



**Birla Cellulose**  
Fibres from nature



ADITYA BIRLA GROUP



**VISCOSE®**

VISCOSE - THE GREATER FIBRE

**Sustainability Report 2019**  
**Pulp & Fibre Business**

Our maiden sustainability report is divided into four parts. The first one details the intrinsic sustainability attributes of man-made cellulosic fibre, whereas the second part delves into key material issues that need to be taken care of to ensure responsible manufacturing. The third, and the heart of the report, deep dives into our sustainability performance and discloses in detail how within our facilities and collaboratively with our supply chain, we are constantly raising the sustainability bar. The final part articulates how our sustainability strategy and actions are contributing in our little way towards the achievement of the UN Sustainable Development Goals, and also puts forth our future goals and targets.

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Historically, clothing was designed for protecting humans from the natural elements like cold, rain and snow. However, in more recent times clothing has also become a fashion statement reflecting the wearer's personality and the image that he or she wants to convey.

**As the fashion industry has expanded so have concerns about the impact that clothing has on environment- from how the fibres are sourced to what happens to the clothing when the useful life of garment/clothing item is over.**

Depletion of natural resources, pollution of air and water, climate change and what happens at the end of life, are all concerns that are attracting the attention of consumers, retailers, brand manufacturers and the fibre suppliers. Society is expecting the industry to take responsibility for better management of the complete value chain.

Fibres are the basic raw material for the production of apparel. Typically, fibres are grouped into two broad categories. Natural fibres include wool, silk, cashmere, cotton and jute. Man-made fibres include polyester, nylons and acrylics. However, there is also a third category that exists between natural and synthetic fibres known as regenerated fibres viz. viscose, modal, lyocell etc.

**Regenerated cellulose fibres, commonly called viscose or rayon, are not new to the world of textile fibres but they are probably the most misunderstood of all fibres.**

Unlike cotton, viscose is not grown directly, but it is a natural fibre that is based on wood. The viscose fibre is made by chemically dissolving the wood based cellulose and then rebuilding it in the form of fibre that can be used for making textile.

**Responsible suppliers source the raw material for viscose from sustainably managed forests which meet globally recognised standards.**

Responsibly managed forests that are regenerated are a great sink for greenhouse gases, offsetting large portions of energy used later in the manufacturing process.

Viscose can be responsibly produced by using closed-loop manufacturing process, which reduces the impact on natural resources. In the closed-loop manufacturing process, production of viscose fibres consumes fewer natural resources like chemicals, water and energy, and materials are recovered and recycled back into the process.

**At the end of its life cycle, viscose is biodegradable in water, soil and marine environment; and compostable in home and industrial conditions.**

Some of the key sustainability and performance attributes that differentiate responsibly-made viscose:

SUPERIOR FROM *environmental perspective*

SUPERIOR FROM *a product attribute perspective*

SUPERIOR IN *versatility of applications*

MORE SUSTAINABLE *fashion yet affordable*

SUPERIOR FROM

# *environmental perspective*



### Made from Renewable Natural Source

Viscose is made from wood, a fully renewable natural source. Sustainably managed forests not only continually regenerate the raw material, but the cycle also acts as a great sink for the absorption of greenhouse gases.



### Lower Water Consumption

Water scarcity is one of the biggest societal concerns. Two-thirds of the world's population lives in water deficient areas. Other natural fibres consume large amounts of water during cultivation. Since it is based on wood, viscose requires very less amount of water.



### Better Land Use Efficiency

With an increasing population and the subsequent food demand, arable land will become more limited and this will challenge society's ability to supply adequate food in the future. Viscose uses a small fraction of land compared to natural fibres.



### Avoids Land and Water Pollution

The raw material for viscose and wood does not require added fertilizers or pesticides. The fertilizers and chemicals necessary for other natural fibres have the potential to run off and cause significant pollution to land and groundwater.



### End of Life - Biodegradability

Viscose is fully biodegradable, so it doesn't harm marine life. Synthetic garments release microfibres with every wash, which do not biodegrade and are now recognised as causing pollution in rivers and oceans.



### Excellent Potential for Circularity

Newer technologies are utilising pre and post-consumer waste as a feedstock for producing viscose fibre. This offers the opportunity for full circularity for the cellulose value chain.

SUPERIOR FROM

## *a product attribute perspective*



### **Outstanding Comfort & Style**

Viscose is way ahead of other fibres when it comes to comfort and fashion. Breathability and moisture absorption of viscose is much higher than the other natural cellulosic fibres. The fibre is lightweight, inspires soft drapes and effortless style. Viscose fibres are easy to style due to their colour range, brilliant lustre and good drape.



### **Distinctable**

Viscose derives good qualities of both man-made and natural fibres. Like synthetic fibres, viscose has lustre and can be styled easily. At the same time, it is based on a natural material like cotton or silk.



### **Blendability**

Viscose is one of the most easily blendable fibre options. It blends easily with natural as well as synthetic fibres enhancing their characteristics. It lends a luxurious feel to other fibres.



SUPERIOR IN

## *versatility of applications*

- Viscose is a technologically versatile fibre. It can run on all types of technologies - conventional as well as modern spinning techniques like Ring Spinning, Open End and Air Jet.
- Viscose based yarns have a large number of applications ranging from apparel, home textiles like carpets, upholstery, etc.
- Viscose is a preferred choice for various nonwoven applications like wipes due to its high absorbency and eco-friendly properties. Wipes made from viscose have soft feel and are comfortable in next-to-skin applications. Flushable biodegradable wipes are another eco-friendly application.



MORE SUSTAINABLE

## *fashion yet affordable*

Conventional wisdom has been that products that are made of more sustainable materials are much more expensive or lack the performance expected in today's fashion. Viscose fibres offer many sustainability advantages over natural and synthetic fibres and have high quality performance characteristics necessary in higher fashion while still being at an affordable price.

# performance highlights



**All the Pulp & Fibre manufacturing sites are FSC® CoC Certified**

100% Controlled Wood Sourcing

Leaders in Canopy's Hot Button Report with 'light green shirt with dark green shading'



**Responsible Sourcing**

**Responsible Manufacturing**



**3<sup>rd</sup> party verified Higg (3.0) FEM average score of 90 at 7 fibre manufacturing sites**

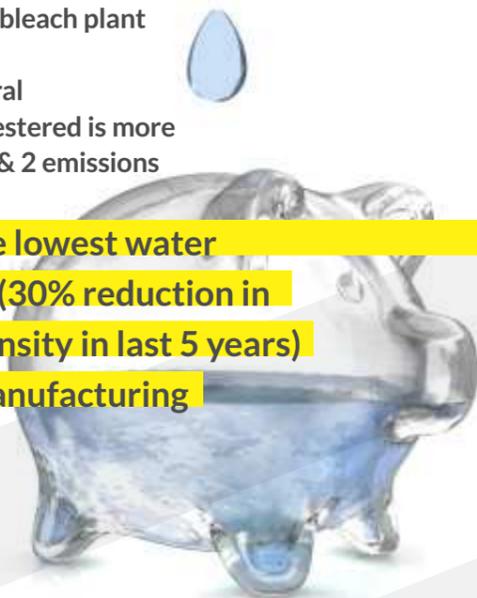
Continuous reduction in intensity (per ton of fibre) in energy and chemicals consumption, COD and sulphur emission

