

TATA CHEMICALS



Transform  Grow

79th Annual Report 2017-18

About this report

Tata Chemicals seeks to go beyond compliance in its corporate reporting. Alongside statutory declarations, this Annual Report includes non-financial information that is disclosed on a voluntary basis in accordance with the Integrated Reporting <IR> framework of International Integrated Reporting Council (IIRC). Assurance on financial statements has been provided by independent auditors B S R & Co. LLP and non-financial statements by Ernst & Young LLP.

Monitoring marine turtle mortality and nesting along the Okhamandal coast



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Transform Grow

The world around us is changing rapidly. Forces are combining to disrupt old orders and create exciting new opportunities.

We are on the cusp of a digital-led new industrial revolution. Digital technologies give us unprecedented access allowing us to track our operations at levels previously unavailable. This helps to understand customers better, and to deliver products and services more tightly aligned to their individual needs.

At the same time, we are experiencing a moment of change, as a young generation born, into a globalised world, takes its place as employees, wage earners, consumers and decision-makers.

Those young people are reimagining many aspects of life. They are health conscious and demand healthier food products. They want to deal with companies that share their vision and can show a sense of purpose beyond commercial profit. They discard traditional markers of success.

So we find ourselves at a moment of transformation. It is exciting and has immense potential. At Tata Chemicals, we have prepared ourselves for this new era by restructuring our portfolio and investing in the industries of tomorrow. We have taken decisions that allow us to participate in this transformation and to begin a new era of growth.

We believe it has the potential to benefit all stakeholders. This integrated annual report explains in detail what we have achieved and the growth we anticipate.

Spotlight

Global footprint

Our global supply chain allows us to service our customers effectively across the world.



Business sectors

- Inorganic chemicals
- Consumer products
- Specialty products - nutritional solutions, advanced materials and agri inputs (agro chemicals and seeds)

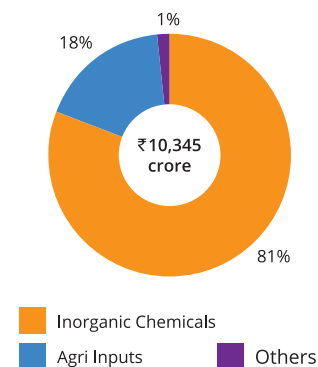
Our consolidated business has ~5,000 employees, including Rallis and Metahelix.

	TCL	TCNA	TCE	TCM
	2,327	551	385	251
	TCIPL	TCSA	Rallis	Metahelix
	3	11	977	443

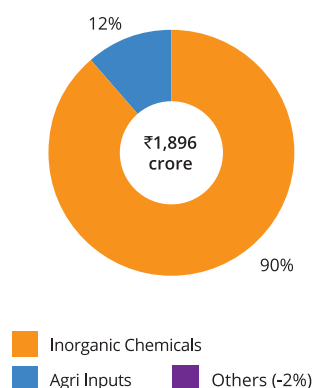
TCNA - Tata Chemicals North America, TCE - Tata Chemicals Europe, TCM - Tata Chemicals Magadi, TCIPL - Tata Chemicals International, TCSA - Tata Chemicals South Africa

Financial performance

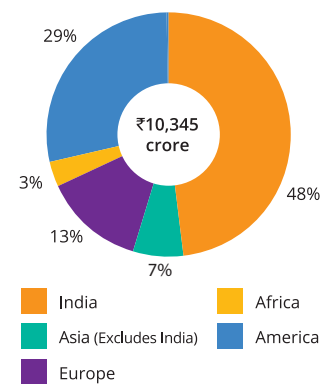
Segment revenue - consolidated (%)



Segment results PBIT - consolidated (%)



Geographical revenue - consolidated (%)



Company overview

We are a diverse but closely integrated set of people and businesses with a shared mission to serve society through science.

Established in 1939, Tata Chemicals Limited (TCL or the Company) is a global chemicals company serving the needs of industry, consumers and the agricultural sector. The Company manufactures inorganic chemicals, consumer products, crop protection and agriculture inputs, and nutritional solutions. We serve a varied set of customers across five continents with employees spread across four regions.

Our approach to business is

- Delivering high performance for stakeholders
- Caring for the community
- Nurturing a committed and passionate workforce

Growing our businesses

Through our consumer products portfolio, we have positively impacted the lives of millions of Indians through the iodised and Iron fortified Tata Salt. The Tata Sampann umbrella brand focuses on providing everyday nourishing food to consumers such as unpolished high protein dals, low oil absorb besan, and a wide range of uniquely developed spices. Our nutritional solutions business through its umbrella brands NQ and Nx provides innovative range of prebiotics and healthier alternatives to regular sugar.

Our inorganic chemicals business is a specialised manufacturer of soda ash, sodium bicarbonate and allied products. These are consumed as inputs to diverse industries such as glass, detergents, textiles, feed, mining and chemical processing across the globe. The global chemicals business has a competitive advantage, as it is the world's most

diversified natural soda ash manufacturer. Through two subsidiaries, Rallis India Limited (Rallis) and Metahelix Life Sciences Limited (Metahelix), we provide innovative products and services to the Indian farm sector. Rallis has a portfolio of crop protection chemicals, seeds, plant growth nutrients, soil conditioners and agri-services and serves the international market through contract manufacturing and registration based sales. Metahelix is a world-class biotechnology innovator in the field of seed hybridisation.

In the last 79 years, our deep-rooted values along with our cultural pillars have kept us focused on our mission to accomplish our vision.



Values

Safety, Passion, Integrity, Care and Excellence.



Cultural pillars

Proactive cost focus, Agile execution, Collaborative innovation and Trusting relationships.



Mission

Serving society through science.



Vision

To be a sustainable Company with deep customer insights and engaging relationship with all stakeholders in industrial chemicals, branded agriculture and consumer products.

On the path to transforming our businesses

Completed sale and transfer of Urea Business (Babrala) to Yara Fertilisers India Private Limited in January 2018

Divested Phosphatic fertiliser and trading business (Haldia) to IRC Agrochemicals Private Limited

Invested in knowledge-led businesses by signing Memorandum of Understanding (MoU) with Government of Andhra Pradesh to invest in a greenfield biotechnology manufacturing unit for food ingredients and formulations

Greenfield project under construction in Nellore, Andhra Pradesh for a manufacturing plant of fructooligosaccharides with installed capacity of 5,000 MT of FructoOligosaccharides (FOS) with a total investment of ₹ 270 crore

Commitment to invest ₹ 295 crore for manufacturing silica based products

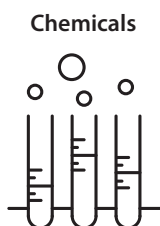
Acquired the precipitated silica business of Allied Silica Limited in Cuddalore, Tamil Nadu for upto ₹ 123 crore to manufacture Highly Dispersible Silica (HDS) and other silica based products developed at our Innovation Centre

Handling the water purifier business as a FructoOligosaccharides (CSR) initiative to serve communities that do not have access to clean drinking water

Launched Multigrain Khichdi, Nutri Mix Chillas, and Organic pulses with Star Bazaar and Amazon in Mumbai, Pune, Bengaluru, Hyderabad, Delhi NCR, Kolkata

Launched Medikarb™, India's first branded pharmaceutical-grade sodium bicarbonate

Organisational structure - our businesses



Chemicals

Product profile

TCL

Soda ash, allied chemicals, sodium bicarbonate, cement, and advance materials.

TCE

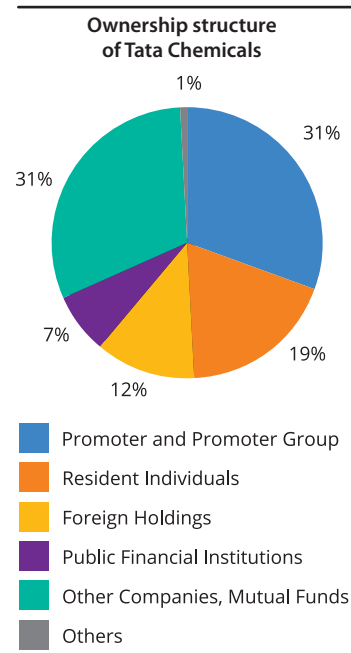
Light soda ash, sodium bicarbonate, sodium chloride, calcium chloride, crex, and heavy soda ash

TCNA

Dense soda ash, natural light soda ash, and synthetic light soda ash

TCML

Dense soda ash, crushed refined soda, sodium bicarbonate, dry industrial salt, and fortified animal salt.



Integrated Report



Consumer Products

Product profile

Tata Salt, Tata Salt Plus, Tata Salt Lite, Rock Salt and Black Salt, Tata Sampann Dals, Tata Sampann Besan, Tata Sampann Spices (Tata Swachh non-electric water purifier)



Awards



- Tata Salt ranked 3rd Most Trusted Food Brand in Economic Times' Survey 2017
- Recognised as Asia and India's Most Admired Knowledge Enterprise 2017
- Awarded at the CFBP Jamnalal Bajaj Award for Fair Practices 2017
- Number 1 in Responsible Business Rankings 2017
- Tata Chemicals won at the Confederation of India Industry (CII) Industrial IP Awards 2017 as the Trademarks Driven Industry of the year
- TCL's Corporate Social Responsibility team won the Best Practice Award on Sustainable Development Goals of UN Global Compact Network India
- Tata Chemicals Mithapur won the Sustainability Award for Excellence in Safety (Chemicals) at the Federation of Indian Chambers of Commerce & Industry FICCI Chemicals and Petrochemicals Awards 2017

Statutory Reports



Nutritional Solutions

Product profile

Nutritional solutions, Sustentials™ brand, wellness foods, prebiotic products, Gossence™, Fossence™, Tata Nx Lite & Sweet, Tata Nx Zero Sugar



Agricultural Solutions

Product profile

Hybrid seeds and fertilisers



Financial Statements



Soda ash

3rd largest soda ash producer. Most diversified soda ash manufacturer. The glass used in approximately every 5th vehicle in the automobile industry. Majority of Indian detergent manufacturers use Tata Chemicals' soda ash.

Salt

Leadership in salt. 25.5% overall market share reaching 148 million households annually.

Bicarbonate

5th largest sodium bicarbonate producer. Companies such as Parle, Colgate, Britannia, Godrej, and unbranded snacks manufacturers use Tata Chemicals' sodium bicarbonate.

MD's message

Dear Shareholders,

It gives me immense pleasure to share with you our performance for the year and perspectives on the way forward. This year marks 150 years of Tata Group's service to society. Tata Chemicals has made a significant contribution to the group's agenda. Next year we will celebrate 80 years of Tata Chemicals and 90 years of the founding of the enterprise as Okha Salt Works. Throughout the time our Company has constantly evolved to stay relevant to meet the needs of customers and deliver value to all its stakeholders.

Overall Business Performance

Our business is robust. Performance was upwards and on expected lines across all geographies including India, Kenya, the UK, and the USA. In India, we launched Medikarb, a pharmaceutical grade sodium bicarbonate, and there were pilot launches of khichdi mix, a nutrimixes range, and our organic pulses range. Distribution of new products is through modern retail stores which is improving the focus and brand equity of Sampann.

With a strong focus on productivity improvement, the Company achieved profits in line with expectations. During the year revenue from continuing operations was ₹ 10,345 crore, down from ₹ 10,681 crore in the previous year. This small reduction was consequent to a management decision to reconfigure the supply chain in our Consumer Products Business. Net profit was up by ₹ 439 crore at ₹ 1,560 crore. Adjusting for one off events the net profit from continuing operations was up by ₹ 123 crore.

Cash flow from operations continues to be strong. On a standalone basis there was a reduction of borrowings by ₹ 1,003 crore and we showed a healthy cash position of ₹ 3,753 crore resulting from the divestment of our urea business.

Going Forward – Our Strategy

The Company today is engaged in an energising transformation agenda built on the three pillars of Innovation, Sustainability and Digitisation. Our future growth catalysts are going to be specialty chemicals and consumer products.

For the Specialty Business, the past year marked the first milestone of our transformation. We seeded two new investments totaling ₹ 565 crore. We began work on our nutritional solutions plant in Nellore, Andhra Pradesh and signed the business transfer agreement for our acquisition of the precipitated silica business of Allied Silica from which we will build the Highly Dispersible Silica Business out of Cuddalore, Tamil Nadu. Both these businesses were spawned in our Innovation Centre in Pune and are first in a pipeline of businesses being seeded by the Company with a focus on innovation and applications of new technologies. Our two subsidiaries Rallis and Metahelix, which house the specialty businesses, Agrochemicals and seeds respectively, are also making excellent strides in terms of new products and innovation in farms.

Our Consumer Products Business is following a strategy to expand range and reach. We expanded our range from Tata Salt to pulses including organic pulses, nutri-mixes and khichdi. We have a strong pipeline of value added products, to be launched from time to time. In addition we have invested resources to build a resilient digitised sales and distribution engine to drive greater reach and engagement. Our direct reach continues to improve and all our brands improved their brand equity position in the past year.

Simplify, Synergise and Scale

Our exit from the fertiliser sector has simplified the portfolio of the Company and there are now strong synergies between all our businesses, underpinned by a foundation of science. The focus

now is to scale our specialty and food consumer businesses while we retain scale in our basic chemicals business. The balance sheet strength of the Company now enables it to drive scale in both the specialty and consumer portfolio.

Focus on Innovation, Digital, and Sustainability

Our investments in laboratories in Pune and Bengaluru are the backbone of building knowledge driven businesses with strong foundations in future technologies. Many of the product lines being pursued at these facilities are in line with a growing emphasis on sustainable solutions. Digital technology is now at the centre of every aspect of the Company's operations. We are embracing the opportunities of the fourth industrial revolution through Manufacturing 4.0 and Sales & Distribution 4.0. These are central pillars to our ways of working. Our efforts toward managing the concerns of climate change and energy use are driven through a focus on responsible manufacturing, to deliver Zero Harm to people, assets, and environment across the value chain in current and future businesses. These efforts will gather momentum in the current year and beyond.

In Conclusion

I would like to thank all the shareholders of the Company for their continued support. We remain focused on building a sustainable long-term future for the Company for all its stakeholders while upholding the Tata Values and Group Purpose. Engaged employees are our strength and they bring passion and energy in all our efforts. We now rededicate ourselves to the journey ahead as we celebrate 150 years of the Tata Group.

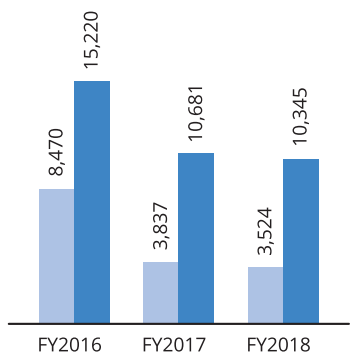
I assure you it will be a fruitful and fulfilling journey together.

Best regards,
R. Mukundan
 Managing Director & CEO

Performance highlights

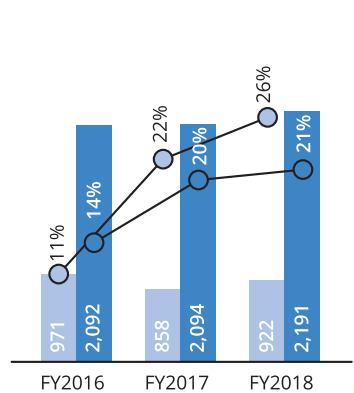
Standalone Consolidated

Financial capital



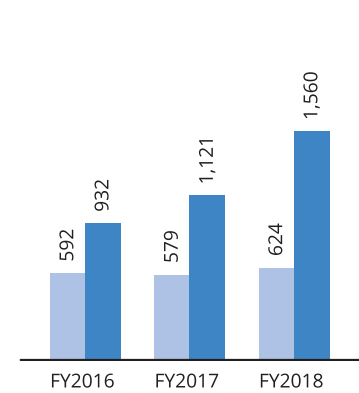
Total revenue from continuing operations (₹ in crore)

Standalone Consolidated

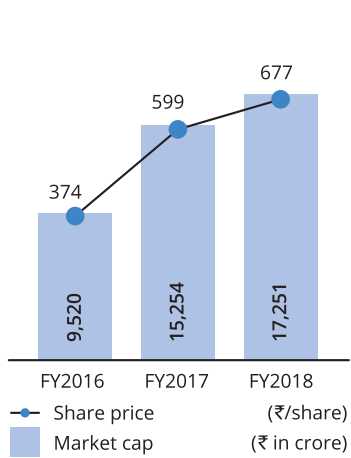


EBITDA (₹ in crore)
Earnings before interest, tax, depreciation and amortization

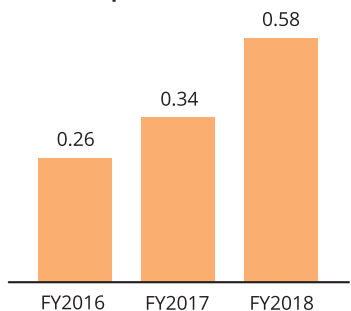
Standalone Consolidated



Profit after tax (₹ in crore)



Human capital

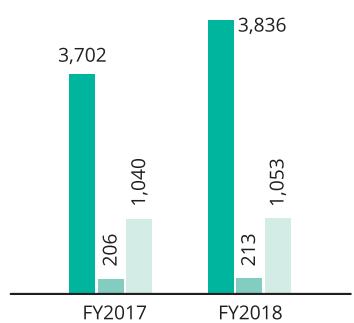


Employee productivity (₹ in crore)
Profit before tax (PBT)/employee*%

*TCL India. % FY2017 numbers are as per Ind AS and previous year's numbers are as per IGAAP.

*Excludes profit on sale of Urea Business of ₹ 1,214 crore

Manufactured capital



Production volume
Soda ash Branded salt Sodium bicarbonate (in Kts.)

