's recently announced target of net zero carbon emissions by 2050.

Our revenue growth will see good trajectory as we keep commissioning our capex projects.

We would also continue our journey on the path of pioneering and providing thought leadership through introducing first-in-the-market products and services that provide unique solutions and value to our customers. Introduction of sodium bicarbonate brands addressing targeted segments, online ChemConnect to the second-tier customers, instant channel finance through ChemConnect, bulk supplies, introduction bulkers etc. are steps towards this journey

Shohab Rais
COO - India Chemical Business

Serving farmers through Science

Rallis leverages its experience and strong domain knowledge in agri-sciences to develop products and provide technology-led agronomy services that help farmers increase their yield and contribute to India's agricultural economy aimed at food security and nutrition need of growing population and addressing societal concerns on sustainable agriculture.

Business overview

Rallis develops and manufactures a wide range of products and solutions including seeds, crop protection solutions and Specialty Nutrient solutions to improve farm productivity. It aims to accelerate farmers' prosperity by intervening in each stage of the crop cycle and offering advanced technology-led agronomy services. Its international business deals with active ingredients and its formulation and contract manufacturing.

Rallis sustainable performances reflects its longstanding association with Indian farmers, trade channel and international customers and its ability in developing and delivering innovative solutions for chosen areas of business.

Product portfolio

Domestic business
Seeds, Crop Protection formulations and Specialty Nutrients

End user segments
Farmers

International business
Crop Protection Active Ingredients and its formulation and Contract Manufacturing

End user segments
Global agro chemical companies

Competitive advantage

1 Leadership
- One of India's leading crop care companies with growing international business
- Serving 5 million plus farmers across 80% of India's districts

2 Scale, reach and operational excellence
- Large state-of-the-art manufacturing capacity with ongoing capex
- Extensive dealer and retail reach

3 Innovative products
- Safe, superior and sustainable products and solutions across the agricultural value chain
- In-house R&D and association with global innovators

4 Low-cost manufacturing
- Contract manufacturer of relevant chemicals to global companies
- Affordability to farmers

5 Robust technology
- Advanced technology solutions for predictive advisory service
- Analytics-based planning on data resources

Value Chain

Research & development

We have proven capabilities and strong R&D and execution capabilities. We leverage our expertise in science to develop superior, viable and environmentally sustainable products.

Raw material sourcing, processing and manufacturing

We procure quality raw materials from long-term suppliers and process them at our own plants to manufacture products using optimal resources. We also engage with organisers and grower farmers in production of Hybrid Seeds which are further processed & packed at seed processing plants.

Distribution and logistics

We reach 80% of districts in the country through our strong network of dealers and retailers to take our innovative offerings to the farmers.

Farmer support services

We have initiated services using digital technology to enable farmers to access timely information on weather, market prices and crop environment.

Read more Pg 109-110 in Management Discussion and Analysis for more information on our operational performance

Rallis celebrates farmer's success with Zygant and Ayaan

Rallis introduced two new brands for Paddy farmers – Zygant and Ayaan. Zygant delivers excellent stem borer control and root growth which helps in early crop establishment, profuse tillering for additional yield and lush green canopy growth. Ayaan is an excellent combination Fungicide to prevent disease. It induces uniform panicle emergence for grain filling and colour. It also influences the flag leaf to remain green and erect longer for additional and good quality harvest. Both are completely safe for environment and user-friendly.

Rallis marketing team took the challenge of establishing their value proposition among farmers with 'Harvestivals' marketing initiative.

As progressive farmers commonly use both granule insecticide like Zygant and Strobilurin fungicide like Ayaan in their paddy field, farmers were selected from across states. Both Rallis and popular MNC brands were used at adjacent fields and plots were well maintained till harvesting time.

Post this, field days were organised at farmers' fields to determine results. A 1x1 meter size area (3 locations randomly from centre of plot) was selected in both comparative plots and panicles were harvested and total number of panicle and hills were counted. 10 panicles were selected at random from both the plots to measure their length, grains per panicle, grain colour, weight, no. of chaffy grains and finally thresh the grains of all panicles and weigh it.

The result: The Rallis team got exciting feedback from these Harvestivals. The farmers were happy and satisfied with its results. Several farmers got 4-5 Quintal of additional yield and excellent Paddy grain quality.

Nutritional Sciences

Nurturing food technology for healthy living

Global markets are witnessing a growing base of discerning and lifestyle-conscious consumers who are increasingly demanding food and supplements that balance functionalities (naturalness, safety and nutrition) and positive eating experience. We are striving to deliver on this with our rich knowledge in fermentation, food technology and biogenomics.