**Domsjö Fabriker is world's one and only closed-loop and totally chlorine-free bleach plant**

**Carbon Neutral Carbon Sequestered is more than Scope 1 & 2 emissions**

**Among the lowest water consumer (30% reduction in water intensity in last 5 years) for VSF manufacturing**

About \$ 72 mn capex for closed-loop, water and energy



**Sustainable Products**



First VSF Company to receive Gold Level Material Health Certificate by C2CPII, USA for Dope dyed VSF

USDA Biobased certification for Birla Viscose, Birla Modal, Birla Excel and Birla Spunshades

Regular Viscose Fibres are certified to OK Scheme for Biodegradability & Compostability

**Launched sustainably enhanced viscose fibre - LivaEco**

71 patent applications in 15 countries belonging to 32 patent families



**Valuable Partnerships**



partnering  
**CANOPY**  
**ZDHC**  
CONTRIBUTION  
Sustainable Apparel Coalition



**Social Responsibility**

WASH Pledge

About 50% reduction in LTIFR rate over FY'16

Social Forestry



**CSR Performance**

Investment of about \$ 1.84 mn

# Chairman's Message

Dear Stakeholders,

As one of India's storied business groups, The Aditya Birla Group is steadfast in its pursuit of setting industry benchmarks on creating long term stakeholder value. Building sustainable businesses is at the core of this philosophy.

**Sustainability for us is creating positive value for all the stakeholders while maximising efforts for**

*renewing | conserving | preserving*

**natural resources for the future. Across our Group, we have institutionalised robust frameworks, built capacities, increased awareness and embedded sustainability into our core business strategy.**

The Pulp & Fibre business is one of the first businesses of the Aditya Birla Group. This business is better known globally as "Birla Cellulose", the umbrella brand for the products supplied to the customers worldwide. For more than seven decades, our aspiration has been to enrich the lives of people by providing outstanding solutions to fulfil the needs of consumers of nature-based cellulosic fibres.

Over the last two years, Birla Cellulose has taken a giant leap by aligning sustainability strategies to the Sustainable Development Goals (SDGs), as identified by the United Nations.

The company has committed an investment of more than USD 170 Million in upgrading to cutting-edge technology for the closed-loop production processes. This would most definitely take the business to a new level of natural resource efficiency. Birla Cellulose also intends to go beyond the statute and create new benchmarks for water intensity in the global viscose industry.

Beyond investments, our commitment to sustainability is best demonstrated by the launch of our product LivaEco, which boasts of unmatched sustainability credentials. LivaEco comes from FSC® (Forest Stewardship Council) certified sustainable forests and promises minimal usage of water vis-à-vis natural fibres. Every LivaEco garment also has a unique molecular tracer, which helps the end buyer trace the origin and full journey of the garment being purchased. This is a path-breaking initiative to make fashion more sustainable in India.

The proof of all our efforts is now before you - the First Annual Sustainability Report (FY 2018-19), a comprehensive account and analysis of all our endeavours at Birla Cellulose.

I want to congratulate the dedicated team at Birla Cellulose for publishing their maiden sustainability report and wish them the very best in their sustainability journey.

**Kumar Mangalam Birla**  
Chairman, Aditya Birla Group

## From the Desk of Business Director



Our aspiration is to establish

# Viscose, the greener fibre

amongst its peers, as one of the most sustainable fibre for textile applications by addressing the materiality issues related to it in a systematic and collaborative approach.

Dear Valuable Partners,

The global fashion industry has been growing in the range of 4% to 5% while the global GDP has been growing at 2.5% and global population has been growing at less than 1.2% in the last decade. This reflects that the increasing consumption of textile products across the globe is due to various factors such as fashion consciousness, affordability of the products and fast fashion. While the growth is good for the economy, there is an unprecedented drain on natural resources like water, energy and other resources. At the same time, there is an increasing awareness and concern in the consumers, particularly the millennials, about the environmental aspects related to textile industry, creating an onus on the fashion industry to take a leadership role in reducing the environmental footprint of their products. The leading players in textile industry along with the value chain partners are taking significant steps and made encouraging commitment to make the industry more sustainable.

Birla Cellulose takes pride in playing a major role in this transformational journey of a more sustainable growth path by taking a lead in the man-made cellulosic fibre industry. It is bringing in the global benchmark sustainable business best practices not only within its operation but across the man-made cellulosic fibre (MMCF) value chain by collaborating actively with its partners. **To put it simply, we are fully committed to doing what is best for the people and for the planet.**

**It gives me immense pleasure to introduce our first sustainability report based on the GRI Standards for the financial year 2018-19.** We are pleased to share the progress that Birla Cellulose has made by putting a strong focus on sustainability and the results obtained from the commitments that we have made, and our roadmap of how we plan to strengthen it further in the years to come. We had taken some very ambitious targets for implementing the roadmap towards Responsible Viscose manufacturing, including implementation of closed-loop technologies, which is

progressing well as per our plan and there is remarkable progress now visible in all the business processes.

**Our approach to sustainability involves re-thinking our resource use, re-designing our control systems, re-innovating our products & re-defining our relationships with stakeholders.** We have aligned our sustainability strategy and goals to the United Nations "agenda 2030" (Seventeen Sustainable Development Goals) and to the material issues facing the MMCF industry today. A deep engagement with our stakeholders to identify the key areas of concern through a materiality survey has helped us to prioritize our actions. Within the seventeen SDGs, top seven have been identified by Birla Cellulose based on the internal and external stakeholder's expectations as priorities. During the reporting year, we closely worked with leading organisations to incorporate sustainability within our operations as well as across the entire value chain.

Our sustainability strategy is comprehensive and includes complete value chain of man-made cellulosic fibres. The strategy has five pillars including Responsible Sourcing, Responsible Manufacturing, Sustainable Products and Circularity, Valuable Partnerships, and Social Responsibility. By working on all these elements, we are focused on making a positive impact on the planet and the people, which are at the core of the strategy.

**We have achieved several new milestones in the last year and I would like to highlight a few that stand out due to their highly positive impact on sustainability. A new facility to manufacture 3rd generation Lyocell fibre was commissioned at Kharach in a record time. The green technology for this third generation fibre has been further improved by our R&D team. Strengthening the closed-loop technology for viscose production, state-of-the-art technology was commissioned at our site in China to recover carbon-di-sulphide (CS<sub>2</sub>) and was expanded at our Thailand site taking both the units to the stringent EU Ecolabel level of performance in sulphur emission. Our units in India set new global benchmarks in water consumption efficiency in the viscose industry by implementing novel membrane technologies as well as reducing and reusing the water.**

We take great pride that our efforts in ingredient branding of viscose staple fibre as "LIVA" has met with a great success due to our sharp focus on customer centricity. **In FY'19, over 35 million garments featured the Liva tag which has grown multifold since its official launch.** LIVA assures high quality fabric applied through accredited value chain termed as Liva Accredited Partner Forum (LAPF) and consumers associate it with high quality and style. Liva, which was launched predominantly as women's clothing, has been extended to the home textile sector as well. In an initiative to

make a greener textile value chain, we have launched **LivaEco™**, a unique brand of fibre pivoted on unique sustainability attributes such as certified sustainable forestry, high resource efficiency during viscose fibre manufacturing, and full traceability of the value chain. Our target is to expand the market of this premium product in collaboration with the leading global brands and aligning it to the needs of sustainability conscious customers.