Social and relationship capital

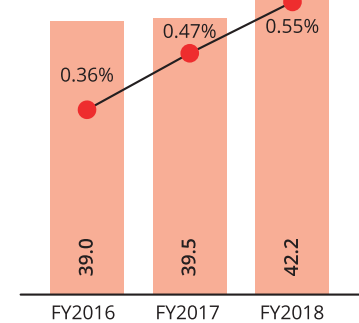


Expenditure on CSR* (₹ in crore)

*TCL India

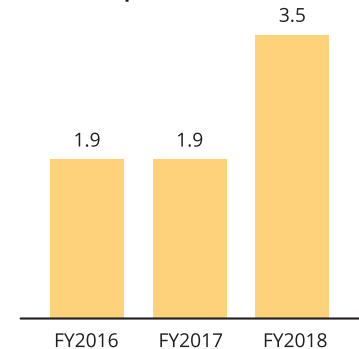
*CSR Spend numbers for FY2018 are pre statutory audit

Intellectual capital



As % of revenue from standalone operations
R&D expenditure (₹ in crore)

Natural capital



RMI: Responsible Manufacturing Index

We measure our Natural Capital using an internal tool - RMI (Responsible Manufacturing Index) to monitor key indicators across the geographies such as energy, water, recycle waste, climate change, renewable energy, product rejection, etc.

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• All data relates to continuing operations

Aligning materiality to business priorities

Engaging our stakeholders

Tata Chemicals understands the significance of maintaining strong relations with stakeholders through effective engagement. Our management represent the Company in various industry associations and committees including: Confederation of Indian Industry, Indian Chemicals Council, Chief Financial Officer (CFO) Choice, National Human Resource Department Network, All India Manufacturers' Organisation, Advertising Standards Council of India, Eastern Africa Association, Wyoming Mining Association, and the UK's Chemical Industries Association, to promote sustainability matters and create solutions.



Our stakeholders	Relevant matters	Engagement methods
Shareholders and investors	Appreciation in share price and growth in dividends, high level of corporate governance	Annual General Meeting, report to shareholders, investor/analysts meet, quarterly results, media releases
 Customers	Consistent quality, timely delivery, mutually profitable and long term relationship	Distributor/retailer/direct customer meets, senior leader customer meets/visits, customer plant visits, Chief Operating Officer's club, achievers meet, KAM workshops, membership in trade organisation/associations, complaints management, joint business development plans, customer surveys
 Suppliers and partners	Timely payment, vendor selection process, safety, health and wellbeing, and human rights of employees of contracting companies/suppliers along with long term relation	Supplier prequalification/vetting, supplier plant visits, MOUs, trade association meets, contract management, product workshops
 Employees	Employee engagement, training and development, career progression, health and safety	Senior leaders' communication/talk, town hall briefing, performance review, union meetings, wellness initiatives, intranet, websites, poster campaigns, Confluence, circulars, quarterly publications, newsletters
 Government	Legal compliance, especially on safety, health and environmental performance, creating jobs through growth sustained contribution to national tax, community development and progress on implementation of social and labour plans	Advocacy meetings with governments and ministries, seminars, media releases, membership in local enterprise partnership, membership in industry bodies
 Communities	Proactive engagement, contribution to local infrastructure, skill and capacity building, sustainable livelihood, clean and safe environment	Community meetings/visits, local authority and town council meetings, location head's meet, Strengths, Weaknesses, Opportunities and Threats (SWOT), committee meetings, community projects, seminar/conferences



Identifying material issues

TCL believes that an issue is material if it impacts the ability of the business to create and sustain value over the short, medium and long term. We consider the effect on our strategy, governance, performance, growth, costs, risks, opportunities, and importance for our stakeholders. We check whether the issues are aligned with our vision, brand portfolio, and geographical footprint.

Following the identification and mapping of issues previously, we have extended the materiality assessment process during the year to identify priorities across the value chain.

We engaged investors, shareholders, media, government, employees (Indian and international), suppliers, customers, and the community in the process. Interactions included one-on-one meetings, tele-calls, video conferencing, detailed interviews of top management, and external stakeholder surveys.

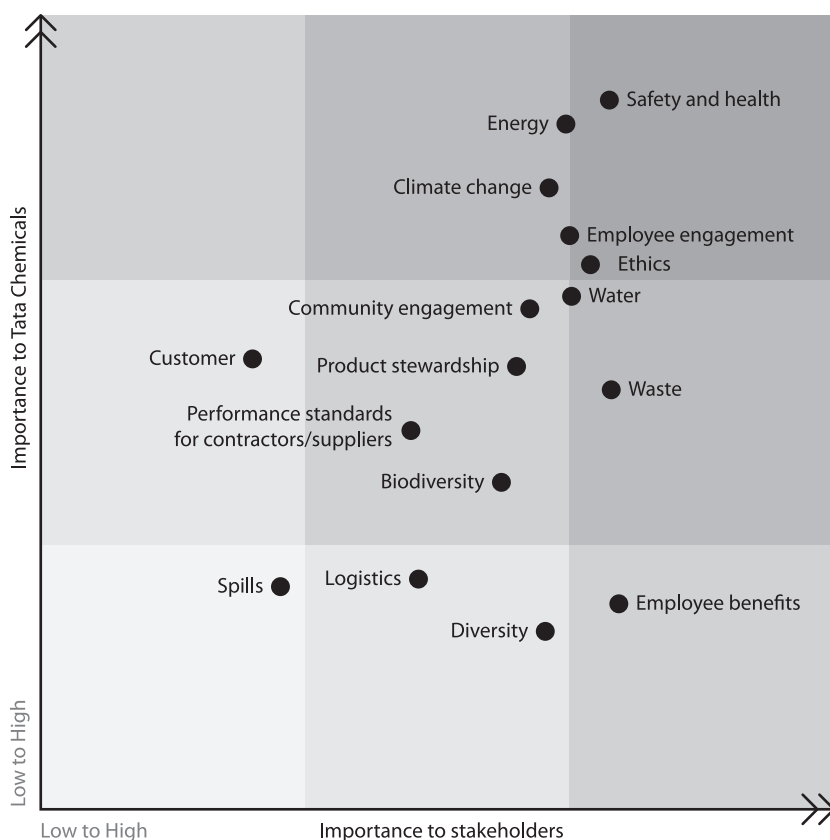
Mapping materiality issues

Insights achieved from those regular engagements with our stakeholders helped us map the material issues against internal business priorities. The business goals and challenges were then reviewed to finalise the materiality matrix. We have internally reviewed the materiality by each business to check its relevance.

We decided to revisit the material aspects periodically and same was done this year. We track and measure the focus area parameters that are relevant and conduct materiality assessment process to arrive at material matters that impact the business today and in future.

We recognise that each of our businesses engage with and impact a unique set of stakeholders. We have addressed the interests of stakeholders under each of the business spreads being Chemicals (p22), Consumer Products Business (p16) and Nutritional solutions (p28).

Materiality matrix



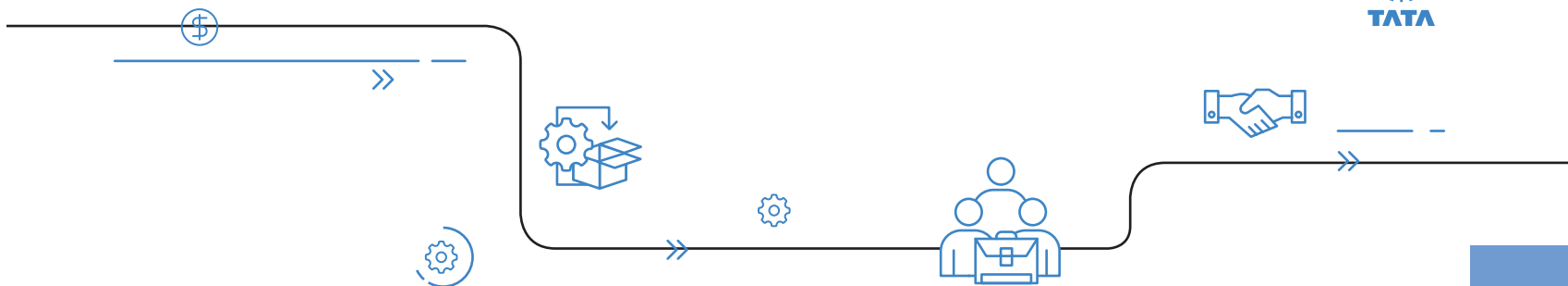
Addressing materiality issues

A crucial step in this materiality process is effectively resolving issues via strategic and accountable responses. The positive outcomes of such resolutions are propelling us towards definitive growth. While we address material issues, we will closely monitor the progress made during the ongoing financial year and report internally to evaluate progress against our long-term commitments.



Value creation through capital allocation

Financial	Manu- factured	Human	Social and Relationship	Natural	Intellectual	
Capital allocation						Value creators
						Stakeholders value creation (revenue, profits and growth)
						Customer centricity
						Technology enabled differentiation/ Operational excellence
						Employee engagement
						Commitment to sustainability



Deployment of the six available capitals creates value for all stakeholders and supports our growth agenda.

Outcomes

Robust financial performance

- Net debt-free at TCL (standalone)
- International entities are on the growth path generating sustainable profits
- Significantly improved working capital
- Desire to use efficient low carbon technologies

Market leadership

- 3rd largest producer of soda ash in the world
- FY2018 - Highest ever production of sodium bicarbonate, salt, and marine chemicals
- Tata Salt ranked as 3rd most Trusted Food Brand in India

Innovation led new products

- 114 patents filed, 40 granted to date
- Launched India's first pharma grade bicarb (MediKarb), coloured soda ash speckles (DetMate), Tata Nx sweetener, Rock salt and Himalayan salt
- R&D centres house 203 research professionals/scientists
- Zero dependence on fresh water for process requirement at Mithapur

Engaged and passionate employees

- Uninterrupted industrial harmony
- Above industry average employee engagement levels 68% globally
- PBT/Employee: 71% improvement in employee productivity (TCL India)
- Most Admired Knowledge Enterprise award in Asia

Care for community

- Approximately 750 artisans impacted across locations in India through Okhai
- Focus on clean water availability in rural India through water purifier business
- 24% reduction in total recordable injuries reported in FY2018 compared to FY2017
- Zero dependence on ground water withdrawal in Mithapur
- 80% of arable land with one million farmers

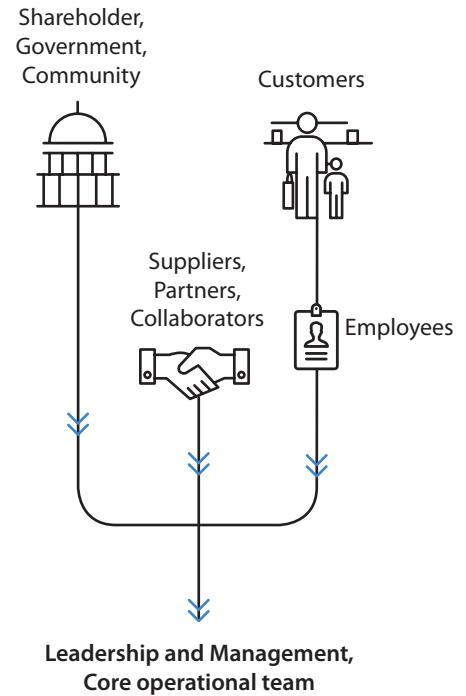
Blueprint for our transformation

Developing long term strategy in line with our mission and vision

The strategy planning process stems from our mission of serving society through science. It is tied to our vision to be a sustainable Company with deep customer insights, and engaging relationships with all stakeholders in the business of inorganic chemicals, consumer, and specialty chemicals. This process is the key driver of our organisational sustainability and growth. It provides a mechanism to track changes externally and internally.

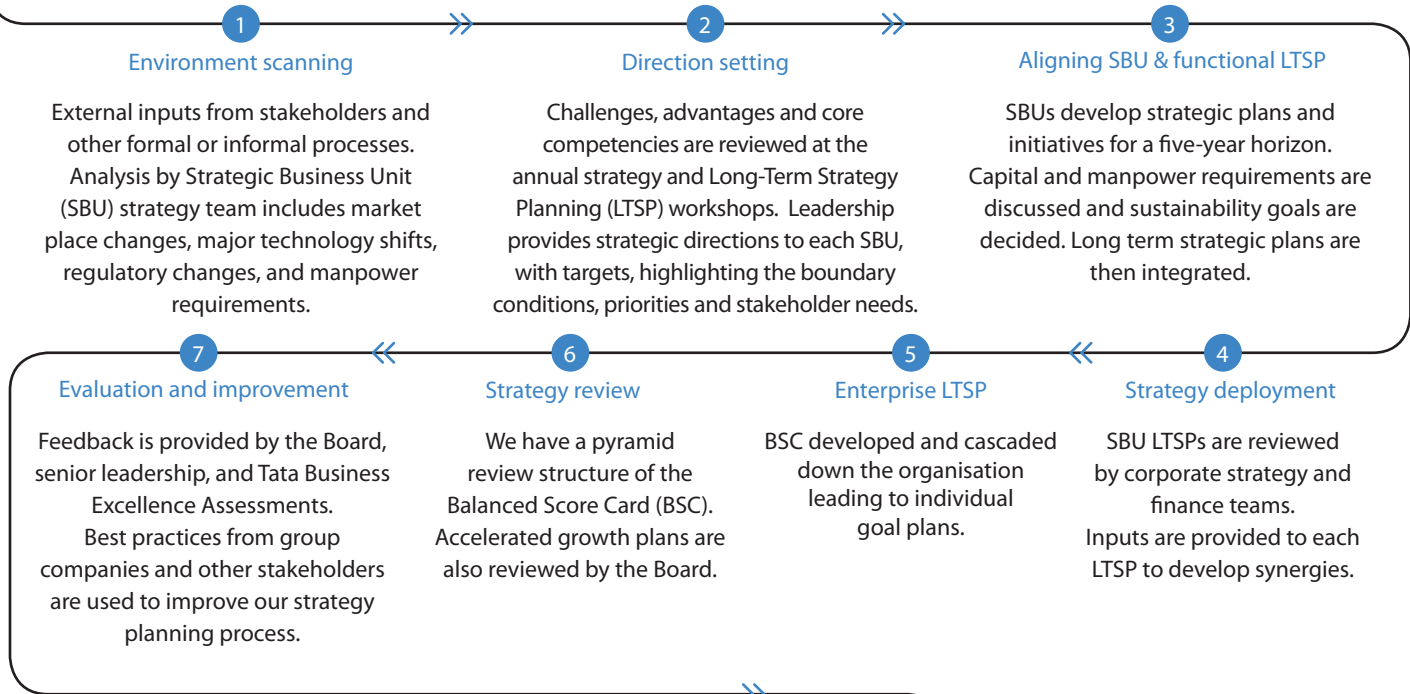
Key value drivers to create long-term value

We are focused on delivering long-term value for all stakeholders by attaining sustainable, profitable growth. This is achieved through deep consumer engagement, operational excellence, and sustained employee engagement. It involves a focus on sustainability and can be measured through revenue growth, improved return on capital employed (ROCE) and profit before tax.

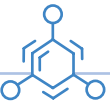





The strategic planning process

The process is an elaborate exercise that identifies the context in which we operate including strategic advantages, challenges, and core competencies. It is designed to set the direction so that organisational objectives are achieved.



The table below shows the Company's relative positioning, management's view of the market, major trends impacting the market, the potential for growth, and underlying assumptions:

Business/product	Relative position	Potential for growth
Soda Ash	World's 3rd largest	World demand is forecast to grow at ~2% p.a. through 2022
Sodium Bicarbonate	World's 5th largest 	Volume growth rates at above- Gross Domestic Product (GDP) levels at a compound annual growth rate (CAGR) of 2.5%. Significant value addition potential in the future given its wide range of existing and new applications
Agri inputs (agro chemicals and seeds) 	-	Increased use of irrigation facilities and increasing popularity of crop insurance schemes may aid in reducing distress experienced in the agricultural community
Salt 	Market leader	Salt is growing at 1.5 - 2% per annum
Pulses and related products	Only national brand	Government has continued to purchase surplus production, restrict imports and open up exports of certain varieties of pulses
Spices	-	Premium product offerings and new go-to-market models are being introduced to develop strengths in modern format stores and alternate distribution channels
Nutritional solutions 	Pioneer	The business has been steadily built on product conceptualisation through customer partnership, complex fermentation technologies, and gut microbiome data models

Key market trends

- Consumption may drive a revival in growth as households benefit from higher wages, benign inflation and a potential pre-election increase in public spending.
- Growing awareness of brands, easier access to markets and changing lifestyles are the key growth drivers for the consumer market.
- Increase in rural consumption in the FMCG market.

Competitive advantages

Inorganic Chemicals

- Manufactures cement as part of its integrated operations at the Mithapur site.
- Global supply chain gives a unique advantage in serving customers with assured supply and efficient service at competitive prices.

Consumer Products Business

- Tata Sampann is the only national brand player in the pulses market.
- Our Tata Salt portfolio reaches more than 148 million households in India. It continues to be a market leader in the salt category - a testament of the customer's enduring trust in the brand.

Specialty Chemicals

- Covers 80% of India's districts impacting 5 million+ farmers through its subsidiaries Rallis and Metahelix.
- Established world-class Research and Development (R&D) facilities such as the Innovation Centre in Pune and Rallis Innovation Chemistry Hub (RICH) in Bengaluru.






Our strategic direction

In the context of market trends, the key drivers of value creation, and the Company’s competitive advantage, our strategic direction is three fold:

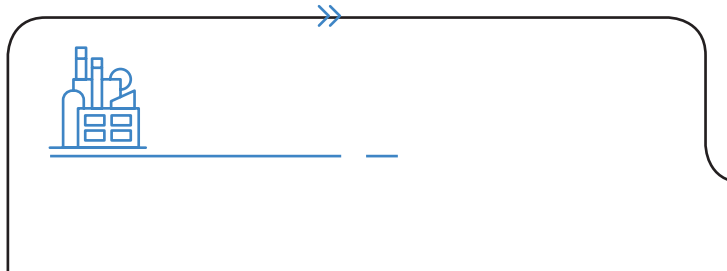


Metrics and targets

Targets and measurements are used to track the Company’s ability to deliver on its strategy. These key performance indicators (KPIs) indicate our alignment with the strategy.