Competitive advantage

1 Expertise

- In human nutrition and microbiome
- In fermentation technology that enables production using whole cell route, opening opportunities in other human nutrition segments, using the biosynthesis route

2 Strong partnerships

With Indian and global academic institutions and research bodies to further gut microbiota knowledge and the effects of its modulation on human health.

3 Leading efforts

In Bio-informatics usage in human gut microbiota with development of accurate predictive models of microbiome response to interventions.

4 Robust application support

Enabling close co-ordination with customers on new product development (NPD) projects and deep understanding of their requirements.

Business overview

We offer nature-inspired and science-backed ingredient and formulation solutions, marketed under the brand Tata NQ, catering to human and animal health. Our flagship product lines – FOSSENCE® and GOSSENCE® – are prebiotic dietary fibres that promote gut microbiome growth for better digestive and immune health.

We are among the few prebiotics manufacturers following the whole-cell fermentation route, using in-house developed patented technology. Our operation is supported by a multi-disciplinary team of scientists working on microbiome science (the core science platform) and fermentation technology (the manufacturing platform) as well as state-of-the-art manufacturing facilities. We hold numerous publications and patents.

Product portfolio

FOSSENCE®

Fructo oligosaccharide (FOS)

Segment
Prebiotics

Customers
B2B: Wellness food and beverage (F&B), nutraceutical formulations, and animal feed companies

GOSSENCE PRO®

Glacto oligosaccharide (GOS)

Segment
Prebiotics

Customers
B2B: Infant and dairy food companies

Value Chain

Raw material (RM) sourcing

Sugar (primary RM) for FOS and Lactose (primary RM) for GOS are sourced in bulk from global suppliers at international price parity

Cultures of micro-organism strains

For bio-conversion, we rely on our patented micro-organism strains developed at Innovation Centre, Pune. These are multiplied using sugar and by-product of the conversion process as medium

Downstream processing

Sugar/lactose solution is fermented using the patented cultures to produce oligosaccharides of fructose with DP 2-5. This is purified to 95% and spray-dried to give FOSSENCE powder

Packaging and logistics

Four variants of product are packed across various stock-keeping units as per customer requirement and end-use applications

Marketing

Products are distributed globally either directly (for large key accounts) or through channel partners (for other customers)

Nutrition is the core of our strategy.

Through our ongoing research on the gut microbiome, we are constantly discovering unique and useful insights which, we believe, provide a holistic approach towards health and nutrition. We will continue to offer science-backed solutions and work closely with customers to re-imagine the product possibilities. Tata NQ Innovation Day is one such opportunity platform to interact with customers, regulators and opinion leaders to build a cohesive plan to improve the overall health index of the country we wish to serve.

Rahul Gupta

Business Head - Nutritional Sciences

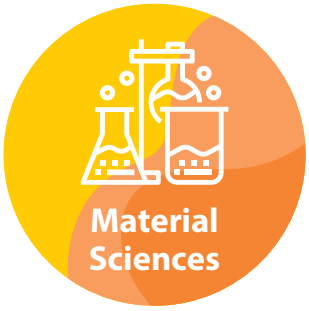
Advancing human nutrition, re-imagining possibilities

We have initiated 'NQ Innovation Day', an industry platform that engages with customers to expand knowledge on prebiotics benefits and explore limitless possibilities of prebiotic formulations and pass it on to end consumer. In FY 2019-20, three such events were arranged with the participation of 150+ major F&B and Nutraceutical companies and some notable dignitaries.

Result: Many participant companies have initiated NPD projects to leverage the functional and health benefits of FOS. These include:

- Ability to partly replace sugar with zero GI ingredient
- Enhancing sensory feel by masking off-notes and aftertaste of ingredients
- Ability to promote growth of beneficial bacteria in the gut for weight and cholesterol management, immunity maturation, and mineral absorption, among others

Read more Pg 110-111 in Management Discussion and Analysis for more information on our operational performance



Solutions for better performance

We are leveraging our proprietary knowhow, supported by R&D efforts by IC, Pune, to deliver high-performance nano-material solutions.