**We are listening to the voice of our customers through our umbrella program called, Mission Happiness. This program involves an agile closed-loop feedback mechanism aimed at developing a culture in which every employee in each department is tuned to listen to the customer.** This helps us to being an agile and learning organisation that continuously re-invents the processes to address the challenges faced by our customers by coming up with innovative solutions.

All these new initiatives have succeeded because of your strong support and encouragement throughout our journey, and required us to work closely with all our stakeholders, innovating thinking by our employees, and guidance from institutions and organisations of excellence and repute. Support from the leading global fashion brands has motivated us to take some bold decisions in this direction. **We are fully committed to strengthen our collaboration with all our stakeholders to chart a new course in our transformation journey.** We are aligning our sustainability strategies by closely working with leading environmental organisations like Changing Markets Foundation, ZDHC, Canopy, Sustainable Apparel Coalition and others. We are working with our value chain partners to improve the environmental aspects through bringing in latest sustainable business practices and capacity building. I would like to take this opportunity to thank all our stakeholders for their continued support to us.

I feel extremely proud of our achievements so far and excited in anticipation of the results expected from our efforts and commitments made for future. The report will provide you with glimpses of our sustainability performance, insights into our journey through the challenges, our stakeholder engagement processes, and a preview of what are the focus areas in the near future. I am also looking forward to your valuable feedback, guidance and continuing support to help in working together for a better future for all of us.

Happy Reading!

**Dilip Gaur**  
Business Director, Pulp & Fibre Business

# Aditya Birla Group

The Aditya Birla Group, a US \$48.3 billion corporation, is in league with Fortune 500 Companies. Anchored by an extraordinary force of over 120,000 employees belonging to 42 nationalities, the Group is built on a strong foundation of stakeholder value creation. With over seven decades of responsible business practices, our businesses have grown into global powerhouses in a wide range of sectors - metals, textiles, carbon black, telecom and cement. Today, over 50% of the Group's revenue flows from overseas operations that span 34 countries in North and South America, Africa and Asia.

The Aditya Birla Group is a member of the Global Compact, an international forum that operates under the aegis of the United Nations, with a vision to usher in a more sustainable and global economy.



# Birla Cellulose

Aditya Birla Group offers an entire range of cellulosic fibres derived from natural and sustainable sources, under the umbrella brand 'Birla Cellulose'. Birla Cellulose has been giving the world of textiles what it needs the most - the best in Regenerated Cellulosic Fibres, as well as a promise of a sustainable future.

A world leader in viscose staple fibre (VSF), Birla Cellulose has always been a trusted raw material partner for the global textile and non-woven value chain, representing a perfect mélange of nature and science.

## OUR VALUES

Our core values define what we stand for and how we do things. They are akin to a compass that guides our decision making and behaviour. Individually, each of the values mean what it is, and when combined together, they shape the culture of our organisation and its identity. These values are:



### INTEGRITY

Taking fair and honest decisions while also following the highest standards of professionalism. Integrity for us is more than just financial and intellectual integrity. It encompasses all other forms as are generally understood.



### COMMITMENT

Going hand in hand with integrity, is our determination to stay committed to deliver value to all stakeholders. We also take pride in being accountable for our own actions and decisions.



### PASSION

Encouraging the energetic and passionate approach to work amongst employees, that arises from an emotional engagement with the organisation. A voluntary, spontaneous and relentless pursuit of goals and objectives with the highest level of energy and enthusiasm.



### SEAMLESSNESS

Thinking and working together across functional groups, hierarchies, businesses and geographies. By leveraging diverse competencies and perspectives, we garner the benefits of synergy while promoting organisational unity through sharing and collaborative efforts.



### SPEED

Quick responses to internal and external customers. Simultaneously striving to finish before deadlines and choosing the best rhythm to optimise organisational efficiencies.



### VISION

To be the global leader in the Man-made Cellulosic Fibres industry

# Global Footprint

Birla Cellulose touches lives of people across the world, from plantation to fashion and lifestyle. An idea seeded in 1947 has grown organically and made us a global leader in VSF. Headquartered in Mumbai, our plantations, factories and marketing offices reach out to several countries, making a positive impact on the global textile and non-woven businesses.



## OPERATIONS & MARKETING OFFICES



### VISCOSE STAPLE FIBRE UNITS

**India**  
Nagda, Harihar, Kharach & Vilayat

**Thailand** - Angthong

**Indonesia** - Purwakarta

**China** - Xianyang



### PULP UNITS

**India**  
Harihar

**Canada**  
Atholville, Nackawic & Terrace Bay

**Sweden**  
Örnsköldsvik



### CORPORATE AND MARKETING OFFICES

**India, Bangladesh, China, Thailand, Indonesia, Turkey and USA**



### LAPF DESIGN STUDIOS

**India and USA**

# The Journey

In the last 72 years, Birla Cellulose has matched the relentless march of India, step by step. While India emerged from being an underdeveloped economy, to the fastest growing major economy in the world, Birla Cellulose has transformed itself. From humble beginnings in 1947, when Grasim Industries was incorporated as a textile company at Nagda, India into a truly multi-national giant, leading the global cellulosic fibre industry, our presence is spread across the globe.

Since Independence, the Indian economy has been on a formidable growth path. As Birla Cellulose completes seven decades of sustainable growth, we look back with pride on the path we traversed and the milestones we created along the way. What began with the vision of Mr. G.D. Birla has been carried forward by succeeding generations, with the same flair and discipline and a single-minded focus on nation building.

Over the years, Birla Cellulose has consistently created superior values for all the stakeholders and has continually worked on enhancing sustainability practices, giving us an enviable leadership position in the industry.

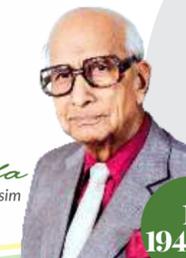
When the British left in 1947, India was largely dependent on imports for a majority of manufactured goods. With the partition of India, when large tracts of cotton-growing fertile land went to Pakistan, Mr. G.D. Birla predicted that indigenous cotton production would come under tremendous stress, as cultivation of food crops to feed a rapidly growing population would be a priority.

He foresaw the need of a suitable, naturally sourced fibre that can fulfill the void that would be created should there be a shortage of cotton, which would also have the same comfort and feel of cotton.