Dimension	KPI	Measurement	Enterprise strategic objective
Financial 	Profit	Improvement in profit	Maximize sustainable long-term profitability
	Capital allocation	The efficiency with which capitals are employed	
	Growth in free cash flow	Improvement of net income through operating performance or efficiency ratios	
Customer 	Net promoter score	An indicator for our engagement with customers highlighting our understanding of their needs and their satisfaction.	Develop deep understanding of the unique needs of customers
Internal 	Safety: TRIFR*	Total Recordable Injury Frequency Rate, considering number of employees and hours worked	Achieve benchmark level in sustainability, Safety, Health and Environment (SHE) and CSR
	Sustainability Assessment Index (SAI) 	Concerns of communities at our sites as well as ensure their growth	
Learning and growth 	Employee engagement score	The employee engagement survey identifies opportunities in all aspects across businesses and geographies to build an engaged workforce	Build human capital

*Total Recordable Injury Frequency Rate



Horizons

Horizon 3

This perspective looks more than five years ahead. It focuses on long-term vision, the role of innovation, and portfolio decisions. It is undertaken at the enterprise level.

Horizon 2

This considers a two to three year timeframe. It addresses revenue forecasts, growth dimensions, sustainability, and initial capital allocation planning. Tools such as the balance score card and the long-term strategy plan are used.

Horizon 1

The horizon is the coming year and is tactical in nature. Through the annual business plan and strategy deployment matrix the five-year plan is translated into specific actionable annual plans. This includes identification, prioritisation and allocation of resources.

Our strategy

The Company continues to transform from a commodity and an inorganic chemicals manufacturer to a provider of wellness solutions, with a focus on consumer, agri and specialty businesses. The transformation journey is driven by building brands with greater customer centricity and technology-led differentiation. Our R&D centres in Pune and Bengaluru are the heart of a knowledge driven businesses and we are putting digital technology at the centre of our operations.

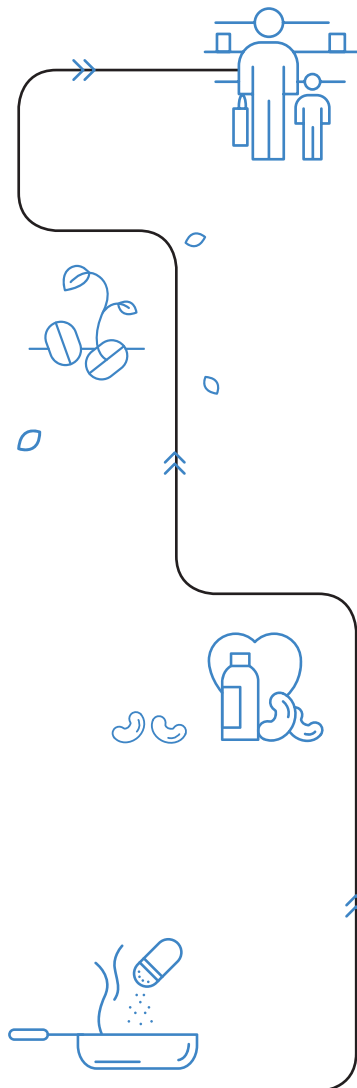
Exiting the fertiliser sector has simplified the portfolio of the Company and there are now strong synergies between all businesses. These are driven by the underlying applications of food, nutrition, and plant chemistries. The focus now is to scale the specialty and food businesses while retaining scale in industrial chemicals. The strength of the balance sheet now enables the Company to achieve scale in both the specialty and consumer portfolios.

The inorganic chemicals business will focus on maintaining its leadership position by driving cost efficiencies and customer engagement. It has a special focus on leveraging technology and scale through operational excellence.

The consumer products business will further improve the reach of Tata Salt and build scale for Tata Salt Lite, pulses, besan and spices. It will focus on value added products.

The nutritional solutions business has signed a MoU with the Government of Andhra Pradesh. The business has invested ₹ 270 crore for setting of a greenfield biotechnology manufacturing unit with an installed capacity of 5,000 metric ton (MT) of FOS for food ingredients and formulations in Nellore, Andhra Pradesh.

The advanced materials business will concentrate on manufacturing of Highly Dispersible Silica (HDS). The silica business has committed to invest ₹ 295 crore and has recently acquired the precipitated silica business of Allied Silica Limited in Cuddalore, Tamil Nadu for upto ₹ 123 crore for manufacturing of HDS and other silica based products.



A privileged place in India's kitchens

The eating habits of millions of Indians are changing. Rising disposable incomes, increased urbanisation, and greater health awareness are factors driving a shift in people's purchasing patterns and creating exciting new market opportunities for our Consumer Products Business (CPB). We are working with our Innovation Centre and various institutes to develop new product variants and recipes that boost the well-being of our citizens and transform their cooking experience.

Our business environment



Salt and related products

India is the third largest salt producer after China and USA. India's salt production is 28,000,000 tonnes* per annum. Iodised salt production is 6,600,000 tonnes per annum. Branded, packaged edible salt accounts for about two thirds of the edible salt consumed and the market is growing at 9% (as per Nielsen, FY2018). The market continues to move towards a higher share of branded salt with the continuing awareness of better product quality and visible purity. Specialty salts like rock salt and black salt have increased presence in modern format stores.



Pulses

The pulses market in India is dominated by loose dal, which account for more than 99% of the ₹ 150,000 crore market. Tata Sampann is the only brand in the branded packaged pulses space. Growing appetite for branded products suggests huge potential in the segment. This year, pulses production saw a growth of around 20% over the last three-year's average. This has resulted in low prices throughout the year. The government has restricted imports and opened up exports of certain pulses. The besan market is estimated to be worth ₹ 23,000 crore and remains dominated by unbranded products.



Spices

The spices industry is highly fragmented and regional in nature with the consumers' taste palate changing across regions. Tata Sampann range of spices aims to set benchmarks through its superior product quality and differentiation by not using 'Spent' ingredients.

Additionally, the Company is creating and offering products catering to regional tastes. The Company's value proposition for spices includes unique packaging in multiple sachets for maintaining the freshness and guaranteeing a high percentage of active ingredients like Curcumin and Capsaicin for the pure spices offerings.

*Source - Salt Annual Report 2016-17 Salt Commissionerate, Government of India (trailing 3 year average)



Market segments

Category	Products	Brands
Salt	Vacuum evaporated salt, Rock salt, Black salt, Crystal salt Low sodium salt Double fortified salt Solar salt, Cooking soda Flavoured salt	Tata Salt Tata Salt Lite Tata Salt Plus I Shakti Flavoritz
Pulses and besan	Unpolished dals - high protein dals range of 19 variants Besan - low oil absorb besan anda fine besan Organic dals range	Tata Sampann
Ready to cook mixes	Khichdi mix, multigrain chilla mix, pakoda mix, moong dal chilla mix	Tata Sampann
Spices	Pure spices, blended spices	Tata Sampann



Key revenue drivers of our CPB value chain



	Salt	Pulses, Besan	Spices
Raw material	Access to naturally evaporated brine at Mithapur I Shakti Salt from Tuticorin and Gandhidham	Purchase from locations with strict product specifications for superior quality	Sourced from farms where the climate is conducive to cultivating the best spices including turmeric from Salem and chilli from Guntur 30% of the product is sourced at harvest time
Processing and packing	Vacuum evaporation process at Mithapur plant, transit, and repacking at 28 CFAs across the country	Processing close to source for supply chain efficiencies	Processed in facilities certified by British Retail Consortium (BRC), Halal, United Kingdom Accreditation Service (UKAS), Sedex, Spices Board, and Food Safety and Standards Authority of India (FSSAI)
Logistics	Captive rake siding at Mithapur, a strong Carrying and Forwarding Agent (CFA) and road transport network ~98% rail coefficient	Transit from milling locations to CFAs via road	Transit from Cochin to CFAs via road
Distribution	Reaches 17.8 lakh retail outlets through a network of 43 distributors and 3,268 stockists	Available through modern stores, e-commerce, and Nutrikart	Direct reach to ~50% of salt outlets in operational states
Consumer	Reaches over 148 million households annually	Loyal consumer base and high brand recall	Phased launch in 16 states completed across North, East, and West India



Snapshot of the capitals



Financial capital
FY2018 Revenue for
Vaccum and Iodised Salt -
₹ 1,275.47 crore



Manufactured capital
Production volume -
Salt: 960,596 MT



Human capital
Number of on roll
employees - 205
Number of off roll
employees - 375



Intellectual capital
New products/innovation
product stories - khichdi
mix, multigrain chilla mix,
moong chilla mix, organic
pulses, powdered rock salt,
spice variants.



Social capital
Number of stockists - 3,268
Number of CFAs - 25
Number of distributors - 43
Retail outlets coverage
(direct+indirect) - 17.8 lakh
Number of households
consuming products -
148 million

Value creation

With market leading brands in the salt, pulses, and spices segment, Tata Chemicals has privileged access into the kitchens of around 150 million Indian homes. Those intimate relationships with consumers on quality lend a position of trust, that is a foundation of our future growth in CPB.

We have access to rich sources of natural capital in the form of naturally evaporated brine at Mithapur in Gujarat, and salt from Thoothukudi in Tamil Nadu and Gandhidham in Gujarat. We source pulses, besan, and spices to strict specifications from locations across the country, to ensure the highest standards of quality.

Our processing and packing facilities are examples of responsible manufacturing. They are located close to the raw materials and tightly integrated into our supply chain. Our packing centres and partner-owned facilities for co-packing across the country, adhere to the highest standards. The best-in-class logistics and distribution networks we have built mean our products are available in a wide range of outlets. Our operations carry certifications such as International Organization of Standardization (ISO) and Occupational Health and Safety Assessment Series (OHSAS).

We have increased salt production by more than 40,000 MT to support the variants of value-added salts launched during the year. Our brands, Tata Salt, I Shakti, Flavoritz and Tata Sampann, are

powerful and deliver on their promise. Impactful campaigns such as “Sawal kijiye apne namak se” and “Aaj ka masaledar sach” and innovations in packaging enable us to stand out in the competitive marketplace. This is reflected in consistently high equity scores for the brand across various surveys. We work closely with the Innovation Centre to apply our knowledge and develop new, healthy products. Preparing a future ready FMCG distribution network, focused on relevant channels, will lend a competitive advantage.

With an IT enabled backbone, the business is exploring opportunities in the digital space to connect with consumers, share product knowledge, understand consumer requirements, and improve operational efficiencies.

Key measures

	FY2017	FY2018
Tata Salt franchise market share in powdered salt segment	25.7%	25.5%
Tata Salt outlet reach	16.5 Lakh	17.8 Lakh
Customer satisfaction	Retailers 75	76
Employee engagement	62%	74%

Risks

- Aggressive competition from unorganised market, regional players, and private labels
- Changes in environmental norms in areas such as circular economy and recycling plastic waste, and other regulations
- Variable commodity prices

Our sustainability-lead growth

Key material issues unique to CPB:

- Green manufacturing including energy and waste management
- Product stewardship to deliver excellence
- Sustainability, health, and environmental impact of the supply chain
- Community development

Opportunities

- Strengthening markets to grow the core portfolio – growth in micro market segments in salt and modern channels in Foods
- Addressing evolving consumer needs through new products and scaling them up, addressing different health dimensions through everyday foods
- Improving operational efficiencies through use of technology

Key sustainability goals	Achievements
Development of recyclable packaging for Tata Salt	Successfully piloted in Delhi
Energy efficiency	Conversion of double conveyor/machine to single conveyor
Achieving 100% resolution of product quality complaints and highest standards of product stewardship	100% root cause analysis and resolution of product quality complaints
Safety incidents	2 lost workday cases (LWC) and 1 restricted workday case (RWC)

Future plans for each category

Salt

We will strengthen our position in markets to grow our portfolio base and increase penetration of products such as Tata Salt Lite, Tata Salt Plus, Black Salt and Rock Salt where demand is increasing through organised retail channels. New product launches will allow us to meet the evolving needs of urban consumers.

Spices

Marketing investments will scale up volumes of existing products to establish product superiority. We will also bring new products to identified white spaces within the spices market.

Pulses and besan

Our portfolio will expand with the introduction of value-added pulses and besan-based products. By investing in regional packaging centres and scaling up our direct to stockist model, we aim to increase the freshness of our products in the market. Our focus will be on modern retail formats and e-commerce, which is growing fast across India. Investments in brands will drive volumes.

New foods and mixes

We are exploring accelerated pilots such as organic to reduce the time to bring new products to market. We will accelerate new product launches under Tata Sampann in collaboration with partners like Star Bazaar and Amazon.

Consumer engagement

1. Consumer research

- a. Segmentation studies
- b. Usage and attitude studies

2. Product development

- a. Consumer research programme for new product development
- b. Consumer Focus Group Discussions (FGDs), quantitative and qualitative studies
- c. Cooking observations

3. Consumer feedback and understanding

- a. Brand track and awareness studies
- b. Customer satisfaction surveys
- c. Stockist meets
- d. Retail audits
- e. Market visits

4. Insights from consumer interaction (Junoon programme)

- a. Consumer home visits
- b. Product ideation and improvement
- c. Retail visits

5. Nutrikart

Online sales to customers

Looking ahead

- Drive Thought Leadership through new and innovative products and platforms
- Scale up new launches with pan-India footprint expansion
- Continue strengthening distribution presence in relevant channels
- Accelerate brand investments, strengthen brand preference
- Expand the width of sourcing
- Scale up exports in countries with large Indian diaspora
- Explore higher cost efficiencies in supply chain

Transforming India's 'khichdi' cooking experience

Tata Sampann Multigrain Khichdi Mix is a new innovation that shines a light on the future of product development in the Consumer Products Business. Developed in record time, it was launched in both brick-and-mortar and online retail outlets. The product has received enthusiastic initial response across markets.



The classic Indian comfort food, khichdi, may be thought of as 'simple' but its preparation is time consuming. Historically, India's traditional food, it is gaining popularity across the globe.

We set for ourselves the objective of developing a product that was nutritious, convenient, and kept cooking time to a minimum. Our khichdi recipe includes a mix of grains with different cooking times, which posed to us an innovation challenge to achieve the perfect consistency without compromising on nutrition and convenience. The product team worked with our Innovation Centre and celebrity chef Sanjeev Kapoor. Their task was to formulate a recipe with parboiled millet to ensure all six grains were cooked in the same time.

New product development traditionally requires a 12-24 month time frame from idea to launch. Thanks to the application of agile methodologies, this new offering was ready in just 60 days.

The success of the project required a cross-functional team, rapid prototyping and iteration, and a relentless focus on execution. The project set a new benchmark within the Company for new product development.

Tata Sampann Multigrain Khichdi Mix was launched exclusively through online retailer Amazon and Star Bazaar stores. It ranked no. 1 in its category at the online store in its first week and sold out within the first 15 days.

Tata Chemicals will continue to invest in differentiated products with the core promise of nourishment and taste. Through the khichdi experience, our team has defined the path forward towards a more collaborative and agile development process that is led by cross-functional teams with project management excellence at its heart.

A lot of effort went into making this traditional comfort food simple to make.

An innovation precedent

Simplicity in process

- Achieved concept establishment to market placement in 60 days
- Executed in an agile way with discipline in project management
- Saved opportunity cost and benefitted from first mover advantage

Simple and differentiated product

- Created a balanced quick to cook recipe with a chef who people trust
- Delivered the core promise of nourishment and taste in a perfect balance
- Tailored to consumer preferences

Successful change management

- Exhibited doer mind-set
- Collaboration
- Imbined a strong sense of ownership of project deliverables



Launched as a limited edition pack - Online on Amazon India and Offline in Star Bazaar stores

amazon.in

Ranked
No. 1
in the
ready mixes category
in the first week of its
launch on Amazon

STAR Bazaar
A TATA and JSW Group Enterprise
HELPING YOU SPEND LESS!

Sold out at Mumbai's
Star Bazaar Stores
within the first 2 weeks

Featured
in the top
10
percentile
in the mixes category
with steady growth
in sales



Paved the way for
a new genre of
mini-meals in the
ready-mix category

Connecting for success





Our chemicals business is building on firm foundations laid down over nearly eight decades to forge a new journey of growth. Its strategy is to pursue volume growth where appropriate and grow value by getting even closer to customers with a slew of value-added, branded products.

Our business environment

Global markets are characterised by sea and land borne trade of soda ash and sodium bicarbonate, the key products for the Global Chemicals Business (GCB). Manufactured primarily in China, the EU, USA, Turkey, and India, these products are consumed in a variety of applications.

Our manufacturing sites are located in regions abundant with salt and limestone or natural trona, the key raw materials for the products. We expect a challenging global soda ash environment in the coming year. Soda ash prices in Europe may reduce due to significant capacity added in Turkey. Prices in China, which saw some correction in 2017, have firmed up and are likely to be in a narrow band of about \$40. In India, healthy GDP growth and low per capita consumption has helped us operate successfully in extremely competitive markets with imports coming from all the major soda ash and sodium bicarbonate producers.

We also expect a difficult domestic soda ash market in the next year. An additional 0.625 million tons per annum (MTPA) capacity may come on-stream. A 5% increase in soda ash demand may marginally reduce the share of imports, with Europe strengthening its position as the key exporter and China losing its significance. Despite the challenging scenario, we project a marginal increase in our realisation. At the same, we see a rise in variable costs resulting from higher fuel costs.