Product portfolio

HDS

End-user segments and applications
Passenger Car Radial (PCR) and Truck & Bus Radial (TBR)

Brands / products
TREADSIL™

Conventional Silica

End-user segments and applications
Tyre and other rubber goods application
Non-rubber food: feed, detergents, oral care, and agro-chemicals applications

Brands / products
TYSIL™
TAVERSIL™

Functional Silica

End-user segments and applications
Technical rubber goods applications

Brands / products
TAFOSIL™

Nano Zinc Oxide (nZnO)

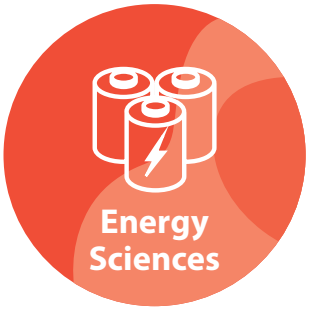
End-user segments and applications
Cosmetics, paints/coatings, adhesives, plastics and baby care products

Brands / products
ZnSpers, Zing C Spl, Zn Coat WD/Znmer

Business overview

We are a leading player in the niche area of advanced nano-material solutions. With growing demand for superior materials like Highly Dispersible Silica (HDS) for high-performance and fuel-efficient green tyres and nano Zinc Oxide (nZnO) for improved anti-fungal, anti-microbial and UV blocking properties in industrial and cosmetic applications, this business caters to an expanding market. A similar demand trend for high-performance silica products in non-tyre rubber (automotive elastomers) and non-rubber applications (oral care, coatings) provides more growth opportunity.

Read more Pg 111
in Management Discussion and Analysis for more information on our operational performance



Lithium-ion cells are one of the most critical components in an Electric Vehicle (EV); and with the Company's inherent strengths in chemistry, Tata Chemicals is creating a platform to become a world-class provider of cutting-edge and disruptive electro-chemistry solutions for Energy Storage. Apart from EVs, there are numerous applications in stationary storage, in particular for supporting growing number of renewable energy generation projects. We have a unique opportunity to build a truly circular economy around Lithium-ion technology starting from active materials, to cell and battery manufacturing and finally to recycling critical materials from used batteries.

We are partnering with leading battery makers in the world for contemporary commercial cells, global R&D labs for next-generation technologies and Indian Research Institutes (like ISRO, CSIR-CECRI) for indigenous development of actives, cells and recycling. TCL also has interests in some of the next generation chemistries which are under development in the labs and working actively with some of the leading global players in the segment.

With strong capabilities in chemistry, Tata Chemicals has also launched its Lithium-ion battery recycling operations.

For setting up manufacturing operations in future, we have invested in a plant site of over 127 acres of land in Dholera, Gujarat. This site can house the manufacturing of actives, cells and batteries, as well as recycling operations. We have established a Battery Pack Engineering Centre in Pune in collaboration with Tata Technologies. Our scientists at the Innovation Centre in Pune are working on the cell and active manufacturing technologies.

Results at a Glance

₹ in crore

Particulars	Standalone		Consolidated	
	2019-20	2018-19*	2019-20	2018-19*
Revenue from continuing operations	2,920.29	3,121.25	10,356.75	10,336.72
EBITDA	718.04	686.64	1,949.17	1,780.46
Profit Before Tax (PBT) after exceptional gain	834.32	860.48	1,248.06	1,437.26
Profit After Tax (PAT)	671.82	630.81	1,028.41	1,162.82
Profit After Tax (PAT) including discontinued operations	6,840.22	854.84	7,228.15	1,386.85
Total Comprehensive Income	6,297.78	1,087.83	6,821.85	1,972.98
Share Capital	254.82	254.82	254.82	254.82
Other Equities	11,722.50	12,110.15	12,642.84	12,086.45
Non Controling Interest	-	-	763.77	2,914.67
Networth (Shareholders Equity)	**11,977.32**	**12,364.97**	**13,661.43**	**15,255.94**
Borrowings	**14.76**	**707.92**	**7,702.37**	**6,143.43**
- Non current	10.41	13.46	3,661.36	4,782.91
- Current	-	0.99	1,912.94	352.46
- Current maturities[1]	4.35	693.47	2,128.07	1,008.06
Cash and Cash Equivalents (including Deposits with < 12 months maturity & Current Investments)	2,180.91	3,252.47	3,680.54	4,204.53
Capital Employed[2]	8,284.03	9,434.89	24,704.86	24,316.80
Borrowings / Networth (Shareholders Equity)	0.00	0.06	0.56	0.40
Networth per share (₹)	470.15	485.36	506.27	484.43
Earnings Per Share - Basic & Diluted (₹)	**268.50**	**33.56**	**275.02**	**45.38**
Dividend per share paid (proposed for FY 2019-20) [₹]	11.00	12.50	11.00	12.50
No. of Shares	25,47,56,278	25,47,56,278	25,47,56,278	25,47,56,278