**With this vision, he founded Grasim, which pioneered the production of wood-based, man-made cellulosic fibre in India.**



Grasim Industries incorporated as a textile company



1947  
1956

- Production of fabric begins at Gwalior, Madhya Pradesh
- VSF production commences at Nagda, Madhya Pradesh



Mr. Aditya Vikram Birla  
a visionary and passionate entrepreneur

1957  
1966



Dissolving Wood Pulp & VSF plants at Harihar, Karnataka commissioned based on in-house engineering

1976  
1977  
1986

- Caustic Soda production commences at Nagda for captive use
- Thai Rayon Public Company Limited incorporated in Thailand



PT. Indo Bharat Rayon was established in Indonesia



Mr. Kumar Mangalam Birla gets actively involved in the Group's operations

All Group companies are consolidated under the umbrella of the Aditya Birla Group led by him



VSF Plant commissioned at Kharach, Gujarat



First overseas acquisition by Grasim - AV Cell Pulp Mill at Canada in a joint venture with other Group Companies and Tembec Inc.

2006  
1997

Production of Modal Specialty Fibre started at Nagda, Madhya Pradesh



Commissioning of pilot production line for Lyocell fibre (Birla Excel)



2007  
2019



Acquired AV Nackawic Pulp Mill, Canada in a joint venture with other Group Companies and Tembec Inc.



Acquired stake in dissolving wood pulp manufacturer Domsjö Fabriker AB, Sweden



Acquired AV Terrace Bay Inc. in Canada in a joint venture with other Group Companies



New state-of-the-art VSF plant commissioned at Vilayat, Gujarat

New Lyocell plant commissioned at Kharach, Gujarat

SEVEN DECADES OF SUSTAINABLE GROWTH

Natural / Stylish / Timeless / Lifestyle Catalyst / Versatile



# Innovation Centres at Birla Cellulose

Keeping the customer at the centre, we have created an environment and culture for innovation to flourish. Our products are the result of carefully listening to our customers, taking their feedback seriously, and delivering sustainable solutions as per their needs. Sustainability and innovation work in tandem at Birla Cellulose. Our in-house research and development centres are the hubs that contribute to bringing versatility in our products and their applications through technology.

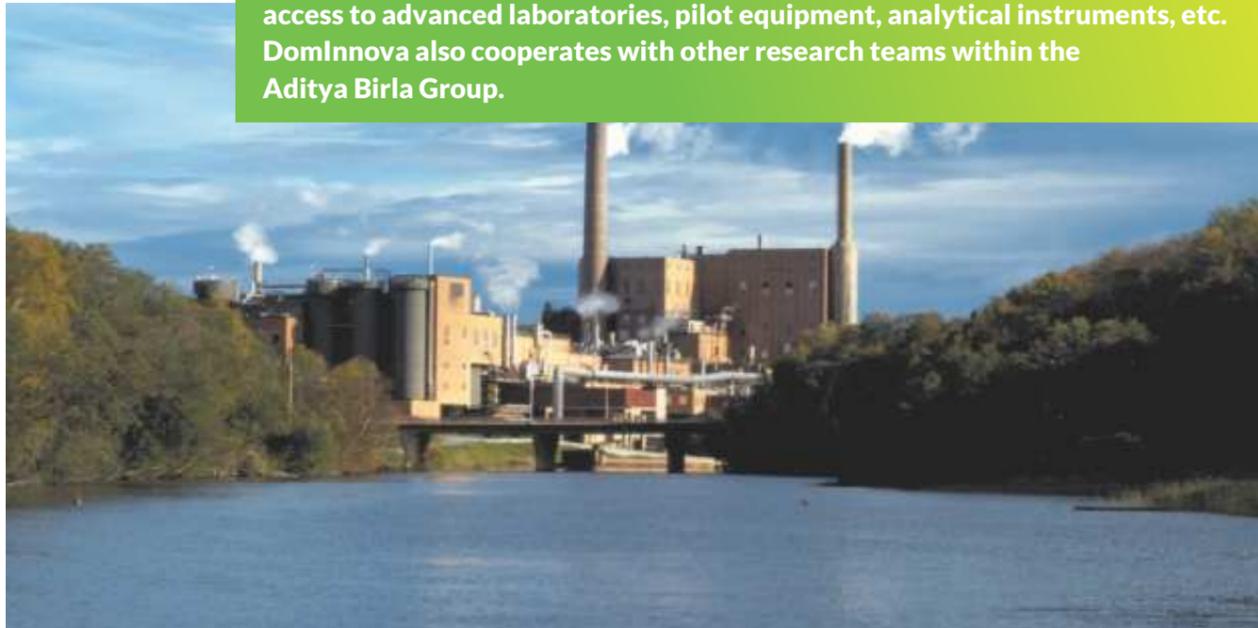
## CLONAL PRODUCTION CENTRE, HARIHAR, INDIA

A state-of-the-art Clonal Production Centre at our Harihar mill premises, produces and distributes high yielding, fast growing, site specific and disease resistant clones of eucalyptus to farmers in Karnataka. In line with the agro-forestry models, we motivate the farming community to plant pulp wood species on bunds.

## DOMINNOVA, DOMSJÖ, SWEDEN

DomInnova serves as Domsjö Fabriker's innovation engine with the task of encouraging, capturing and processing ideas from our own company and from national and international research organisations.

DomInnova has a wide external network with companies, which gives us access to advanced laboratories, pilot equipment, analytical instruments, etc. DomInnova also cooperates with other research teams within the Aditya Birla Group.



## PULP AND FIBRE INNOVATION CENTRE, TALOJA, INDIA

The Pulp and Fibre Innovation Centre (PFIC) is the latest and most advanced R&D centre for the Pulp & Fibre business, focussing on technology projects in areas of product development and enhancement, sustainable processes, quality improvement, and reduction in energy footprint.



## BIRLA RESEARCH INSTITUTE, NAGDA, INDIA

Birla Cellulose creates the highest quality, eco-friendly fibre in the world. Our premier pulp and fibre research institute is focussed on developing product innovations and process improvements related to rayon-grade wood pulp and viscose technology.

## FIBRE RESEARCH CENTRE, KHARACH, INDIA

Fibre Research Centre (FRC) is a pilot plant to provide a comprehensive R&D platform for Viscose Staple Fibre by facilitating innovation, quality upgradation, efficiency improvement, recipe formulation and technology transfer to the commercial plant, for all VSF units of the Aditya Birla Group.



FRC strengthens the R&D work on the fibre manufacturing process, along with the unit's existing Textile Research and Development Centre (TRADC).

## TRADC, KHARACH, INDIA

The Textile Research and Application Development Centre (TRADC) was instituted in 2004 at Kharach, with a vision to be a one-stop solution provider to the textile value chain, through intrinsic research, innovative products and applied services.

TRADC as the key technology-market interface, enables the business to be a leader in cellulosic fibres by creating product-offering innovations and effectively commercialising them across the value chain.

This centre deploys the best of diverse technologies for small sampling, mid-bulk and bulk orders for yarn, fabric, apparel and made-ups for different applications.