Brand	Category	Segments	Customers
Pharmakarb Medikarb Sodakarb Alkakarb Dessikarb Hemokarb Briskarb	 Bicarb	Pharma (US Pharmacopeia and British Pharmacopeia) Pharmaceutical (Indian Pharmacopeia) Food Animal and poultry feed Food grade dust Explosion suppressant Haemo Dialysis Flue Gas Treatment	Sodium bicarbonate is used in many industries including food and animal feed production, dyes, intermediaries leather, and jaggery. It also has pharmaceutical and haemodialysis applications.
DetMate	Soda ash	Detergent	Businesses
Dense soda ash Light soda ash	 Soda ash	Flat glass - construction and housing; commercial, office and retail space; and automotive sector Container Glass - soft drinks, Beer, Indian made Foreign liquor, Pharmaceuticals, tableware, glass etc. Detergents Chemicals - sodium bicarbonate, sodium silicates, other chemicals Dyes and intermediaries	Flat glass is used in construction and automotive industries. Container glass used in the drinks, pharmaceuticals, and tableware sectors. It is a key input to detergents, and other chemicals manufacture.
Tata Shudh	 Cement	Construction	Individual house owner, small builders, retail
Magadi moore brands	 Salt	Industries, animal feed application	Households, industrial customers
Crushed refined soda	Crushed refined soda	Sodium silicates, animal feed and poultry feed	Industrial customers
Caustic soda	Caustic soda	Paper, textiles, dyes, chemicals	Industrial customers

Key revenue drivers of our chemicals business value chain



Value creation

Tata Chemicals serves the needs of customers globally, providing inorganic chemicals from world-class manufacturing facilities in four continents. All operations have a long-standing focus on manufacturing excellence and continuous improvement processes such as Lean Six Sigma. This means they maintain positions as low cost producers, offer competitive and value-based pricing in the highly cost competitive soda ash and sodium bicarbonate segments. Consistent high product quality world-class service levels, customised solutions and excellent customer relationships are the foundation of our customer contracts. Proven procedures exist, including the mobility of skilled people, to share knowledge and best practice between locations.

We are an industry innovation leader. We work closely with our Innovation Centre to take innovative ideas, bench-test, and develop viable business propositions to meet customer requirements. Service innovations such as the recently introduced customer relationship management portal **ChemConnect**, is an example of innovation in customer engagement. Currently available to 2,500 customers and all distributors in India, it will be made available to customers in other regions. The portal has enabled digitisation of key steps in the customer journey including order booking. More than 90% orders by channel customers are now placed through it. Our connectivity with customers has improved. It allows us

to gather and act on data-driven insights about product and service needs. This increases accessibility, transparency, and makes our response to customer needs more agile.

Product innovations include **Magadi Moore Nyama** and **Magadi Moore Maziwa** the salt and crushed refined soda for animal feed, **Medikarb**, India's first branded pharmaceutical grade sodium bicarbonate, and **DetMate**, the coloured soda ash speckles. We have pioneered high quality technical salt used in detergent and textile applications. Tata Salt is being targeted at the Indian diaspora in the UK. Other product innovations include **de-icing salt granulite** packed in a newly designed 10kg bag as a quality product for shops and supermarkets in the UK, and high purity technical salt developed to service textile, detergents and other industrial applications in the UK, EU and global markets. Supply chain innovations include bulker and coastal shipping and internet-based vendor managed inventory.

We are investing in data analytics to achieve process optimisation in site operations. Using data analytics for process optimisation, modern lime kilns, and MVR technology for VE salt have defined our site innovations. We launched a wide range of electrical, mechanical, and technical projects at Middlewich Salt to improve reliability of process and implemented training and competency programme at Middlewich Salt Mechanical.

Snapshot of the capitals



Financial capital

Approx. impact on sectors:
 Detergents: 8-10%
 Float glass: 4%
 Mining: 22%
 Paper: 18%
 Metal: 16%



Manufactured capital

Production:
 Soda Ash: 38,57,807 MT
 Bicarb: 2,12,785 MT
 Cement: 5,00,424 MT
 Salt: 14,22,761 MT
 Crushed Refined Soda: 5,48,657 MT
 Others: 26,788 MT
 Real estate leased: 1,24,281 acres



Human capital

Employees
 Direct: 2,763
 Indirect: 3,145



Intellectual capital

Industry-first innovations namely ChemConnect and transport of product using bulkers and value-added product variants; Medikarb, Crushed Refined Soda (CRS) in livestock



Social and relationship capital

Depots: 43
 Customers consuming products (direct/indirect):
 Households: 50,48,804
 Companies: 4,759



Natural capital

Production of cement from soda ash by-product.
 Access to natural wealth of salt, trona, natural soda ash.

Lake Magadi in Kenya's Rift Valley is an abundant source of salt and trona, two vital natural capitals. It is one of the few places on the planet where trona is to be found on the earth's surface.



Photo credits: Stephen Kamau

Stakeholder engagement

We are realigning the organisation structure by directionally moving to make our employees at the Chemicals Business Unit more globally aligned for a lean, agile, and cost efficient culture. ChemConnect is helping us increase our customer engagement by impacting real time accessibility, direct engagement, and better service levels.

Innovation leader with industry firsts

ChemConnect

is our innovative Business to Business (B2B) customer relationship management system connecting 2500+ customers to Tata Chemicals.



Back office system

We established a back office system to support our customers with order booking, banking queries, and a host of other information.



Bulk dispatch

On a mission to go green, we use bulkers to transport our product. This helps us eliminate the use of plastics for packaging and reduce our carbon footprint.

Value-added product variants

We push product innovation by offering value-added product variants. Medikarb™, a pharmaceutical-grade sodium bicarbonate, with its applications as an active pharmaceutical ingredient is a good example.

Our sustainability led growth

- Reusing low grade bicarb, soda ash, hazardous waste ash and lime by sending to third parties for recycling, reuse, and disposal.
- All soda ash produced at TCNA leaves the facility on rail cars thus reducing the need for packing materials.
- Expanding Mithapur bicarb capacity with recovered carbon dioxide.
Read more on page 27.

Risks

- Rising cost of energy
- More stringent environmental norms
- Volatility in Chinese soda ash supply/ demand dynamics
- Increasing fixed costs

Opportunities

- Lean six sigma process to identify and improve productivity and cost control mechanisms. Controlling variable costs including fuel, salt, limestone through raw material securitisation and continuous improvement programs.
- Adhering to new regulations proactively with innovative solutions like (Carbon Dioxide) CO₂ capture, and nano filtration.
- Expanding capacity in soda ash and other product lines, including Salt, cement, sodium bicarbonate and bromine.
- Increasing value-added products and sustainable supply chain practices like bulk material.
- Using technology to make processes simpler for customers and internal stakeholders in the digital age.
- Continuing focus on keeping fixed costs low.
- Enhancing ease of doing business, customer partnerships around themes of innovation, and sustainability for stronger customer connect.
- Broad-basing application for mineral reserves such as trona and CRS in the gas treatment, animal feed, poultry feed to expand market and reduce unit fixed cost implication.

Looking ahead

- Establish market presence swiftly
- Enjoy first-mover advantage before the entry of other established players
- Convert parts of the existing bicarb to pharma grade through an identified contract manufacturer
- Boost customer engagement with ChemConnect

Global chemicals business

- Sustainable market leadership
- Cost competitive manufacturing
- Plant and capacity enhancement
- Investment in greenfield projects
- Development of value-added products
- More innovation in new product application such as Medikarb

Magadi taps salt for animal feed exports

Tata Chemicals Magadi (TCM) is transforming its product portfolio with new salt applications. It has created a new market in Kenya's agricultural sector with two animal feed brands and is now expanding into international markets.

Salt is an abundant but largely untapped resource at Magadi. Magadi Moore Nyama and Magadi Moore Maziwa, are part of a policy to find new markets for fortified salt. Trona from the lake is mined and refined to produce soda ash, which is exported to markets across the world. Salt is a natural asset that has historically been underexploited. A diversification project has borne fruit in the past year as export sales of animal feedstock made from crushed refined soda have taken off.

Cattle and sheep sweat prolifically in Kenya's hot, arid climate. As a result, they lose salt and valuable minerals. By replenishing lost minerals, the new fortified feedstock improves the health and well-being of livestock. They reduce the prevalence of disease and increase milk and meat production. Farmers see an increase in the value of their animals.



Originally tested in Kenya, the products are now being marketed and sold in the USA, the world's fourth largest livestock market. They have been modified to meet Food and Drug Administration (FDA) regulations that demand lower fluoride content.

TCM implemented a shallow trona mining plan and resuscitated part of the mothballed premium ash plant at Magadi. The transshipment facility at Kagiado en route to Mombasa was revived. Marketing teams have worked hard to build the brand and customers were welcomed to see the facility at Lake Magadi. In 2017-18, sales more than doubled to 40,000 MT.

The feedstock has been pushed to customer segments unfamiliar with the Magadi brand through a mix of campaigns including extensive radio advertising. The country's largest dairy farm is among those that have endorsed the products.

Challenges and dynamics

Optimum equipment is required to meet the required volumes in time for shipment.

Quality requirements are high and we have had to modify the process to include drying, crushing, and screening of the product to attain the strict particle size requirement.

We have to overcome logistical challenges to seamlessly move product from Magadi factory to the Mombasa shipping shed without affecting the mainstream product transfers of salt and soda ash.

Snapshot of the capitals



Natural capital

The existing natural resource of salt to which we have preferential access while requiring little additional manufacturing investment.



Manufacturing capital

The manufacturing asset of our premium soda ash plant at Magadi.



Human capital

Our marketing team in Magadi embarked on a rigorous product marketing assignment aimed at building new markets for the product.



Intellectual capital

Our Magadi team invested in its marketing and sales capabilities and became an expert in branding new products. We worked in collaboration with the marketing teams in India and South Africa.



Financial capital

Required to develop a new product and bring it to market.



Relationship capital

Our strong brand and heritage.

Key milestones and achievements

Customer satisfaction on samples of shallow mined crushed refined soda.

Following successful completion of an initial trial order, large orders were subsequently shipped to a USA-based customer in February 2018. Shipments are expected to increase significantly by December 2018.

Tata Chemicals Magadi has been certified for its Good Manufacturing Practices a requirement for animal feed imports into Europe.

Mithapur expansion to meet pharmaceutical bicarb demand

New plant will meet export standards for US and European markets

Tata Chemicals' sodium bicarbonate capacity at Mithapur will increase by almost one third, when a new world-class pharmaceutical grade plant comes onstream in late 2019. It is part of our strategy to maintain volume market share in India and increase value-added branded share in a market driven by strong macroeconomic and demographic trends.

The new capacity will support our recently launched Medikarb product, a pharma grade sodium bicarbonate that is subject to regulations with state Food & Drug Administration and Central Drug Standard Control Organization. Of all the applications of sodium bicarbonate, pharma applications in excipients, formulations, and haemodialysis concentrates require the highest purity and hence command the highest realisations.

We currently produce more than 100,000 MTPA across four categories technical, refined, Alkakarb (animal feed) and Sodakarb (food grade).

Currently, demand in India for pharma grade sodium bicarbonate is being met largely by reprocessing and repackaging of industrial grade and food grade products. Customers in the country's rapidly growing pharmaceutical industry are demanding high quality products from certified facilities. Regulations are also likely to tighten and come closer to the standards that exist in the European and US markets. Products meeting these stringent standards will find additional opportunities in the export markets.

The new plant with a proposed expansion of bicarb capacity of 28,000 MTPA will use recovered carbon dioxide from existing carbonating tower vents. This carbon dioxide recovery will be another pioneering step towards sustainability driven growth.

To achieve this 'value from waste' strategy and reduce our carbon footprint scientists from the Innovation Centre in Pune are working closely with the manufacturing team from Mithapur, and colleagues in Cheshire for carbon dioxide recovery in their respective plants. An investment of ₹ 100 crore is expected for this.

Looking ahead

- Swiftly establish market presence
- Enjoy first-mover advantage
- Convert parts of the existing sodium bicarbonate to pharma grade through an identified contract manufacturer under TCL's direct supervision duly validated by the Innovation Centre and the Mithapur technical services team.



Boosting the nation's health with new nutraceutical products

Changing lifestyles and consumer health habits in India are creating exciting demand for a range of new food products. These sit at the intersection of markets traditionally served by FMCG and pharmaceutical companies. This fast growing world of 'nutraceuticals' is a hotbed of innovation. We are applying innovative food science, combined with our traditional strengths in consumer products, to create offerings that provide the healthy and tasty missing nutrients to bolster the diets of Indians.

Our business environment

The Indian diet has historically lacked certain micronutrients. This was not a concern for many years until now. Current times have seen significant changes in lifestyles, food requirements, and subsequent adverse effects on overall well-being. Complete lack of exercise is not uncommon. This has led to a rise in ailments arising out of deficiencies and poor nutrition.

The environment is ripe to understand and address nutritional needs and deficiencies through food formats. And to that effect, we can already see interesting trends in market. The traditional pharmaceutical companies are exploring opportunities in food and typical FMCG companies are moving towards functional foods with health benefits. Hence, the birth of the fast moving health goods (FMHG) segment, worldwide known as Nutraceuticals. More and more companies from pharmaceuticals, over the counter (OTC) and FMCG are entering into this high growth segment.

According to a study jointly undertaken by Assocham and market researcher RNCOS, Indian nutraceuticals market is expected

to reach \$8.5 billion by 2022 from \$2.8 billion in 2015. In 2015, India accounted for a share of around 2% of the global market and is anticipated to increase to a value of approximately 3%. This is owing to country's large population base, increasing urban belt and awareness. While dietary supplements segment accounted for 65% percent of Indian nutraceuticals market in 2015, the remaining 35% was occupied by functional food and beverages. Indian nutraceuticals industry is one of the rapid growing markets in Asia Pacific Region (APAC), anticipated to grow at CAGR 12%.

Tata Nx is Tata Chemicals' foray into Indian nutraceuticals for retail. Tata Nx promises to deliver nutrition in its best form; backed by science; to fulfill the daily nutrition needs of today's fast paced lifestyle of our consumer. Its aspirational market share stands at 8% (functional food and vitamins/probiotics market). The sweetener category is about ₹ 550 crore which opens a huge opportunity for Tata Nx Zero Sugar to claim the natural sweetener space. The shift from sugar may still be years away but we can see a trend towards low calorie and natural sweetener



Brands, products, market segments, and customer

Our current offering is Tata Nx Zero Sugar which is a 100% natural sweetener with low glycaemic index. It is best suited for people who have been advised to avoid sugar and for people who are calorie conscious. Tata Nx Zero Sugar was awarded the Ayush Kamal Ratna for India's Best Natural Sweetener in April 2017.

At its inception, Tata Nx is targeting the new age ambitious 25-55 year-old young Indians who require food that provides nourishment every day. In the long run, we strive to create a one-stop solution for all nutritional needs of an Indian consumer across age groups and lifestyles.

We will be present in segments like sweeteners, functional foods, pre/probiotics with differentiated science-backed offering.



Key revenue drivers of our value chain

- New product launches
- Distribution reach
- Brand salience - leveraging the trust that comes with being a Tata product and linking it to innovation and science
- Stores visibility
- Trials and awareness creation

Value creation

Tata Nx uses its access to a number of capitals to meet the emerging needs of Indian consumers seeking to improve their health and nutrition level. It combines the intellectual capital assets of Tata Chemicals' Innovation Centre with the human capital and knowledge resources of our established Consumer Products Business and its deep reach into the Indian food retail sector. We have a young and energetic team that understands the market. The social and relationship capital that comes from our intimate understanding of Indian consumers works alongside the financial resources that come from a being part of the Tata group. By combining these assets we have been able to create, bring to market, and commercialise new and innovative products.

Scientists and food technologists at the Innovation Centre are working on new food formats that supplement regular diet with missing micronutrients. Their objective is to look and

solve health problems from a nutrition-based rather than medicine-dependent standpoint. They use agile approaches to rapidly prototype and test new products and bring them to market at speed. Consumer is at the centre throughout the development cycle.

Manufacturing is currently managed by trusted and well qualified partners as we invest in and build captive capacity. For supply chain, packaging, and distribution we rely on the expertise of our highly experienced colleagues in the Consumer Products Business. Together we capitalise on the vast reach we have through our established salt, pulses, and spices brands to ensure that Tata Nx products are available in the places where our target customer group shops regularly.

Tata Nx portfolio has a common underlying product promise of being 100% bioeasy. Bioeasy embodies the Tata Nx product attributes that provide the next level of nutritional solutions for a healthy life. Our target consumer group is the 25-55 year-old, ambitious, well-informed and increasingly aware of health and wellness issues. It demands high quality products from a trusted source making the Tata name a valuable asset.

Snapshot of the capitals



Financial capital

We have set a target of ₹1.8 crore through sweeteners and functional foods in FY2019.



Manufactured capital

We have partnered with leading 2P manufacturers for sweeteners and functional foods. This enables us to keep our model lean and agile. Launch production for Zero Sugar is 2.2 tonnes. Production plan for functional food is yet to be finalised.



Human capital

Our business team comprises five members. They work alongside scientists at the Innovation Centre SMEs in CPB.



Social capital

We are currently using CPB's extensive supply chain and distribution network to ensure availability and reach. We are looking at an aspirational market share of 8% (functional food and vitamins/probiotics market) by 2028. The Nx division shares the distribution channel with Consumer Products Business.



Intellectual capital

With low glycemic index (GI), Zero Sugar is an ideal sweetener for people with sugar ailments. In 2017 it was named India's Best Natural Sweetener in the Swadeshi National Awards. Our portfolio will contain science backed, IP protected offerings.



Natural capital

Zero Sugar is 100% natural made from lactose, steviol glycosides and a fruit extract. Lactose is all natural milk sugar comprising of glucose and galactose. Stevia is a herb that has been used globally as a natural sweetener for several decades.

Stakeholder engagement

We have designed a customer care process to consistently address customer queries. It will mirror existing customer care process for Tata Salt and Tata Sampann. We will address product replacements through our vast network of sales field force.

Risks and opportunities

Risks: Product safety is a risk for any food producer. We work continuously with regulatory authorities to ensure our products go beyond compliance standards. We appreciate that because 'nutraceuticals' is an emerging category, regulations are still developing and we need to be abreast of incoming changes in regulations.

Opportunities: Tata Nx sees great potential in the market for 'super foods', products with no/low sugar content, 100% natural offerings, products that offer weight management, stress management, and boost immunity. We will grow by tapping this potential and provide customised offerings to address specific need states. After a gestation period, we plan to address kids segment as well.