** Previous year figures have been recast/restated.*

Notes:

1. Current Maturities includes Lease Liabilities
2. Capital Employed = Total Assets *less* Total Current Liabilities *plus* Current Borrowings *plus* Current Maturities from Non Current Borrowings and Lease Liabilities *less* Investment in Subsidiaries (Other than Rallis India Limited)

Abbreviations

- Active Ingredients (AIs)
- Anti Dumping Duty (ADD)
- Annual General Meeting (AGM)
- American Natural Soda Ash Corporation (ANSAC)
- Bachelor of Arts (BA)
- Bachelor of Medicine and Bachelor of Surgery (MBBS)
- Basic Chemistry Products (BCP)
- Behavioural Safety Observation (BSO)
- Bombay Chamber of Commerce and Industry (BCCI)
- Brihanmumbai Municipal Corporation (BMC)
- Build Resilient Approach in Response to COVID-19 Epidemic (BRACE)
- Business to Business (B2B)
- Business to Consumer (B2C)
- Carbon Capture and Utilisation (CCU)
- Carbon dioxide (CO_2)
- Carbon Disclosure Project (CDP)
- Caustic Chlorine Group (CCG)
- Community Development (CD)
- Combustion Engineering High Pressure (CEHP)
- Continuous Emission Monitoring System (CEMS)
- Centre for Sustainable Conservation Action for Protection of Ecosystems of the Seas (C-SCAPES)
- Centre of Excellence for Sustainable Agriculture & Farm Excellence (C-SAFE)
- Chief Executive Officer (CEO)
- Chief Operating Officer (COO)
- Combined Heat and Power (CHP)
- Centre of Excellence (CoE)
- Combined Heat and Power Plant (CHP)
- Confederation of Indian Industry (CII)
- Code for Responsible Extraction (CORE)
- Corporate Social Responsibility (CSR)
- Council of Scientific and Industrial Research-Central Electrochemical Research Institute (CSIR-CECRI)
- Cross Functional Teams (CFTs)
- CSR, Safety and Sustainability (CSS)
- Doctor of Medicine (MD)
- Doctor of Philosophy (Ph.D)
- Degree of Polymerisation (DP 2-5)
- Early Childhood Development Education (ECDE)
- Earnings before interest, taxes, depreciation, and amortisation (EBITDA)
- Electric Vehicle (EV)
- Electrostatic Precipitator (ESP)
- Environmental Social Impact Assessment (ESIA)
- Environmental Impact Assessment (EIA)
- Extended Producer Responsibility (EPR)
- Food Fortification Resource Centre (FFRC)
- Faculty of Management Studies (FMS)
- Food and Beverage (F&B)
- Food Safety and Standards Authority of India (FSSAI)
- Fructo-Oligosaccharide (FOS)
- Galacto-Oligosaccharide (GOS)
- Genetically Modified Organisms (GMOs)
- Glycaemic Index (GI)
- Gigawatt hours (GWh)
- Global Positioning System (GPS)
- Global Reporting Initiative (GRI)
- Genetically Modified (GM)
- Greenhouse Gas (GHG)
- Hazard and Operability Study (HAZOP)
- High Compression Thickener (HCT)
- Heavy Fuel Oil (HFO)
- Highly Dispersible Silica (HDS)
- Human Resource Management System (HRMS)
- High Rate Thickener (HRT)
- Indian Institute of Management (IIM)
- Indian Institute of Technology (IIT)
- Indian Space Research Organisation (ISRO)
- Information Technology (IT)
- Innovation Collaboration Technology (iNNCOTECH)
- Innovation Centre (IC)
- Innovation Turnover Index (ITI)
- Integrated Reporting <IR>
- Integrated Reporting Council (IIRC)
- International Integrated Reporting Council (IIRC)
- International Federation of Accountants' International Standard for Assurance Engagements Other than Audits or Reviews of Historical Financial Information (ISAE3000 assurance standard)
- Internet of Things (IoT)
- Intellectual Property (IP)
- Information Security Management System (ISMS)
- International Organisation for Standardisation (ISO)