# Value Chain & Us

Viscose fibre, a basic raw material in the textile value chain, has a natural feel and offers unparalleled comfort to the end consumer. We believe that more than just being the most sustainable raw material provider to the textile value chain, we must also collaborate to drive sustainability improvements across the value chain. Birla Cellulose actively collaborates with all stakeholders throughout the viscose value chain - from plantation of forests to manufacturing of pulp and fibre, to creating fashionable apparel for end consumers.

**At every stage of the textile value chain, we are deeply engaged with value chain partners, and work together to improve the product's sustainability to create positive social impact and value to all our stakeholders.**

## RAW MATERIAL SOURCING

Wood is the most important raw material for viscose production. Wood varieties such as eucalyptus, spruce, pine, maple, aspen, etc. are the starting material for dissolving pulp, which in turn is used for producing viscose fibre. 100% of the wood is sourced from controlled forests, following internationally renowned standards like FSC®, SFI®, PEFC™.



## PULP MANUFACTURING

Dissolving wood pulp is produced at our manufacturing plants in India, Canada and Sweden. We also procure pulp from external suppliers while ensuring that 100% of the wood is sourced from sustainable sources.

## FIBRE MANUFACTURING

YARN

TEXTILE VALUE CHAIN

CLOTH

GARMENT

RETAILER

END CONSUMER

## VISCOSE VALUE CHAIN

NONWOVEN VALUE CHAIN

NONWOVEN ROLLS

CONVERTERS

PRODUCTS

RETAILERS

END CONSUMER

BIODEGRADES

## END OF LIFE - BACK TO NATURE

Viscose fibres made by Birla Cellulose are compostable, in home and industrial conditions, and biodegradable in water, soil and marine environment. New developments in this area are focussed on recycling of cellulosic pre and post-consumer waste, as raw material for making of fresh viscose fibres.



## MANUFACTURING AND USE

In the textile value chain, viscose fibre is shipped to yarn manufacturers, converted to fabric, processed, and finished in subsequent stages, and used for garment manufacturing. Use phase starts once the garment reaches the hands of the customers.

The non-woven value chain is a shorter one, where the converters are our customers involved in roll-goods production and final products, like wipes.

# Sustainability & Us

## About the Report

### Reporting Principles

The Sustainability report seeks to communicate our social, environmental and economic performance for our stakeholders. The report highlights our approach to sustainability, which is ingrained in the way we run our operations, right from plantation and sourcing of wood, manufacturing pulp to working with a superior, environment friendly closed-loop fibre processes; from fashion to the end of its life. We continue to take steps towards minimising environmental impact using our sustainability framework, which not only looks at the sustainability aspects of viscose manufacturing, but is equally focussed on working closely with our value chain partners to improve the sustainability of entire cellulosic value chain. **These aspects are scoped and incorporated in the five pillars of our sustainability policy - Responsible Sourcing, Responsible Manufacturing, Sustainable Products, Valuable Partnerships and Social Responsibility.**

In this report, we have adopted the Global Reporting Initiative (GRI) Standards in accordance with the Core Option. The GRI content index table at the end of this report, shows the definition of each reported disclosure element as well as its location within the report. The performance disclosures contained in this report pertain to the period between April 01, 2018 and March 31, 2019. We are determined to publish our sustainability report on a regular basis.

For your valuable feedback and suggestions, please write to Mr. Mukul Agrawal on [mukul.k.agrawal@adityabirla.com](mailto:mukul.k.agrawal@adityabirla.com)

### Boundary and Scope

This report's boundary and scope include the corporate and marketing offices across locations, all seven Viscose Staple Fibre and four Dissolving Grade Pulp manufacturing units. AV Terrace Bay is paper grade pulp manufacturing unit and is not included in the report scope. While our employment data covers our offices, the scope of this report excludes other environmental and social data relating to our corporate and marketing offices.

The report also covers an array of topics, which have been defined as material to our business and operations.

#### ENTITIES WITH FIBRE MANUFACTURING UNITS



Grasim Industries Ltd. - VSF operations (India)	Staple Fibre Division, Nagda (M.P.)
Thai Rayon Public Company Ltd. (Thailand)*	Grasilene Divison, Harihar (Karnataka)
PT Indo Bharat Rayon (Indonesia)*	Birla Cellulosic, Kharach (Gujarat)
Birla Jingwei Fibres Co. Limited (China)*	Grasim Cellulosic Divison, Vilayat (Gujarat)

#### ENTITIES WITH PULP MANUFACTURING UNITS



Grasim Industries Ltd. - Harihar Polyfibers (India)	
AV Group NB (Canada)#	Atholville Mill Nackawic Mill
Domsjö Fabriker AB (Sweden)*	

\*Shareholding with Grasim Industries Ltd. #JV with Grasim Industries Ltd.

### Independent Assurance

This report is externally assured by Ernst & Young Associates LLP, excluding economic performance indicators, which are drawn from our annual reports. The assurance is in accordance with the limited assurance criteria of the International Standards on Assurance Engagement's (ISAE) 3000. The assurance approach methodology, and observations are presented in the assurance letter attached at the end of the report.

### Management Approach to Sustainability

**Sustainability is a way of life at Birla Cellulose. It is deeply instilled in the culture of the organisation and at the top of everything that we do across the MMCF value chain.**



We have a long-standing commitment to sustainability and follow a 360° approach, where we work towards making the entire process - right from plantation to pulp to fibre production, fashion and end of life, sustainable.

Every process is designed to enhance the sustainability credentials of the product so that the richness of the natural cellulose sourced from sustainable forests is transformed efficiently into the fibre that gives unparalleled comfort and natural feel to the consumers. This creates value for all the stakeholders, and takes care of the environment and society at large.

# Materiality Assessment

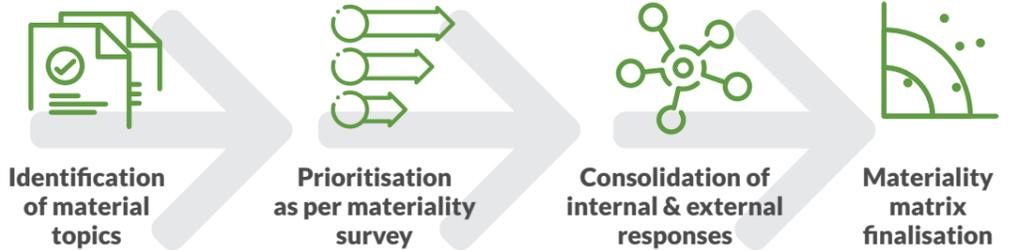
A sustainability strategy that is not adaptive and accountable to our stakeholders will not stand the test of time. The key materiality issues are identified together with all stakeholders through Materiality Assessment, in order to create a transparent and robust approach on our part in synchronising with the needs of the industry and shaping our sustainability strategy.