Sustainability led growth

In early stages, we are starting with 2P partners with robust quality management systems in place. This allows us to be agile and lean and develop an asset light model. In choosing our partners we evaluate their financial robustness and technical capabilities.

Because the nutraceuticals industry is still evolving, we will ensure that our consumers grow along with us. We will help them understand their nutritional needs as we serve them through customised products.

Five-year strategy

We will relaunch Zero Sugar in early July. Based on the feedback received from the pilot launch, our team is revising the pricing and packaging. We are also working on differentiated concepts in functional foods. Sugar variants, supplements based on proteins, vitamins, minerals are in the pipeline. We are working with some of the best labs in the country to develop innovative offerings.

Key performance indicators

- Number of products developed - sweeteners and functional food powders (FY2019)
- Topline ₹ 1.8 crore (FY2019)
- Consumer acceptance of innovative formats - FGDs and market feedback
- Brand equity - Tata Nx believes that it can be a nutritional solution provider that helps bridge the nutritional need gap with the consumer, helping them lead active healthy lifestyles
- Safety - will comply to the FSSAI on safe food manufacture and sale

Looking ahead

Grow Tata Nx into a ₹ 2000 crore business by 2028 with a rich portfolio of science-based products to cater to different need states of Indian consumers.

Understand the key need states of the consumers and offer nutritional bundles in different food formats wherein the main focus will be on taste with the product promise of being 100% Bioeasy.

Build a strong brand equity in the minds of the consumers as being the Nx level of nutritional partner.

Strengthen our idea bank and work with leading partners in health and nutrition.

Leverage identified strategic partners for innovation, IP creation, and manufacturing.

Get the product right at the outset with significant support from the subject matter expertise of our peers at Consumer Products business.

Develop stringent action standards for science-based differentiation.

Become a one-stop solution for Indian family's nutritional needs.



Zero sugar - the 100% natural sweetener

India is home to 65 million confirmed diabetes patients with another 30 million in the pre-diabetes group. Obesity as a lifestyle disease is slowly gripping our population. Indian men and women occupied the 5th and 3rd rank respectively for obesity in the world in 2014. The statistics demand a lifestyle overhaul from the Indian population to stay healthy.

With increasing awareness of such health risks and ailments, people are becoming conscious and making attempts to reduce their sugar intake. They are seeking out healthy alternatives to sugar including sweetener. Rising incomes also mean that people are willing to pay a premium for better and healthy products.

These factors have created significant opportunities for the growth of India's nutraceuticals sector – a mix of nutrition and pharmaceuticals. This sector is focused on science-based nutrition. Tata Nx, Tata Chemicals' foray into nutraceuticals in retail space, is seizing this opportunity. Tata Nx aims to deliver on our 100% Bioeasy promise- next level of nutritional solutions for a healthy life. We want consumers to view health as nutrition-based and not medicine-based, and innovation in food science is helping us deliver this promise.



Tata Nx Zero Sugar is one such offering. A one of a kind, non-artificial sugar substitute made from natural extract of stevia. It has low GI, which makes it an ideal sweetener for people who have been advised to reduce their sugar intake or avoid sugar. The

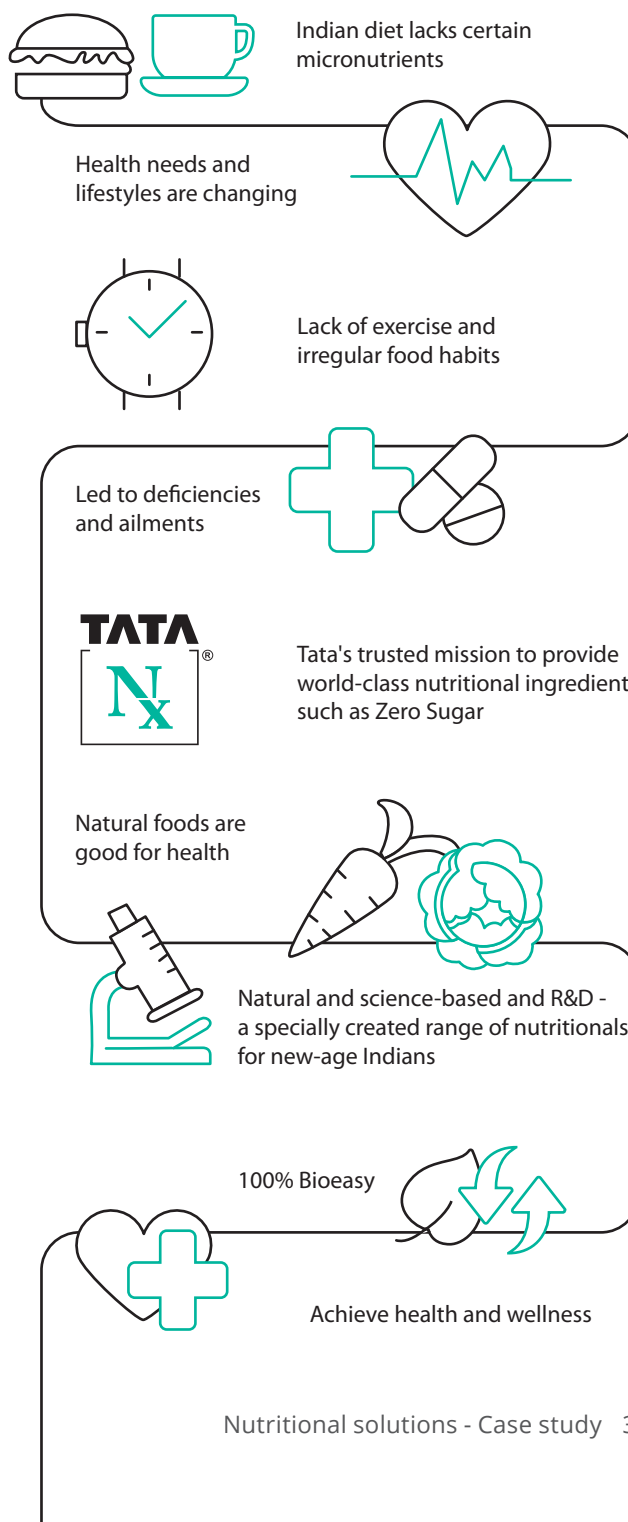
herb stevia has been globally used as a natural sweetener for several decades. It is 100% natural, with no calories, and is 300 times sweeter than sugar.

Tata Nx Zero Sugar was awarded the Ayush Kamal Ratna for India's Best Natural Sweetener in Swadeshi National Award ceremony in April 2017.

Awaiting relaunch in July 2018, Zero Sugar will be available in modern trade stores in select cities and Amazon.

Through products such as Tata Nx Zero Sugar, we will continue to provide products that people shall trust - an important building block of the Tata Empire.

Tata Zero Sugar Proposition



Ingredients for wellness

Snapshot of the capitals



Financial capital

Committed ₹ 270 crore for scale up to build a brand new greenfield facility at Nellore, Andhra Pradesh.



Human capital

Employees - 54
Contract - 19
Skill sets augmented in specialised areas
Fermentation technology, quality assurance, global regulatory, application-based selling, food technology experts.



Intellectual capital

Food science know-how - Repository of food innovations with prebiotics built - e.g. low calorie ice creams, Good for Gut cookies, 'Concept to Claim' support for customers.



Social and relationship capital

We meet customer requirement through a mix of direct engagements customers and distributors. We serve 600+ customers in 105 cities with a network of 5 distributors and multiple trade partners.



Manufactured capital

Plant capacity at Sriperumbudur: 700 MTPA*
Manufacturing plant of Prebiotics - 11 acres; Gross assets of ₹ 52 crore till FY2018
Nellore: Planned capacity of 5,000 MTPA; Greenfield project under construction for manufacturing plant of prebiotics; Total area - 40 acres
*Equivalent capacities considering all grades of FOS

Our business model

Consumers nationally and internationally are looking for natural, convenient, safe, and effective foods and supplements that support their lifestyle and deliver adequate nutrition. At Tata NQ, we are committed to providing innovative and science-backed nutritional ingredients and formulations in the areas of gut microbiota modulation and personalised health solutions.

Over the past few years, we have invested in building infrastructure and capabilities. Having stabilized our operations at the greenfield plant at Sriperumbudur, Tamil Nadu, in the last two years, we have committed ₹ 270 crore for scale up to build a brand new greenfield facility at Nellore, Andhra Pradesh. The team today is well-endowed with biotechnologists, process specialists, food tech and application experts who work on various aspects to make available the right product of right grade to the customer.

Brand	Product	Market segment	Customers
Fossence™	Fructo-Oligosaccharide (FOS)	Food and beverage, nutraceutical formulations, animal feed	Wellness Food & Beverages: For fibre addition and sugar reduction - Application in bakery, dairy, Indian sweets Nutritional applications: Health drink supplements, infant foods, sports nutrition and therapeutic applications Animal Feed: New segment introduced in FY2018 Part of feed for aqua, poultry and pet
Gossence™	Galacto-Oligosaccharide (GOS)	Infant and dairy products	Infant food players Nutritional supplements

Growing our capabilities

We are focused on adding value to customers via - investing in science to enable better claims on products, creating IP in the process; product conceptualisation with customer partnerships. The Innovations Centers' Association with external partners and academic institutes such as Yale University is playing a crucial role in building capabilities.

Looking ahead

- Explore market expansion outside India as the markets for functional foods and nutraceuticals grows rapidly
- Sharpen our differentiated product offerings through consistent innovation and emerging customer requirements
- Capitalise on products in areas of high consumer demand and emerging areas of scientific focus such as gut microbiome to offer multiple products including fermentation, gut health, and personalised nutrition
- Prepare to face global competition and stringent regulations.

Taking care of the digestive system

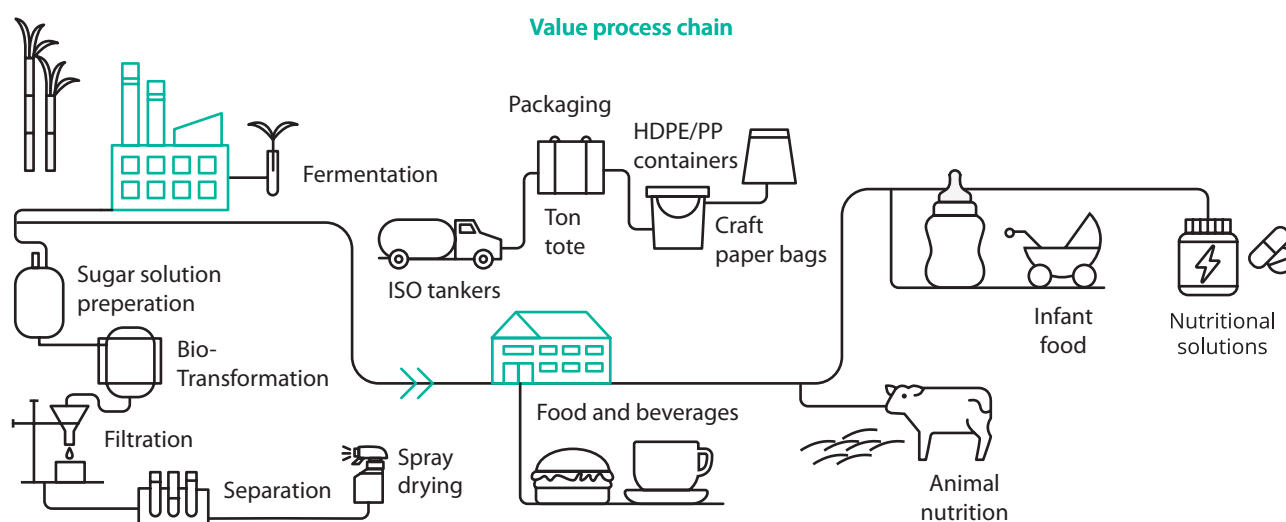
Did you know that there are 30 trillion cells in an average human body? Oh, by the way, you also house an additional 100 trillion microbial cells - mostly in the gut - which play a crucial role in your overall wellbeing. Tata NQ is here to help you take care of them.

Targeted at improving gut and digestive health, Fossence™ [FOS-FructoOligosaccharides] enhances the

growth of healthy bacteria in the gut. The resultant growth in beneficial micro-flora aids in improved immunity, enhanced calcium and magnesium absorption, better weight management and promoting general well-being.

The product finds wide application in functional foods and beverages such as bakery, sweets, and confectionaries. It is also used in nutritional formulations such as

health drinks and dietary supplements. We are actively working with our Innovation Centre colleagues at Pune to further our understanding of the gut health and develop interesting product concepts. Our international publications related to this field of study and our collaboration with Yale University are testimony to these efforts.



Bolstering our infrastructure

Having stabilised our operations at the greenfield plant at Sriperumbudur, Tamil Nadu over the past two years, we are ready to take the next big step towards augmenting our infrastructure with a world-class 5,000 MTPA manufacturing plant of prebiotics (FOS & GOS) at Nellore, Andhra Pradesh, India. With a committed capital outlay of ₹ 270 crore, the new plant will be a highly automated good manufacturing process (GMP) certified manufacturing facility spread over an area of 40 acres. Quality has been kept at the core of it all - from the design philosophy to the choice of equipment and control systems. The construction is on schedule with commissioning planned by March 2019.

Rallis puts technology in the field

Rallis, the agri-solutions subsidiary of Tata Chemicals, is doing things differently. It is using technology to provide precision agricultural solutions of the future. Artificial Intelligence (AI), one of the industrial 4.0 technologies, is its primary comrade.

Rallis is employing digital in agriculture extremely well. Project Dhristi is the state-of-the-art digital pest and disease-forecasting system that uses advanced analytics and Artificial Intelligence. The system uses historical, current and forecasted weather data and high-resolution remote sensing satellite-based spectral images. It identifies the crop and crop stage; forecast the current and projected crop health, soil moisture, nutrient index, plant stress and likely pest and diseases. These valuable insights are then bundled along with Rallis Proprietary Package of Practices (PoP) to provide a Predictive agri-advisory to the farmer community.

Rallis along with Group Technology and Innovation Office (GTIO) has also been piloting the use of drones for crop protection. Commercial drone with custom modifications to enable them to carry heavy payloads of pesticide spray solutions were engineered. Several successful pilots have been completed and the results being utilised to further improve the overall system. This initiative has immense potential and is being seen as a value-added service for farmers in the future.

Having access to data of this scale gives it the ability to further advise farmers on their agricultural inputs. Changes in nitrogen levels or carbon content within the soil are good examples. They are precisely identified and subsequent solutions are suggested to the farmers. Benefits range from reduction of excess fertiliser and pesticide usage to preventing yield losses thereby increasing it. Personalised advisory, alerts, and assistance can then be provided to the farmers.

Rallis' approach toward business is all-inclusive. Not only does it manufacture agricultural inputs but also provides support services. From the Company's point of view, these technologies have leaped it further in the race. The data at its disposal is helps it greatly in taking pertinent decisions around the operations strategy. If the conditions are suitable for pest attacks, it can increase the production level of pesticides, and if the conditions are otherwise, it can move the product to a different market. Based on conditions, it can make a decision to mobilise or manufacture.

Rallis has embarked upon a digital and cultural transformation journey to give its agro-business a boost and deliver its customer promise. It is in the early stages but the opportunities are endless.



Developing superior seeds



Metahelix is the wholly owned subsidiary of Rallis India Limited. The Bengaluru based agricultural biotechnology Company develops traits and technologies for crop protection and improved productivity. It creates and commercialises high-quality hybrid seeds. Metahelix's Dhaanya Seeds is emerging as a household name among millions of India's farmers. Seen as an innovator, Metahelix consistently develops and delivers new hybrids.

With a diverse portfolio of crops including rice, maize, pearl millet, cotton, and vegetables, Metahelix recognises that

rice hybridisation is relatively low due to various factors. Taking up this challenge, the Company is persistently developing newer rice hybrids to address varied culinary preferences. Today, hybrid rice forms nearly one third of its revenue.

In 2013, Metahelix launched MC-13, India's first ever hybrid bold rice. Bold grain rice segment represents one fourth of the country's rice grown area. It is unique - being the only segment that is used in processed foods such as rice flakes, pop rice, idli, dosa, and namkeens apart from direct consumption as steamed rice. This path

breaking innovation was awarded the Tata Innovista Global Award in 2015. Today, small and medium land holding farmers growing hybrid rice across the rice belt of India are demanding significant volumes of MC-13 seeds. During the year, it achieved nearly 100% volume growth – an important milestone for a new product launched five years back.

Continuing to march ahead with its slogan धन बोले तो धान्या Metahelix also launched a hybrid in the fine rice segment branded as MR 8666.



Transforming lives through innovation

Innovation is an integral part of TCL's culture. Our innovation efforts cover products, processes, and technology in the areas of food, energy and environment, and water and wellness.

Our Innovation Centres

Tata Chemicals Innovation Centre (IC), Pune

Rallis Innovation Chemistry Hub (RICH), Bengaluru

Metahelix Life Sciences, Bengaluru

Tata Chemicals R&D Centre, Mithapur



Innovation statistics

Particulars of intellectual capital	Patents filed	Patents granted	Research professionals/scientists
IC Pune	81	19	47
RICH	29	14	44
Metahelix	9	7	112
Total	119	40	203

A multi-disciplinary, scientific approach to problem solving

The Company established the Innovation Centre to undertake research in applied sciences to seed new businesses and support existing ones. The Centre works with business units in the nutritional solutions, chemicals, and consumer products fields. It uses a multi-disciplinary scientific approach to develop products and services.

During the year, the Innovation Centre developed significant additional capability in food science and technology. The R&D efforts in this area led to development of new products such as pulse based mixes and multi-grain khichdi, which deliver

convenience and nutrition. The Centre also supported the development of technology for the manufacture of pharmaceutical-grade sodium bicarbonate.

Scientists and food technologists in Pune are also working with the nutritional solutions business to provide access to customised nutrition to meet specific health needs. They use agile approaches to rapidly prototype and test new products and bring them to market at speed.