- Industrial Vacuum Salt Dried (IVSD)
- Job Safety Analysis (JSA)
- Joint Venture (JV)
- Key Performance Indicators (KPI)
- Kilolitre (KL)
- Kilotonne (KT)
- Kilowatt hour (kWh)
- Know Around Me (KAM)
- Kilotonnes per annum (KTPA)
- Lead, Engage, Aspire and Perform (LEAD)
- Lithium iron phosphate (LFP)
- Light Emitting Diode (LED)
- Ljungström Air Heater (LAH)
- Long term Asset Management Plan (LAMP)
- Management Information System (MIS)
- Managing Director (MD)
- Master of Business Administration (MBA)
- Memorandum of Understanding (MoU)
- Mergers and Acquisitions (M&A)
- Metric Tonne (MT)
- Million Metric Tonne (MMT)
- Nano Zinc Oxide (nZnO)
- Ncourage Social Enterprise Foundation (NSEF)
- New Product Development (NPD)
- Nitrogen Oxide (NOx)
- Non-Governmental Organisation (NGO)
- National Skill Development Corporation (NSDC)
- Occupational Health & Safety (OHS)
- Occupational Health and Safety Assessment Series (OHSAS)
- Okhai Centre for Empowerment (Okhai)
- Operational Health and Safety (OHS)
- Ordinary Portland Cement (OPC)
- Original Equipment Manufacturer (OEM)
- Passenger Car Radial (PCR)
- Plant Variety Protection (PVP)
- Portland Pozzolana Cement (PPC)
- Protection of Plant Varieties & Farmers' Rights Authority (PPV & FRA)
- Profit After Tax (PAT)
- Profit Before Tax (PBT)
- Rallis Innovation Chemistry Hub (RICH)
- Research & Development (R&D)
- Return on Capital Employed (ROCE)
- Stage and Gate (S&G)
- Safety Health and Environment (SHE)
- Science Based Targets initiative (SBTi)
- Science, Technology, Engineering and Mathematics (STEM)
- Seamlessly Harnessing Internal Expertise (SHINE+)
- Speicial Investment Region (SIR)
- Specialty Chemical Products (SCP)
- Suspended Particulate Matter (SPM)
- Standard Operating Procedures (SOPs)
- Stop & Think Assessment (STOP)
- Sodium Triphosphate (STPP)
- Strengths, Weaknesses, Opportunities, and Threats (SWOT)
- Sulfur Oxide (SOx)
- Sulphur Dioxide (SO_2)
- Sustainable Development Goals (SDGs)
- Systems, Applications and Products in Data Processing (SAP)
- Tata Business Excellence Group (TBExG)
- Tata Chemicals Europe (TCE)
- Tata Chemicals International Pte. Ltd. (TCIPL)
- Tata Chemicals Limited (TCL)
- Tata Chemicals Magadi (TCM)
- Tata Chemicals North America (TCNA)
- Tata Chemicals Society for Rural Development (TCSRD)
- Tata Chemicals South Africa (TCSA)
- Tata Chemicals Magadi Limited (TCML)
- Tata Chemicals Soda Ash Partners Holdings (TCSAP)
- Terajoule (TJ)
- Tonnes per annum (TPA)
- Tonnes per month (TPM)
- Total Recordable Injury (TRI)
- Total Recordable Injury Frequency Rate (TRIFR)
- Truck & Bus Radial (TBR)
- Turnover Index (ITI)
- Ultraviolet (UV)
- United Nations (UN)
- United States Dollar (USD)
- Variable Frequency Drive (VFD)
- Virtual Private Network (VPN)
- Work Safe Online (WSO)
- World Health Organisation (WHO)

Awards

Tata Chemicals felicitated with Asia's Most Trusted Companies Award 2019. Ranked amongst the top 50 companies in Asia.

Tata Chemicals is the top ranked company in India's top companies for CSR and sustainability.

Tata Chemicals Mambattu Plant receives IGBC Green Factory Gold Rating.

Tata Chemicals make this crisp featured in the top 10 Safe workplaces for women in India as per the nationwide survey on Safe Places to work conducted by Rainmaker.

Tata Chemicals honoured with CII Industrial Innovation Awards 2019. Ranked amongst top 25 innovative companies in India.

Tata Chemicals receives Responsible Care Certification from ICC for third year in a row.

Tata Chemicals wins prestigious Porter Prize.

... amongst many others!

TATA CHEMICALS

Registered Address
Bombay House,
24, Homi Mody Street, Fort,
Mumbai - 400 001 India.
CIN: L24239MH1939PLC002893
Telephone: +91 22 6665 8282

www.tatachemicals.com
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www.tataswach.com
www.tatanq.in
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www.tcsrd.com

Concept, & Design
WYATTPrism COMMUNICATIONS (info@wyatt.co.in)