To know more about our stakeholder engagement, please refer to "Valuable Partnerships" page 111

## Materiality Assessment - The Process

Birla Cellulose approaches sustainability from the same scientific temper with which we approach our products. Just the way we conduct comprehensive research for our products, we took up a detailed Materiality Assessment exercise to come up with issues that are relevant for our internal and external stakeholders.

The United Nations Sustainable Development Framework was the starting point to identify the key sustainability materiality issues. The next step was to look up guidelines on good manufacturing practices for viscose and the risks and impacts as well as global standards.



Based on their suggestions, the questionnaire was prepared and sent out to diverse groups of internal and external stakeholders. The stakeholders covered in the survey included institutions of expertise on sustainability, customers, brands & retailers, not-for-profit organisations, community representatives, investors and representatives of regulatory bodies.

More than 100 responses received from various stakeholders were collated. Of these 34 issues, issues that were of high relevance to both internal and external stakeholders, were culled out based on the ratings: "extremely important", "very important", "somewhat important" or "not important". These ratings were converted into an average score on a scale of 0 to 10, and the scores were plotted on the chart.

## The 15 focus areas, in alignment with SDGs, have set the direction of our strategy to achieve goals and

*create value for our stakeholders.*

We took direct feedback from not for profit organisations to make this process more broad-based and robust. Inclusive feedback was gathered from internal stakeholders and Aditya Birla Group framework was referred for alignment to group policies.

The next leg comprised of conducting interviews with several regulatory bodies and investors for their opinions and insights. The information gathered through this expansive task was then discussed through one-on-one dialogue with individuals and written responses from experts across the knowledgeable stakeholder spectrum. A list of 34 materiality issues were identified which represented the most important materiality issues related to MMCF industry.



# Materiality Matrix



Most important material issues		Other key material issues	
No.	Issue	No.	Issue
4	Water Footprint	1	Welfare of Local Communities
5	Occupational Health & Safety	2	Capacity Building in Value Chain
6	GHG Reduction in Manufacturing	3	Gender Equality
10	Fair Labour Practices in Supply Chain	7	Talent Development
12	R&D for Technology Upgradation	8	Collaborating for Human Rights
18	Customer Satisfaction	9	Economic Performance
19	Sustainable Procurement	11	Collaborating for Enhancing Local Supplies
20	Waste Management	13	Equal Opportunity Employer
21	Best Available Techniques (BAT) for Production	14	Global Certifications for Products & Process
22	Closed-loop Manufacturing	15	Circular & Recycled Products
25	Chemical Management	16	Partnership for Sustainable Viscose Promotion
29	Responsible Wood Sourcing	17	Responsible Supply Chain Management
		23	GHG Reduction in Supply Chain
		24	Biodiversity & Resources Management
		26	Sustainable Product Development
		27	Marine Pollution from microfibers
		28	Sustainable Product
		30	Transparency in Sustainability Disclosures
		31	Transparency in Governance System
		32	Collaboration for Value Chain Sustainability
		33	Partnership with Multi-stakeholder Organisations
		34	Transparency & Traceability

## Key Material Issues Identified

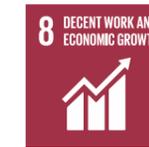
After materiality analysis, 34 issues were identified which are significant to both internal and external stakeholders. We bunched together these 34 issues into 15 key topics. The final issues were also mapped to the UN's Sustainable Development Goals (some issues relate to two SDGs). These focus areas have set the direction of our strategy to achieve goals and create value for our stakeholders.

Though we are reporting on most of these key topics however, we are currently in the process of developing data management system for disclosures related to some of our material issues - Sustainable procurement, Closed-loop manufacturing, Sustainable products and circular economy, Transparency and traceability, Gender equality and Reduce inequality and Biodiversity. While we are already taking initiatives in these areas, we will be introducing indicators related to these material issues in the next reporting cycle.

### RESPONSIBLE WOOD SOURCING



### SUSTAINABLE SUPPLY CHAIN



### CLOSED-LOOP MANUFACTURING



### OCCUPATIONAL HEALTH & SAFETY



### WATER FOOTPRINT



### GHG REDUCTION



### CHEMICAL MANAGEMENT



### WASTE MANAGEMENT



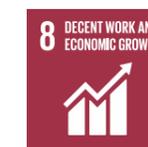
### SUSTAINABLE PRODUCTS & CIRCULAR ECONOMY



### TRANSPARENCY & TRACEABILITY



### TALENT MANAGEMENT



### BIODIVERSITY



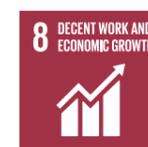
### GENDER EQUALITY AND REDUCE INEQUALITY



### VALUABLE PARTNERSHIPS



### ECONOMIC PERFORMANCE



# Risk Management

Sustainable business requires that the risks are managed proactively and promptly before they can start to damage the performance of the company. Birla Cellulose has done an extensive study of the risks associated with the business across and especially in the field associated with sustainability and regulatory compliances.

**A strong governance system ensures that the risks are identified timely, addressed suitably, monitored periodically and risks and their mitigation are reviewed periodically at the Executive and board level.**



## WOOD AND RAW MATERIALS SOURCING RISKS

There is limited quantity of sustainable wood available and as the business grows, the sources of controlled wood need to be extended.

These needs are addressed in our valuable partnership programs as well as programs of recycling of pre and post-consumer waste to reduce dependence on wood.

Pulp sources with controlled wood need to be explored and water being a scarce resource is required to be conserved. Birla Cellulose leads the world in water efficiency and continually works to improve security by regenerating and harvesting water sources. Renewable Energy will be significantly cheaper in the near term, that too has to be incorporated in energy strategy.



## ENVIRONMENT RISKS

The legislations are getting stricter in every country that we operate in. The new limits for emission and effluent are tighter and more stringent. Expectations of stakeholders is to go beyond the regulatory norms to adapt global norms.

Birla Cellulose has been proactively taking up these challenges and has a roadmap to implement Best Available Technology to manage the emissions and effluent, irrespective of regulations. This will mitigate the risks by keeping the sites a step ahead of legislation. Climate change is one of the key risks, and aggressive targets have been taken to reduce energy intensity and expand the sources of energy by addition of more renewable mix.



## TECHNOLOGY RISKS

There is a risk of losing the market leadership position due to product or technology obsolescence.

Birla Cellulose is an innovation focussed company, continually engaged in extensive R&D activities at its five research centers across the world to develop new products and evaluate new technologies. In addition, there is an active collaboration with Universities and Institutes of repute, as well as leading technology and engineering suppliers to upgrade our processes. Many of these technologies are protected by licensing agreements and patents as required.



## WATER AVAILABILITY RISKS

Many of our sites operate in water stressed areas, and due to growing population and increased water consumption per capita, the water demand keeps increasing. At the same time, climate change is leading to reduced water availability. Water is the most precious resource and 70% of the world's population lives in water stressed areas; the problem is expected to aggravate in coming years.

The risk would be mitigated by multipronged strategies of reducing the water footprint, water harvesting and increasing storage capacity, diversifying the sources of water including recycling of municipal wastewater.