A combination of multiple scientific disciplines, a customer-centric approach, and scientific problem-solving sets the Innovation Centre apart from other research facilities.

The Rallis Innovation Chemistry Hub develops new solutions to improve farmers' income and enables expansion in contract manufacturing.

Metahelix Life Sciences Limited works in the area of agricultural biotechnology. It uses technology to improve crop traits.

Developing new hybrids and seeking protection for them under the Protection of Plant Varieties and Farmers' Rights Act



	Maize	Cotton	Rice	Pearl millet	Vegetables	Granted
New	13	2	0	11	2	0
Extant notified	0	0	1	2	0	3
Extant variety of common knowledge	0	0	0	2	2	0
Total	13	2	1	15	4	3

Tata Chemicals believes in nurturing a culture of innovation within the organisation and has initiated several platforms such as All Ideas Matter, Tata Innoverse, Metahelix Innomall and Simpli5 that leverage

operational excellence. These focus on innovation at individual and team level. Several innovative ideas stem from these platforms and are initiated as projects during the year. The Company's innovation centres along with the R&D facility in Mithapur

constantly work towards process innovation, and also explore synergies with several group companies, and other multinational businesses, to provide innovative solutions for products and technology.

Presently, the innovation centres have a total of 81 active patents out of which 19 have been granted. In FY2018 we filed 11 new patent applications in food and nutrition and advanced materials science.

Making sustainable silica-based tyres, the Tata Chemicals way!

India is one of the largest producers of rice in the world. Rice husk, its agricultural residue, is therefore available abundantly in the country. The rice husk generated

contains both organic and inorganic matter. The composition is 75% of cellulose, hemicellulose, lignin, and 25% of silica with small portions of alkalis. Rice husks are generally used to fuel the rice mill boilers and provide a source of heat energy during the rice milling. Post burning, rice husk generates ash known as rice husk ash (RHA).

RHA disposal poses an environmental challenge in India. Currently, its disposal includes landfills and to a very small extent in brick making.

But the RHA generated, contains 80 to 95% of silica and hence, it is economically feasible to extract it. To prepare silica, silicate is obtained from RHA by reacting with any alkali preferably sodium hydroxide and sodium carbonate to

produce sodium silicates (Na_2SiO_3). Sodium silicate is then reacted with sulfuric acid to generate silica.

The silica obtained, has varied applications ranging from tyres, toothpastes, food, plastics, and pesticides to electronic industries. Utilising the RHA serves two purposes, production of silica and addressing the issue of its appropriate disposal.

Tata Chemicals' Innovation Centre is developing process technology to produce silica from RHA. In order to secure sustainability of their raw materials, the tyre industry needs silica prepared from agricultural or industrial waste. Currently, a feasible process at the IC lab has been developed and the process is being scaled up.



Safety and health

Safety is fundamental to our business and an integral part of the sustainability agenda.

Safety

With the CSR, safety and sustainability Committee of the Board, guiding our efforts to deliver, we are committed to achieving a goal of targeting 'Zero Harm' - Zero Harm to People, Zero Harm to Asset and Zero Harm to Environment through world-class SHE practices. TCL's Corporate SHE policy is the overarching policy, with the subsidiaries aligning it to the local regulatory and safety directorates. We are driven by voluntary standards such as OHSAS 18001, Responsible Care, and the British Safety Council guidelines.

Risk assessment and management

Safety is identified as one of the risks at the enterprise level periodically reviewed by the risk management committee of the board. Considering the hazardous chemicals used, sites have deployed structured risk assessment and management process - both qualitative and quantitative.

Hazards are identified using techniques such as 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. Unsafe conditions and hazards are reported in an e-enabled portal. Employees working in high risk areas are given specialised training and retrained periodically. We observe Safety and Fire Service Weeks to promote Safety and Community Awareness. We review on-site emergency plans and have also adopted a Public Liability Policy. Business continuity plans are in place to manage crises.

Integrating safety into systems and processes across geographies

Geography	Safety initiatives
Mithapur	Process safety and risk management
Haldia	Constituted Reliability and Planning (RAP) cell for exclusive focus on reliability centered maintenance practices
TCML	Formed sub-committees to improve safety management system under the leadership of senior management, rail management system
TCE	e-modules - dynamic risk assessment tool or 'Stop and Think' risk assessment, manual handling and contractor induction module
TCNA	Internal inspection, Hazard Identification Tours (HIT) and LEAKS program

Measurable outcomes



- 24% reduction in the number of total recordable injuries reported in FY2018 in comparison to FY2017
- Unfortunately, 2 fatal incidents were reported in FY2018

Building our Safety and Health competency

The health and safety of our employees, customers, suppliers, and communities around which we operate is a top priority. Health and safety considerations are integrated in the overall management systems and are an important driving force for the operations. Standards for best practice in health and safety are visible, robust, sustainable, and subject to continuous review and refinement.

Tailored periodic medical check-ups are administered to our people, based on the hazards of their work area. Adequate medical facilities are present at all sites. Specialised medical facilities can be accessed through tie-ups with hospitals. Sites with a trade union presence have formal agreements between over safety and health topics.

Collaborative efforts

- Steer and direction are given by Senior Management
- Demonstrate collective ownership and demand accountability for safety; Share a focused agenda of health and safety and meet periodically to discuss the same
- Committees (CFTs) work across occupational health and safety areas such as the implementation of best practices and risk control e.g., BSC 5-Star cross functional teams (CFT), process safety and risk management (PSRM) committee, formal joint committees comprising management and unionised employees, such as works/central safety committee, plant/department safety committee, wellness committee, etc.
- Safety performance is linked with individual performance linked variable pay (PLVP) or incentives as applicable and there are conscious efforts to ensure an active engagement of workforce in promoting safety and achieving a safe and healthy work environment

Values at the heart of our ethical approach

We are proud of our deep rooted heritage of conducting business with honesty and integrity built on trust that the Tata brand evokes.

Our culture is based on our values of safety, passion, integrity, care and excellence (SPICE). These values influence our actions, resulting in a workforce of more than 5,000 individuals committed to doing the right thing in every endeavour. While 'what' we achieve is important, we collectively care as much about 'how' we achieve it. Beginning with transparency in our policies, procedures, and transactions, we reinforce our commitment to 'doing the right thing' through regular training sessions and strong internal controls.

Our governance framework is based on a strong foundation with the Tata Code of Conduct leading the way. It embodies our approach towards managing employment, labour relations, human rights, and diversity. It drives our policies on a host of concerns such as equal employment opportunity, affirmative action, harassment, anti bribery, anti corruption (ABAC), whistle blower

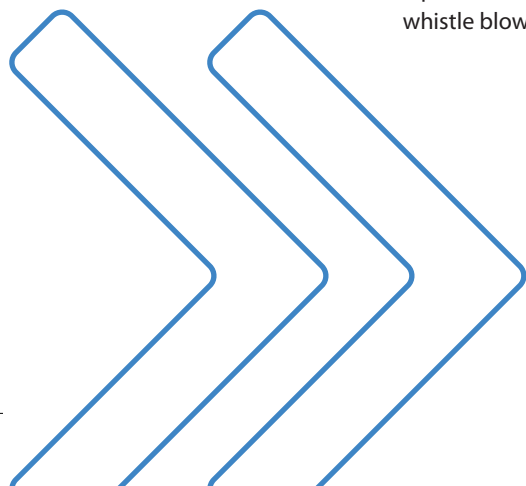
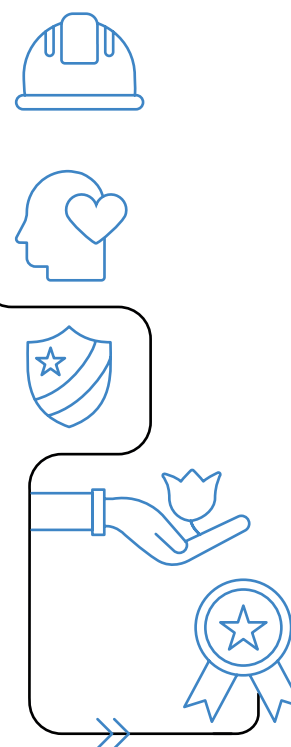
protection, taking and receiving gifts. The code is available in multiple languages and can be accessed on our website/intranet.

In a competitive business environment, we sometimes encounter situations that test our judgement and integrity. The Tata Code of Conduct and our values of SPICE serve as a moral compass in such testing times. Even as we achieve our growth plans, we commit ourselves to living the Tata Code of Conduct .

We strengthen our commitment towards the ethical way of doing business by consistently holding regular refresher sessions, events, surveys, and communication on ethics with employees, business partners, and other stakeholders. Stakeholder groups in all our units and extended business eco-system enthusiastically participate in these events.

Our future aspiration

Our vision is to go beyond mere compliance. We want to do what is right and responsible. We aim to lead by example and learn from experience.



HR's transformational agenda

We are undergoing a major transformation as we realign to grow in today's competitive business environment.

We exited the Crop Nutrition Business last year, divested the Agri Business and smoothly transitioned 465 employees from the urea business in Babrala to Yara Fertilisers. We entered FY2019 with a clear focus on developing our Speciality Chemicals Business and Consumer Products Business as our growth engines, while we continue to efficiently operate the Bulk Inorganic Chemicals Business.

Such change has created exciting opportunities and challenges. The HR function will be critical to this journey. We are preparing to transform our offering to respond to the needs of a changing customer profile and diverse customer expectations both B2B and business to consumer (B2C). We are equipping ourselves with a more diversified employee mix with different skillsets, backgrounds, and spreads across multiple generations.

To succeed, our workforce needs to be highly engaged, competent and agile. Sustaining employee morale will be of high priority. Continuous communication and transparent processes will strengthen our cultural pillars and values.

To reinforce our commitment to the Tata Code of Conduct, our foundation for

governance, we celebrate Ethics Month in July every year. This year we launched a **21-Day Ethics Challenge** using our SkillSoft e-Learning platform. This initiative was covered in *People Matters* magazine.

We launched two online modules on our e-learning platform - **Anti-Bribery and Anti-Corruption** and **Prevention of Sexual Harassment**.

SHINE+ our internal job posting and employee referral program is now five years old. It has become a valuable asset for our employees wishing to explore career interests in the Tata Chemicals Group. The platform helps us deal with redundancies that arose from divesting the Agri Business. We have fulfilled our requirement for niche skills. Selective lateral hiring in areas such as food science and technology, nutrition and wellness, digitisation and materials' science has helped deliver our plans.

This year we started a promising initiative **Leadership Connect** to provide a platform for informal and focussed interactions between the board of directors and high potential employees. This proved a valuable experience for our go-getters.

We also launched immersive depositions under **SpringBoard**, our process to identify and develop Key Talent. The Individual Development Plans for Key Talent are designed as interventions using the

70-20-10 approach of learning through experience, exposure and education respectively.

TCE are leading the way with a cutting edge training system allowing the flexibility of e-learning to supplement normal training sessions. My Development Hub has a suite of training packages covering everything from specific safety modules to packages on modern slavery. These are available to all on line and the system incorporates invitations to refreshers on a specified basis and a training record as modules are completed. TCNA launched Employee Mentoring Program for its salaried employees.

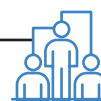
We have enhanced our **Incept Induction Process** in India focussed on improving new employee experience.

X-press 2017, our global employee engagement survey (excluding Rallis and Metahelix) was conducted by our partner Aon Services Limited. We recorded an engagement score of 68%. Post the **X-prESS 2017** employee engagement survey, we conducted 'Decoding the manager scorecard' workshops for managers across geographies. This resulted in a 10% increase in managers classified as 'good' and above in their team effectiveness skills.

We renovated our Mumbai training centre called **Shack** to enhance seating capacity and make it disabled-friendly.



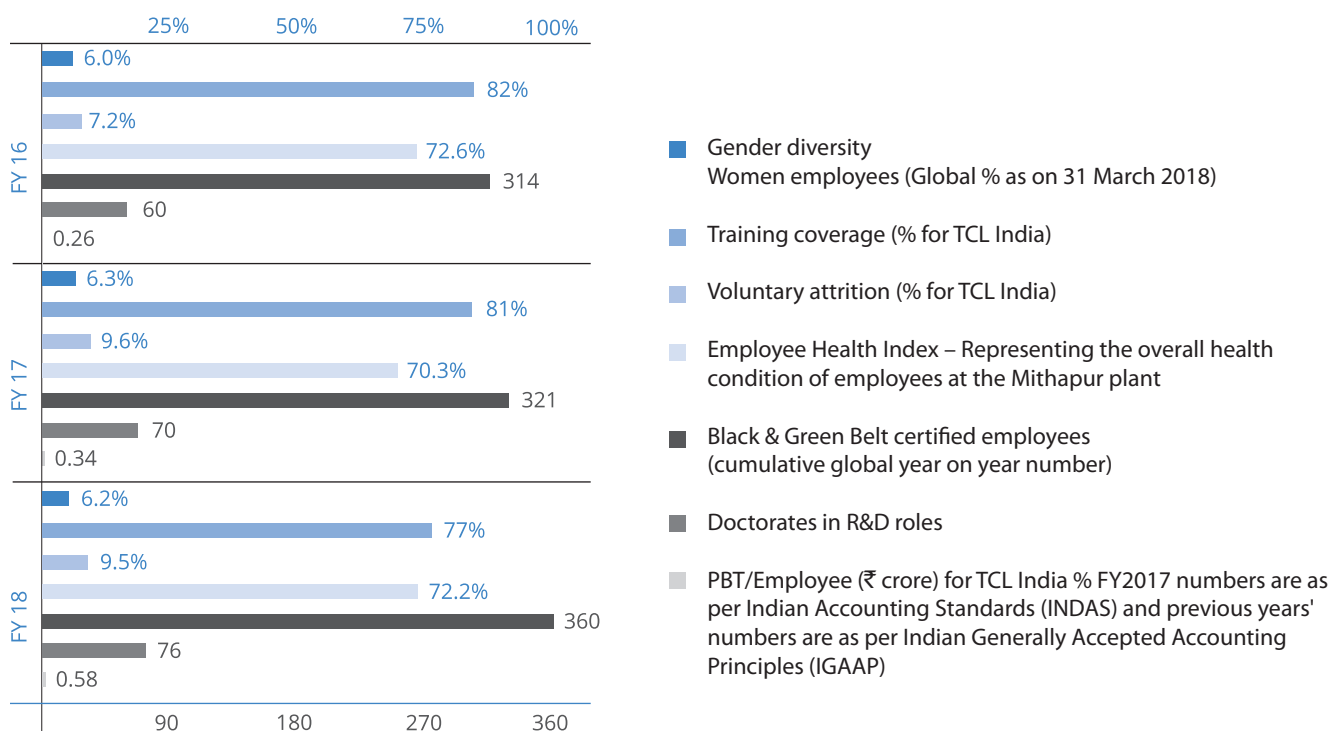
Keeping our team fighting fit



As on March 2018

TCL India	TCNA	TCE	TCM
2,327	551	385	251
TCIPL	TCSA	Rallis	Metahelix
3	11	977	443

Significant indicators of our most valuable asset - people



Our goals

Realigning organisation structure to make it lean and agile

- Facilitate our growth through organic/inorganic routes with effective fixed cost management
- Directionally move to globally aligned chemicals to make it agile and cost efficient
- Continue to adapt to the changing regulations for contract labour
- Automate work processes to improve productivity

Capacity planning and talent acquisition

- Continue to acquire talent with niche skills in specialty domains where we lack in-house skills
- Phased replenishment of the retiring workforce with technically qualified personnel
- Improve our perception as 'Employer of Choice in the FMCG sector and millennial target group
- Attract talent at remote manufacturing locations

Building workforce capability and leadership pipeline

- Strengthen our multi-pronged approach to learning, with focussed interventions in core and functional areas, customised business specific and organisation-wide strategic interventions, and leadership development programs
- Focus on succession planning with senior leaders retiring in the near future
- Focus on Individual Development Plans for Key Talent under 'SpringBoard'
- Leverage technology to encourage learning via e-platforms such as e-learning and mobile-app based courses

Creating an engaging environment for our diverse workforce

- Continue to address key engagement drivers such as meaningful roles, communication, career development, reward and recognition programs, friendly people policies, and wellness initiatives
- Emphasis on SHINE+ program to highlight career opportunities within the organisation
- Support employees who want to participate in community development and volunteer programs
- Strengthen our cultural pillars to integrate disparate employee groups into a cohesive culturally vibrant workforce

Enhancing HR operational effectiveness

- Migrate from the current use of multiple standalone platforms to a unified human capital management (HCM) Cloud solution to benefit from quality and speed of service with seamless integration of master data across multiple processes and superior end-employee experience

TCL is committed to improve quality of life and conserve the environment and bio-diversity. Guided by our CSR policy, we follow an integrated approach to community development, touching all aspects of society including livelihood, education, health, environment, and empowerment of the weaker sections. Our CSR activities are represented as BEACON - Blossom, Enhance, Aspire, Conserve and Nurture.

Blossom – Building capacity and empower communities through a replicable handicraft development model.

Total Expenditure: ₹ 81 lakhs.

Okhai Centre for Empowerment worked closely with around 750 artisans across India to create livelihood opportunities for rural women artisans. Providing support to artisans with training and market linkages, the Centre worked as a bridge between artisans and customers facilitating sale through the Okhai website and outlets. Okhai is also working with women producing handicrafts including rexene and leather work, bead work, block print material, coconut fiber products, paper carry bags etc.

Enhance - Promoting livelihood of farmers with agriculture and livestock development programmes.

Total Expenditure: ₹ 106 lakhs

Agriculture development programme

Activities include training farmers, field demonstrations, and supply of seeds and agri-equipment to enhance productivity. The program also promotes the use of digital technology to disseminate agriculture related information to farmers. More than 6,000 farmers were benefited throughout the year.

Animal husbandry

Conducting regular healthcare and vaccination camps at different locations, we covered 60,000 plus animals. We also supported 238 families for fish culture and 192 households for poultry farming.