## MARKET RISKS

Fast fashion and the waste generated by post use fabric has recently caught the limelight and can potentially change the way the industry works. The initiatives on the product innovation and end of use recycling of cellulose need to be commercialised.

Additionally, the brands are launching a more sustainable range of products, so the launch of LivaEco and Traceability tool, are a step in this direction to capture these new opportunities in market place. Another market risk is mismatch between supply and demand - excessive availability of fibre can make significant impact on its pricing, whereas the shortage can lead to the market shift for other competing fibres (like cotton).



## COMMUNITY RISKS

The impact of operations on the nearby community could be another risk.

The community engagement programmes, the grievance management procedures, transparency in declaring our policy and performance and a series of corporate social responsibility programmes are put in place to improve our relations with community and for partnering with them for supply of materials and services. Health management programmes and periodic monitoring are in place around the community. At the same time, the best available technologies are being installed at all the Birla Cellulose sites plants to minimise the impact of operations as a preventive measure.



## PRODUCT RISKS

If the product does not perform as per the expectation of customers on quality, safety or hygiene factors, it could result in significant loss of business. Also, if the customer specifications get changed, there is a risk of losing the customer.

Birla Cellulose has multi-level checks in place to ensure that only the standard certified product reaches the customer as per their specifications.



## HEALTH AND SAFETY RISKS

The health and safety of employees, contractors, and neighbouring community could be at risk due to potential incidents such as fire, personal injuries, gas exposure, etc.

There is a comprehensive programme that evaluates each of these risks and mitigates them by suitable control measures at each of the facilities. The safety and health management strategy has an eight-dimensional programme to address the risks in each of these dimensions.



## REGULATORY COMPLIANCES RISKS

The right to operate requires compliances to several laws and conditions in the countries that we operate. The non-compliances can have significant risks to business.

A series of internal and external audits are performed to ensure that the legal compliances are adhered to and new regulatory requirements are captured in the system.



## REPUTATION RISKS

The reputation of the company could be impaired due to any unfortunate incident related to safety/environment or sustainability or any happenings which are against the stated principles of the company.

Birla Cellulose is one of the leaders in the global MMCF industry and to keep this reputation intact among the stakeholders, we continually build upon the trust and goodwill. Birla Cellulose is consistently improving sustainability credentials by putting in place strong systems for governance with multi-level checks and balances such as internal and third-party audits, whistle blowing, and grievances management system to ensure that no deviations escape undetected and are addressed suitably.

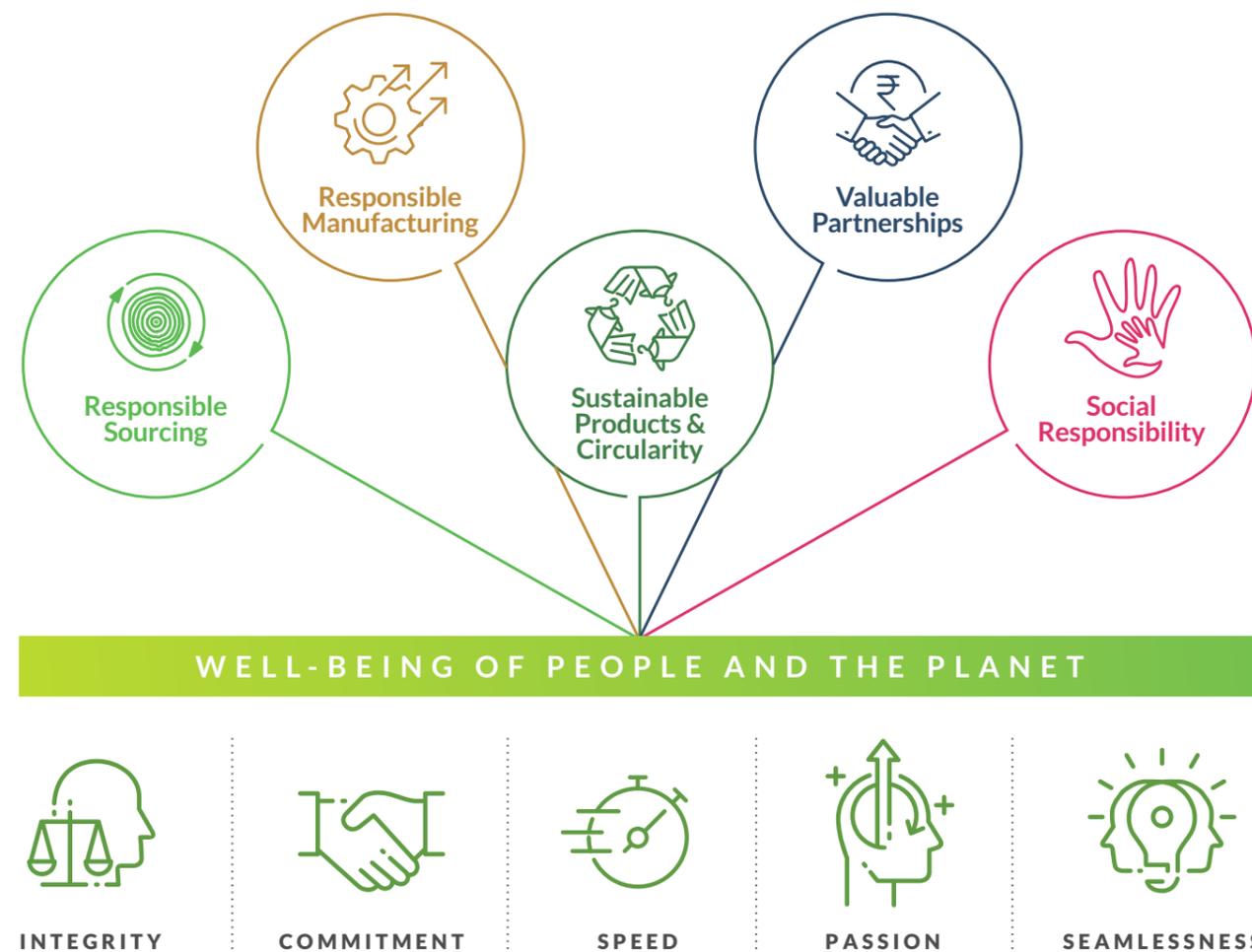
# Sustainable Business Strategy

Sustainability at Aditya Birla Group means 'Think about Tomorrow, Today', it is about taking responsibility of our actions today to assure well-being of the future generations.

Over the last several decades, Birla Cellulose has sustained a leading position in the global MMCF industry by integrating sustainability practices at the core of business strategy, creating a positive value for all the stakeholders. It has also catalysed our efforts in conserving and rejuvenating natural resources for the future.

## Framework and the Scope

The United Nations Sustainable Development Goals (UN SDGs), together with the materiality issues and the Circular Economy principles, constitute the framework of our sustainability strategy. Five Pillars have been incorporated in the strategy to ensure complete value chain and cover all aspects related to sustainability. At the core of the strategy is Well Being of the People and the Planet, and that inspires each of the five pillars.