Uday Foundation

The Foundation employs 282 young people who provide backend customer support to different organisations.

Infrastructure development

At Mithapur, we constructed a 1,013-meters square of brick paved track, 617 meters of drainage channel, and two cattle sheds. Support was also provided to two primary schools and an Integrated Child Development Services Centre.

Aspire - Encourage functional education and skills for sustainable socio-economic development.

Total Expenditure: ₹ 366 lakhs

Educational Programmes

8,500 children benefited from initiatives such as an e-library, learning enhancement programme, teacher training, scholarships, child learning and improvement programme and a residential summer camp on spoken English and personality development.

Vocational skills and employability

We are running skill development program in Mithapur, Babrala, Haldia, and Sriperumbudur to train unemployed youth and facilitate their employment and entrepreneurial skills. We partnered with Tata Strive to run a skill development center at Aligarh. During the year, more than 2,000 youth were trained on different vocational skills.

Conserve - Conserve natural resources through participatory approach for environmental sustainability.

Total Expenditure: ₹ 463 lakhs

Whale sharks

The whale shark project at Mithapur focuses on habitat study, research on migratory patterns, and breeding biology. During the year, 30 Whale Sharks caught accidentally in the fishing nets along the Saurashtra coast were rescued and released taking the total rescue figure to 720. In Mithapur, Babrala,

and Haldia, we are also working with the Eco Clubs in schools to raise awareness on environment conservation.

Land reclamation

Land development program and water management and conservation programs such as Mission Jal and drip irrigation were carried out at Babrala and Mithapur. In Uttar Pradesh, approximately 2,410 acres of land was reclaimed with laser leveling and deep-ploughing.

Energy efficiency

We continue to promote energy efficient cook stoves in Haldia and constructed 600 units. 21 solar street lights have been installed in Mithapur.

Nurture - Better health through prevention and cure.

Total Expenditure: ₹ 187 lakhs

Vision and surgical support

36,784 patients received counselling and treatment through eye camps in Mithapur, Babrala and Haldia. We provided eye check-up and spectacle support for 1,584 people and cataract operation support for 265 patients.

Nutrition of women and children

In Babrala, we facilitated government run health programs in rural communities through vaccination of pregnant women and children under ten-years. We covered 15,243 women and children. A malnutrition program in Dharni (Amravati, Maharashtra) and Pati (Barwani, Madhya Pradesh) aimed at decreasing Infant Mortality Rate and Maternal Mortality Rate, is helping us improve nutritional practices and linking the women and children with the government health department. We screened 3,500 pregnant and lactating women for



A wave of initiatives

Hemoglobin Estimation and 5,373 children for Mid Upper Arm Circumference and weight. We also promoted referral services of the severely malnourished children for treatment at Nutritional Rehabilitation Centre.

Building Sanitation and Partnership

We have partnered with the Water and Sanitation Management Organisation of Gujarat to undertake drinking water and sanitation activities under Coastal Areas Development Project. The project aims to provide drinking water facilities to the rural households of Okhamandal with the help of village institutions. Tap-water connection was provided to 1,200 households and toilets were constructed at 415 households. 49 sanitation units were constructed in

Babrara and 4 in Haldia.

Working towards inclusiveness

Total Expenditure: ₹ 115 lakhs
We are reaching out to the socially backward population of the community specially the women, scheduled castes, and scheduled tribes through our empowerment program. The objective is to mainstream such communities by including them in all our developmental programs.

Flood relief

Total Expenditure: ₹ 75 lakhs
This year relief support was provided in the flood-affected areas of Gujarat.

We have conducted various social assessments for our CSR activities and for more details, please visit page number 131 of this report.



Serving communities in all the places we operate

TCM

- Tata Swach project - for clean drinking water
- Magadi Watershed mapping project
- 18 new university scholarships
- Community wellness programs
- Partnership with Vitamin Angels to give 30,000 vitamins and de-wormers
- Eco tourism experiencing growth

TCNA

- First book reading event
- Lyman High School CAPS Program
- Funded local hospice care campaigns with Deer Trails Assisted Living
- Meals on Wheels program sponsored
- CLIMB Wyoming sponsore
- VOA donation of \$2,800

TCE

- Eight Peaks Challenge – taking on 8 of the highest peaks in the Lake District in aid of St. Luke’s (Cheshire) Hospice
- ‘Rowathon’ and ‘Cyclethon’ events raised funds for St. Luke’s Hospice
- Volunteering policy allowed each employee an extra paid day off



A Massai tribesman in the Rift
Valley near Lake Magadi, Kenya.



Reducing our environmental impact

Our sustainability commitments



Natural capital

- Achieve energy efficiency as part of the Responsible Manufacturing Index (RMI)
- Reuse and recycle packaging and other waste
- Conduct responsible mining



Social and relationship capital

- Ensure safe drinking water and reach 25 million people
- Harmonise community relations
- Promote responsible care and customer education
- Establish community based organisations to empower citizens
- Encourage inclusion of women, and socially and economically backward communities
- Maintain a responsible supply chain



Human capital

- Uphold safety's zero harm commitment
- Encourage employee investments and development
- Engage volunteers



Manufactured capital

- Opt for low carbon technology
- Select low sulphur-content raw materials
- Reuse and recycle packaging and other waste
- Adopt technology and innovation

Towards sustainable growth

Sustainability is at the heart of our business strategy. We strongly believe in giving back to society, protecting the environment and achieving our overarching desire of 'serving society through science'. Our policies and processes are aligned with the triple bottom line approach that measures social, environmental and financial performance.

We focus on water conservation, reducing energy consumption and green house gas (GHG) emissions, efficient waste disposal and recycling systems, and conserving biodiversity. We aim for sustainable growth and continually reduce our environmental footprint.

Water conservation

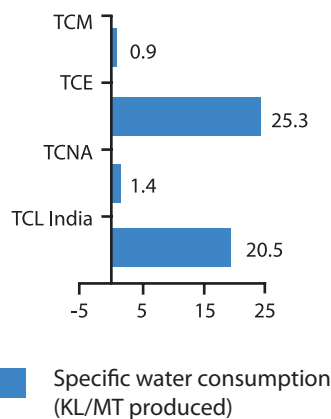
We use water responsibly. We meter and monitor the impact on water resources. Mithapur has a well-established rainwater collection system and newly constructed rain water collection ponds are part of

conservation initiatives. Using innovative technologies to desalinate seawater, Mithapur continues to have zero dependence on ground water and recycles almost 94% of the water it uses. The Innovation Centre in Pune recently set up a rainwater harvesting system.

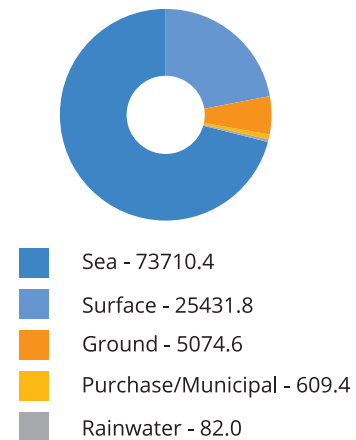
TCNA taps into Green River to source drinking water and for manufacturing. Initiatives to reduce water consumption have resulted in 84% of the water previously lost to the evaporation ponds being recovered.

TCE aims to return a high proportion of its water back to the river course to minimise net usage. All returned water is subject to highly regulated consented permits. The water is recycled within the process or to other users wherever possible and extensive use is made of rainwater harvesting to displace use of river water.

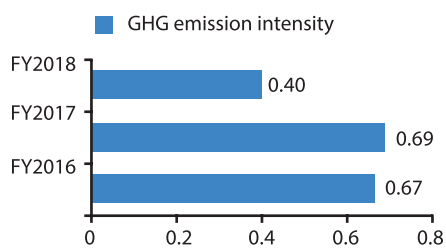
Specific water consumption



Water consumption (000'KLs)



Emission intensity (tCO₂eq/ton produced)



Energy

Energy assessments have been used to understand opportunities to save energy and identify carbon capture. Variable frequency drives have been installed. More efficient pumping systems have been introduced and the potential to reduce GHG emissions is considered when procuring or adapting new technology.

In Mithapur, in collaboration with Tata Power, a 25 megawatt (MW) solar power plant powers 15 million homes and has reduced the annual carbon footprint by 24,000 tonnes. The Innovation Centre in Pune installed 10 kilowatt (KW) of solar capacity to power all its streetlights. A comprehensive exercise at Sriperumbudur to save energy and reduce emissions included installing solar bore wells, a variable frequency drive for evaporator

product circulation, a sugar charging system, and auto timers. In Europe, TCE's combined Heat and Power plant has a best-in-class overall efficiency of 80%. TCE used a redundant coal-fired power station to build a 50 MW energy from waste facility at Lostock from where it exports power to the National Grid.

In Kenya, TCM replaced mercury bulbs with solar lighting and light-emitting diode (LED) bulbs to save energy.

Emissions at Mithapur were reduced with modifications to the vacuum system, replacing the flash vessel and its bypass system at the power plant. Use of effluent solids in cement manufacture and utilising wind energy also contributed.

For more on non-financial disclosures, please visit our website at <http://sustainability.tatachemicals.com>

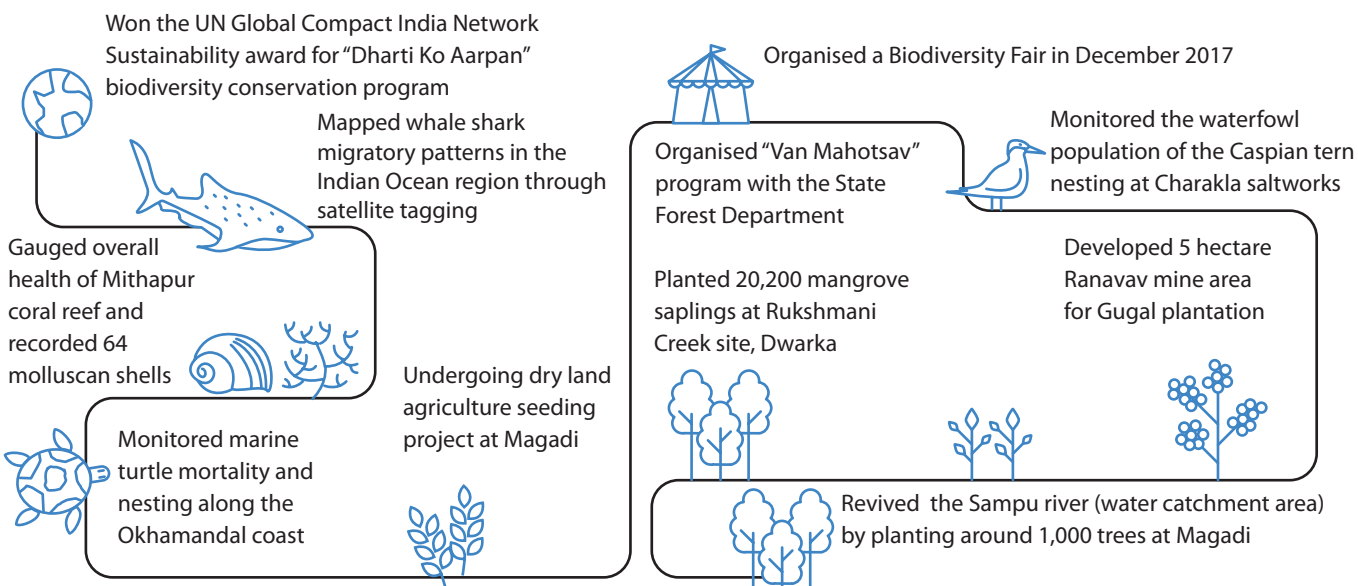
Waste

All sites strictly enforce on-site waste segregation. TCL ensures that all hazardous and non-hazardous waste is sold to authorised and registered dealers. All organic waste is composted. No site ships internationally any quantity of treated waste deemed hazardous.

TCNA minimises packing material by transporting product using rail. Rail cars are rented to other users on the return trip. This offsets the carbon footprint and cost to return the car.

TCE recycles waste by sending low-grade bicarbonate and soda ash to third parties to re-use and resell waste ash at lower prices. Non-hazardous waste such as limestone is recycled to landfills or local farms.

TCL's Biodiversity projects



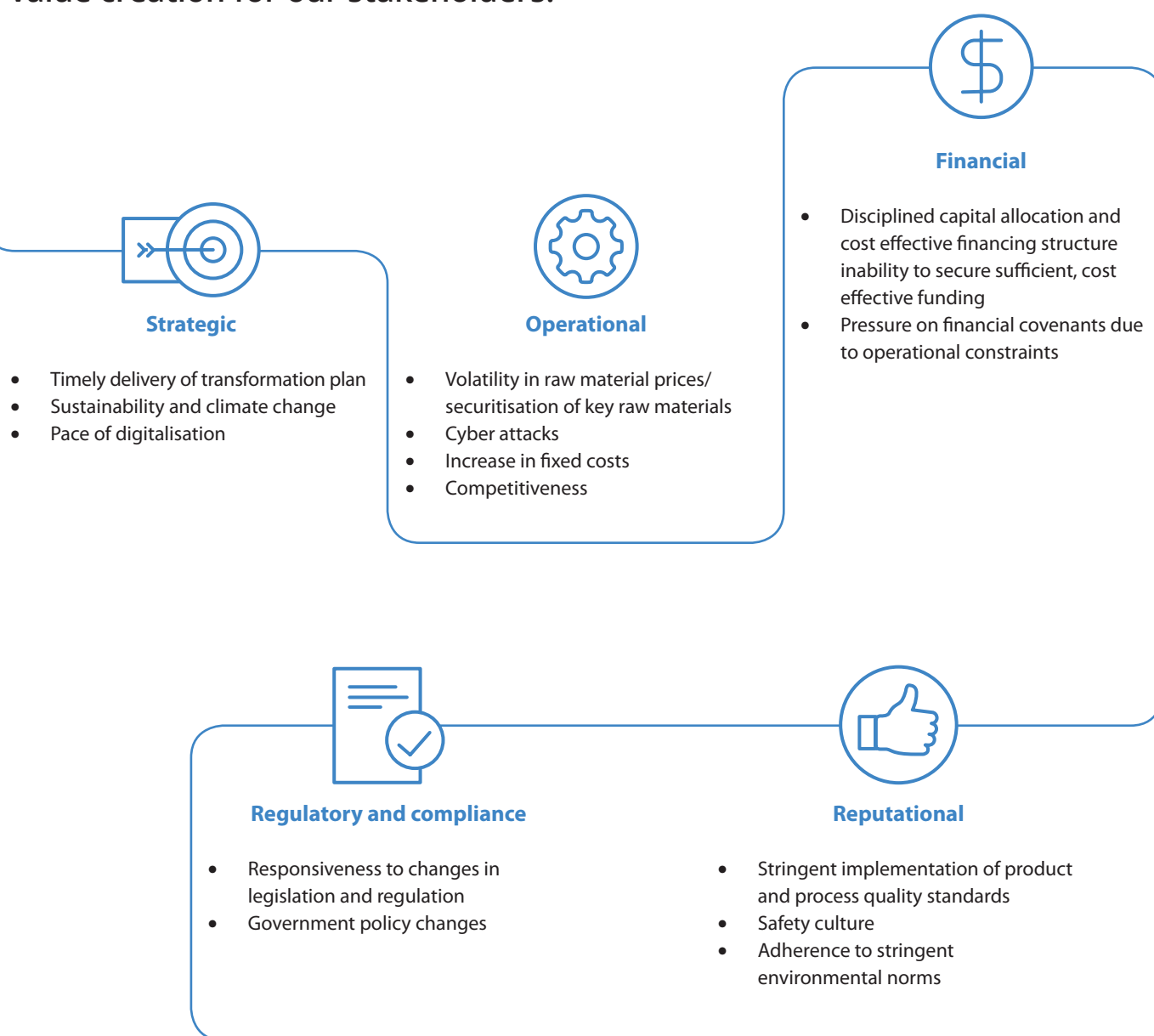
The Charakla Saltworks in Gujarat plays host to more than 120 different species of birds each year. Some of them are resident, others migratory and a few vagrants that happen to stray into the region.

Among other birds, the Caspian Tern (*Hydroprogne caspia*) is a resident and can be seen here almost throughout the year.



Risks

We are exposed to risks arising out of the macroeconomic environment as well as from the internal business environment. We continually focus on addressing the same as we ensure value creation for our stakeholders.



Board of Directors



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 later became Titan Watches, and now Titan Company. At Titan, he has handled sales and marketing, HR, international business and various general managerial assignments. He has served as managing director of Titan Company Limited since April 2002. He was awarded the Distinguished Alumnus Award of IIT Madras in 2008. He was appointed as Director on the Board of the Tata Sons in November, 2017. He was appointed as non-executive director of Tata Chemicals in December, 2016.



Mr. Nasser Munjee

Independent Non-Executive Director

With a Masters degree from the London School of Economics, Mr. Munjee, has held various positions at HDFC for more than 20 years, including serving as executive director. He was the managing director of IDFC and served on the board of various multinational companies and trusts. He was a technical advisor on the World Bank's Public Private Partnership Infrastructure and Advisory Fund. Mr. Munjee has been the chairman of DCB Bank since June 2005 and was appointed as independent, non-executive director of Tata Chemicals Limited in 2006.



Dr. YSP Thorat

Independent Non-Executive Director

Dr. Thorat started his career with the Reserve Bank of India in 1972 and was appointed its executive director in 2003. His major contribution has been in the field of policy support for agriculture finance, supervision, and export credit. In 2004, he was appointed managing director, NABARD, and a year later became chairman. In the past, he has been associated with the Planning Commission, Government of India, for the 10th and 11th five year plans. Dr. Thorat is also a director of Rallis India, Britannia Industries and Ambit Capital and also serves as an independent non-executive director of Tata Chemicals Limited since January 2010.



Ms. Vibha Paul Rishi

Independent Non-Executive Director

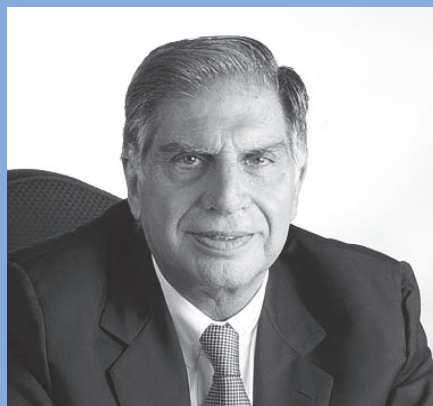
Ms. Vibha Paul Rishi holds a BA degree in economics from Delhi University and an MBA with specialisation in marketing from the Faculty of Management Studies, New Delhi. She is an experienced business leader who worked with Titan, PepsiCo, Max India and Future Group with stints in India, the UK and USA. 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 companies and was appointed as an independent, non-executive director of Tata Chemicals Limited in September 2014.



Mr. S. Padmanabhan

Non-Executive Director

Mr Padmanabhan, is a distinguished alumnus of IIM Bangalore, and a Gold Medallist and alumnus from PSG College of Technology, Coimbatore and has also completed the Advanced Management Program at Harvard Business School. During a 26-year stint with Tata Consultancy Services, Mr. Padmanabhan held several senior leadership roles. He was also an executive director of Tata Power between 2008-2014 and the Group Chief Human Resources Officer at Tata Sons Limited. He is on the board of Tata Consulting Engineers Limited (chairman), Infiniti Retail and The Associated Building Company. Appointed non-executive director of Tata Chemicals Limited since December 2016, he is currently the executive chairman, Tata Business Excellence Group (TBExG).



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, Tata Chemicals, Indian Hotels and Tata Teleservices. During his tenure, the group's revenues grew manifold, totalling over \$100 billion in 2011-12. He is the chairman of the Tata Trusts which are amongst India's oldest, non-sectarian philanthropic organizations 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.

Integrated Report



Ms. Padmini Khare Kaicker
Independent Non-Executive Director

Ms. Padmini Khare Kaicker is 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 almost five decade's experience serving large and mid-sized clients in the areas of audit, taxation, corporate finance, risk management, corporate governance, M&A, and restructuring. She has been an independent, non-executive director of Tata Chemicals Limited since April 2018.

Statutory Reports



Mr. R. Mukundan
Managing Director and CEO

An engineer from IIT Roorkee, Mr. R. Mukundan joined the Tata Administrative Service in 1990, after completing an MBA from FMS, Delhi University. He is also an alumnus of the Harvard Business School. During his career with the Tata group, he has held various responsibilities across the chemical, automotive and hospitality sectors of the group.

Financial Statements



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 thirty years at Tata Chemicals, 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 Nutraceuticals and Silica.

Management team

R. Mukundan Managing Director & CEO	Sanjiv Lal Chief Operating Officer, Indian Chemicals Business	Veeramani Shankar Managing Director & CEO, Rallis India Limited
Zarir Langrana Executive Director	Richa Arora Chief Operating Officer, Consumer Business	S Nagarajan Managing Director & CEO, Metahelix Life Sciences Limited
John Mulhall Chief Financial Officer	M Ravindranath Chief Safety, Engineering & Projects Officer	Scott Ellis Managing Director & CEO, Tata Chemicals North America
R. Nanda Chief Human Resources Officer	Rino Raj Chief Information & Digital Officer	Martin Ashcroft Managing Director, Tata Chemicals Europe
Rajiv M Chandan General Counsel & Company Secretary	Alka Talwar Chief CSR & Sustainability Officer	Jackson Muchira Mbui Managing Director, Tata Chemicals Magadi
D. K. Sundar Chief Corporate Assurance and Initiatives	Dr. Ashim Mullick Head - Food Science & Technology, Consumer Products Business	
Ranjeev Lodha Vice President & Group Corporate Controller	Dr. Richard Lobo Head - Strategy & Business Excellence	

Auditors

B S R & Co. LLP
Chartered Accountants

Solicitors

AZB & Partners
Mulla & Mulla & Craigie, Blunt & Caroe
Shardul Amarchand Mangaldas
Cyril Amarchand Mangaldas

Registrar & Transfer Agents

TSR Darashaw Limited
6-10 Haji Moosa
Patrawala Industrial Estate,
20, Dr. E. Moses Road, Mahalaxmi,
Mumbai 400 011



Basis of report preparation

In recent years the principles of 'integrated reporting' have come to prominence as a benchmark for global best practice in corporate reporting. We consider the ways and means by which an enterprise creates value using the capital inputs available. For the third year, we have used these principles as the basis for our annual report. We follow internationally recognised frameworks and guidelines such as 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 AA 1000 AS (2008):

Inclusivity

We are committed to be accountable for stakeholders who are impacted directly or indirectly by our organisation. We map our stakeholders and have processes to ensure inclusion of stakeholder concerns and expectations. In addition, we continue to develop our stakeholder engagement and sustainability capacity at corporate and manufacturing levels.

Materiality

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

Responsiveness

We reach out to a wide range of stakeholders through our reporting. Each group has its own specific needs and interests. This report is one element of our interaction and communication. It reflects how we manage our operations in ways that take account and respond to stakeholder concerns.

Forward looking statements

Certain statements in this Report regarding our business operations may constitute forward-looking statements. These include all statements other than statements of historical fact, including those regarding the financial position, business strategy, management plans, and objectives for future operations. Forward-looking statements can be identified by words such as 'believes', 'estimates', 'anticipates', 'expects',

'intends', 'may', 'will', 'plans', 'outlook' and other words of similar meaning in connection with a discussion of future operating or financial performance.

Forward-looking statements are necessarily dependent on assumptions, data or methods that may be incorrect or imprecise and that may be incapable of being realised, and as such, are not intended to be a guarantee of future

results, but constitute our current expectations based on reasonable assumptions. Actual results could differ materially from those projected in any forward-looking statements due to various events, risks, uncertainties and other factors. We neither assume any obligation nor intend to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Assurance notice

The Board of Directors and Management
Tata Chemicals Limited
Mumbai, India

Ernst & Young LLP (EY) was engaged by Tata Chemicals Limited (the 'Company') to provide independent assurance on its Integrated Report 2017-18 (the 'Report') covering salient features of business as well as sustainability, including performance during the period 1st April 2017 to 31st March 2018.

The development of the Report based on the <IR> Integrated Reporting Framework by International Integrated Reporting Council (IIRC), its content and presentation is the sole responsibility of the management of the Company. EY's responsibility, as agreed with the management of the Company, is to provide independent assurance on the report content as described in the scope of assurance below. Our responsibility in performing our assurance activities is to the management of the Company only and in accordance with the terms of reference agreed with the Company. We do not therefore accept or assume any responsibility for any other purpose or to any other person or organization. Any dependence that any such third party may place on the Report is entirely at its own risk. The assurance statement should not be taken as a basis for interpreting the Company's overall performance, except for the aspects mentioned in the scope below.

Scope of assurance

The scope of assurance covers the following aspects of the Report:

- Data and information related to the Company's environmental and social performance for the period 1st April 2017 to 31st March 2018;
- The Company's internal protocols, processes and controls related to the collection and collation of specified environmental and social performance data;
- Verification of sample data and related information through consultations at the Company's Head Office in Mumbai, desktop review at Innovation Centre (Pune) and physical visits to the following manufacturing locations:
 - o Mithapur (Gujarat)
 - o Sriperumbudur (Tamil Nadu)
 - o Green River, Wyoming, USA (Tata Chemicals Soda Ash Partners)
 - o Lake Magadi, Kenya (Tata Chemicals Magadi)
 - o Tata Chemicals Europe Limited, Northwich & British Salt Limited, Middlewich, United Kingdom
- The environmental and social performance data that was subject to above assurance is as follows:
 - o Environmental Performance:
 - Raw material consumption, material recycled and reclaimed, energy consumption, energy savings, water withdrawal, water recycled and reused, wastewater discharge, greenhouse gas emissions, air emissions (SOX, NOX and particulate matter) and waste disposed;
 - o Social Performance:
 - Total workforce, new hires and turnover, number of fatalities and reportable injuries, number of man-days lost, average employee training hours, employee training hours on human rights, total number of incidents of discrimination, and local community engagement and development programs.

Limitations of our review

The assurance scope excludes:

- Operations of the Company other than those mentioned in the 'Scope of Assurance';
- Aspects of the Report and data/information other than those mentioned above;
- Data and information outside the reporting period i.e. 1st April 2017 to 31st March 2018;
- The Company's statements that describe expression of opinion, belief, aspiration, expectation, aim or future intention provided by the Company;
- Review of the Company's compliance with regulations, acts, guidelines with respect to various regulatory agencies and other legal matters.
- Data and information on economic and financial performance of the Company.

Assurance criteria

The assurance engagement was planned and performed in accordance with the International Federation of Accountants' International Standard for Assurance Engagements Other than Audits or Reviews of Historical Financial Information (ISAE 3000) and the second edition of AccountAbility's AA1000 Assurance Standard 2008 (AA1000 AS). Our evidence-gathering procedures were designed to obtain a 'limited' level of assurance (as set out in ISAE 3000) on reporting principles and a 'Type 1 Moderate' level of assurance (as per AA1000 AS), as well as conformance of the disclosures to the <IR> Integrated Reporting Framework.

What we did to form our conclusions

In order to form our conclusions we undertook the following key steps:

- Interviews with select key personnel and the core team responsible for the preparation of the Report to understand the Company's sustainability vision, mechanism for management of relevant issues and engagement with stakeholders;
- Physical and desktop audits of the Company's corporate office and manufacturing locations on a sample basis as mentioned in the 'Scope of Assurance' above;
- Interactions with the key personnel at the Company's manufacturing plants in order to understand and review the current processes in place for capturing environmental and social performance data;
- Review of relevant documents and systems for gathering, analyzing and aggregating environmental and social performance data in the reporting period;
- Review of the Integrated Report for detecting, on a test basis, any major anomalies between the data/information reported in the Integrated Report and the relevant source;
- Review the level of adherence to principles of Integrated Reporting framework.

Our Observations

The Company has developed the Report as per the Integrated Reporting framework. The Report includes a description of the Company's stakeholder engagement, materiality assessment, interlinkages of capitals and performance disclosures on material topics.

Our Conclusions

On the basis of our review scope and methodology, our conclusions are as follows:

• Inclusiveness:

The Company has described its key stakeholder groups, matters relevant to each group and methods of engagement in the Report. We are not aware of any matter that would lead us to conclude that the Company has not applied the principle of inclusivity in engaging with the key stakeholder groups identified in the Report.

• Materiality:

The Company has identified key issues material to its ability to create value has described the process for materiality analysis in the Report. Nothing has come to our attention that causes us to believe that material issues so identified have been excluded by the Company.

• Responsiveness:

We are not aware of any matter that would lead us to believe that the Company has not applied the responsiveness principle in its engagement with stakeholders identified in the Report on material aspects covering its environmental and social performance.

• Reliability of performance information:

Nothing has come to our attention that causes us not to believe that the information has been presented fairly, in material respects, in keeping with the Integrated Reporting framework and the Company's reporting principles and criteria. There are processes for compilation, submission and approval of key performance data at the Company's manufacturing locations and at the corporate level. These can be further strengthened for even better understanding of various reporting requirements.

Our assurance team and independence

Our assurance team, comprising of multidisciplinary professionals, has been drawn from our climate change and sustainability network and undertakes similar engagements with a number of significant Indian and international businesses. As an assurance provider, EY is required to comply with the independence requirements set out in International Federation of Accountants (IFAC) Code of Ethics for Professional Accountants. EY's independence policies and procedures ensure compliance with the Code.

for Ernst & Young LLP



Chaitanya Kalia
Partner
19 June 2018
Mumbai, India



Results at a glance

	Standalone		Consolidated		₹ in crore
	FY2018	FY2017	FY 2018	FY 2017	
Revenue from continuing operations	3,524	3,837	10,345	10,681	
EBITDA from continuing operations	922	858	2,191	2,094	
Profit before tax (including exceptional gain)					
- Continuing operations	904	804	1,620	1,467	
- Discontinued operations	1,652	186	1,652	186	
Profit after tax					
- Continuing operations	624	579	1,560	1,121	
- Discontinued operations	1,142	113	1,142	113	
Other comprehensive income 1	1,032	378	1,098	375	
Share capital	255	255	255	255	
Other equities	11,069	8,601	10,847	7,653	
Networth (equity)	11,324	8,555	11,102	7,908	
Borrowings	1,097	2,041	6,108	7,072	
Non current	681	1,088	5,394	4,361	
Current	1	523	140	721	
Current maturities 2	415	430	574	1,990	
Cash and cash equivalents ⁴	3,769	1,112	4,483	1,665	
Capital employed 3	9,657	8,197	23,201	21,093	
Borrowings : networth (equity)	0.10	0.24	0.55	0.89	
Net worth per share	444.51	347.60	435.78	310.42	
Earnings per share:					
Basic & diluted					
- Continuing operations	24.51	22.74	50.66	34.53	
- Discontinued operations	44.85	4.45	44.85	4.45	
Basic & diluted (total)					
- Continuing & discontinued operations	69.36	27.19	95.51	38.98	
Proposed dividend per share	22	11	22	11	
No. of shares	254,756,278	254,756,278	254,756,278	254,756,278	

Notes:

1. Other comprehensive Income is of equity shareholders of the Company
2. Current maturities includes finance lease obligations
3. Capital Employed: Total assets minus current liabilities plus current

- (short-term) borrowing plus current maturities of non-current (long-term) borrowing and finance lease obligations minus investment in subsidiary companies (other than Rallis India Limited).
4. Including other bank balances

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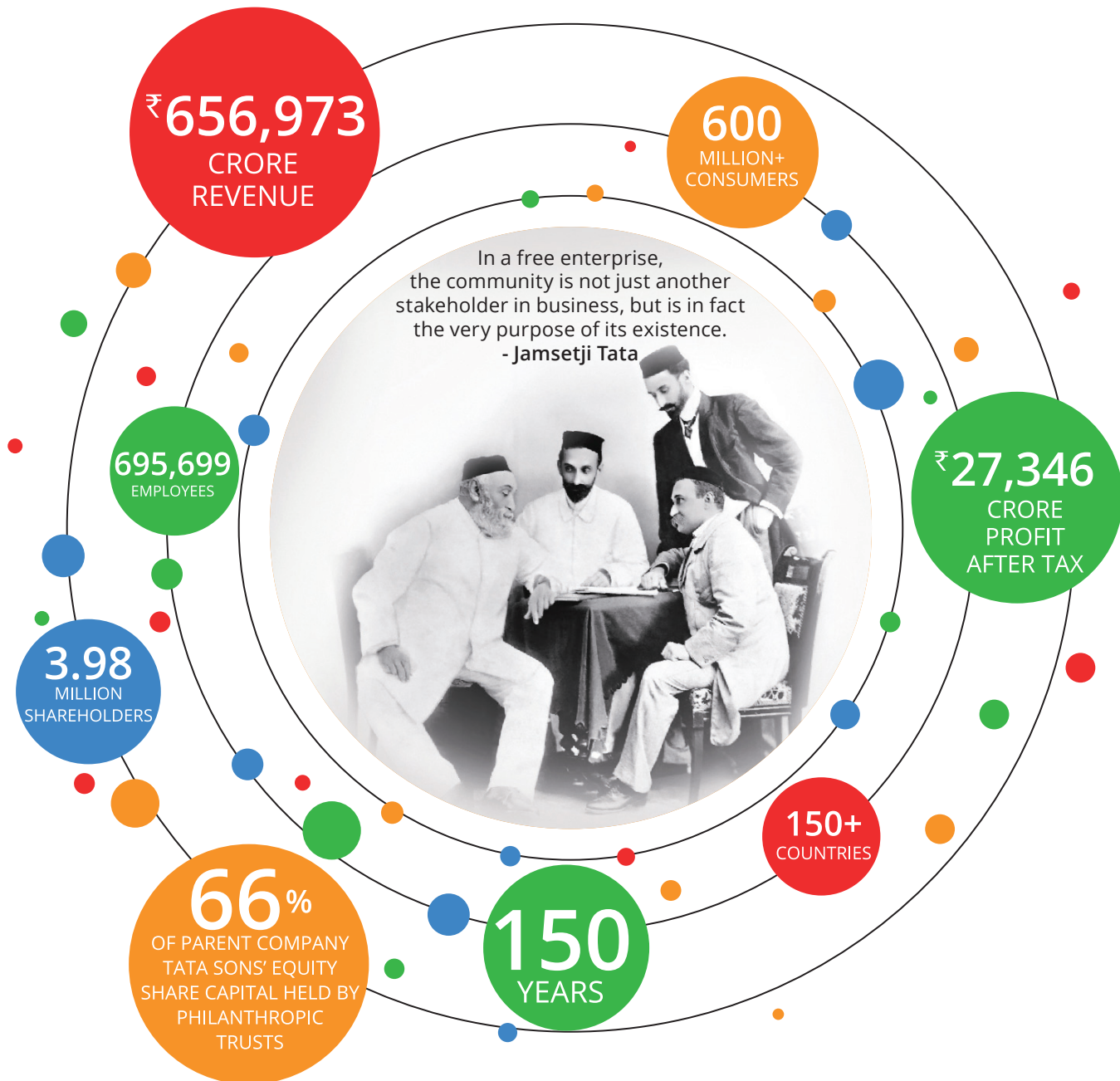
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LEADERSHIP WITH TRUST
— SINCE 1868 —



The figures are aggregated for Tata companies for the financial year ended 31.03.2017.

From pioneering businesses, to pioneering welfare practices, to pioneering national institutions, the Tata Group remains committed to improving the lives of communities we serve globally, based on leadership with trust.



Picture (left to right): The four partners - Jamsetji Tata, Founder of the Tata Group; R.D. Tata, father of J.R.D Tata; Sir Ratan Tata, younger son of the Founder; and Sir Dorabji Tata, elder son of the Founder.

tata150.com



TATA CHEMICALS

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