Out of the seventeen SDGs, seven have been selected as priority, based on the evaluation of internal and external stakeholders' feedbacks. We have undertaken several initiatives to link our activities with SDGs, and they are:



### RESPONSIBLE SOURCING



**Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.**

While we constantly strive to maintain our leading position in the industry, we also ensure the ethical sourcing of raw material and services adhering to high standards in environment, social and safety standards. Our wood sourcing policy prevents use of wood from ancient and endangered (A&E) forests.

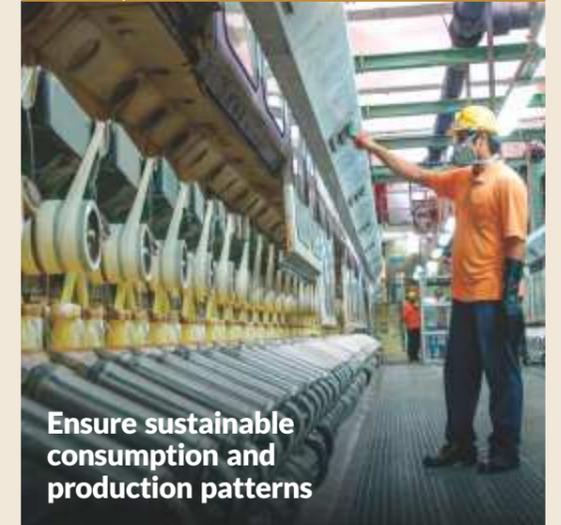
We assess and monitor the performance of key suppliers on sustainability to ensure MRSLs are used in chemicals procurement and stringent safety practices are followed in their transportation. Contractors who work with us are required to follow National Labour Laws and a strict 'No Child Labour' policy. It is mandatory for the contractors to receive training on safety and health. Our Supplier Code of conduct gives guidance to all the suppliers on key requirements related to sustainability.

#### Initiatives

- Birla Cellulose is cooperating with the not for profit organisation, Canopy, for sustainable wood sourcing
- Following standards such as FSC®, PEFC™ and SFI® for managing wood sourcing



### RESPONSIBLE MANUFACTURING



**Ensure sustainable consumption and production patterns**

Manufacturing Excellence is the mainstay of our entire business, which provides high quality products in most sustainable manner, and is the most critical element for attaining the leadership in Sustainability in MMCF Industry. This is achieved by constantly adapting the Best Available Technologies (BAT) and the concept of Closed-Loop Manufacturing process, in order to improve resource efficiency.

#### Initiatives

- Implementation of closed-loop production processes and production of various products from different wood components
- Reduce, Reuse, Recycle all the critical material and energy in manufacturing operations
- Going beyond regulatory norms to achieve most stringent standards such as EU BAT, EU Ecolabel, ZDHC, Higg (3.0) FEM
- Recycling of pre- and post-consumer waste cellulose as raw material

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**SUSTAINABLE PRODUCTS & CIRCULAR ECONOMY****Take urgent action to combat climate change and its impacts**

Innovation happens when we listen to our customers carefully and commit ourselves to help them overcome their challenges. The spirit of innovation is fueled by an open culture in the organisation which comprises of a diverse global workforce.

Our research enables us to continuously and consciously develop new products that are not only high on performance, but also utilise less resources in its production and usage. Today, we are frontrunners in developing innovative and sustainable products, while also successfully addressing the needs of consumers in every segment.

**Initiatives**

- ~90% of the energy utilised in pulp making is derived from renewable sources
- Introduced energy efficient measures and technologies in the manufacturing of viscose
- Expansion of state-of-the-art Lyocell manufacturing plants
- Ensuring sustainable forestry to promote sequestering of carbon and create CO<sub>2</sub> sinks to reduce global warming

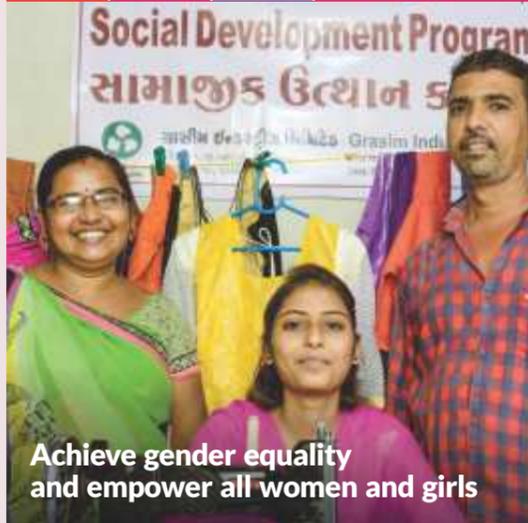
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6

**SOCIAL RESPONSIBILITY****Achieve gender equality and empower all women and girls**

People are at the centre stage of Birla Cellulose, whether they are our customers, employees, contractors or the communities we operate in, and their wellbeing is a priority. By taking multidimensional approaches towards these important stakeholders, we are able to improve and contribute to areas of safety, health, education, women empowerment, livelihood, equality, diversity and infrastructure, thereby bringing holistic development for both our company, and the people who surround us.

**Initiatives**

- **Girl Child Education – A comprehensive programme for girl child education**
- **An equal opportunity employer - does not tolerate any form of discrimination and exploitation**
- **Signed and implemented WASH pledge across all units to promote access to water, sanitation and hygiene at workplace**
- **Recycle and reduce our water consumption and reduce the wastewater generation significantly at all the sites globally**

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**VALUABLE PARTNERSHIPS****Revitalise the global partnership for sustainable development**

In order to build trust, openness and objectivity amongst our partners, we actively make an effort to invest in our relationships with our stakeholders, to take them beyond merely a transactional, or contract based one.

By understanding their expectations from us, and our obligations towards them, we are able to build a meaningful, long-term partnership of mutual benefits - be it our customers, investors, community, suppliers, employees, NGOs, research institutes, regulatory bodies, contractors or others.

**Initiatives**

- **Partnered with Canopy to implement wood sourcing policy**
- **Signed ZDHC-Roadmap to zero and collaborated with Sustainable Textile Solutions (STS) for third-party audit of Chemical Management**
- **Working with institutions of repute to develop newer and more efficient technologies for closed-loop viscose production system**



**Mr. Mukul Agrawal**  
Head - Sustainability & Strategic Projects

**Q** *What are the key megatrends that will impact the business sustainability in coming years?*

There are two major areas from which sustainability themes are emerging. One is very broad global trend and other is specific to textile and viscose industry in which we are operating. We need to pay heed to both of these with equal importance.

On the global megatrends, climate change and water are clearly on top of the agenda apart from other issues, whereas in the textile and MMCF industry the important issues driving the sustainability improvements across the value chain are sustainable forestry, responsible viscose manufacturing, waste going to landfill, health and safety of workers and surrounding communities. The consumers expect to know the sustainability credentials of the products they buy, so transparency and traceability across the value chain are also becoming important.

**Q** *What led to your 5 pillar sustainability strategy and how it will help in long term business success?*

Our sustainability strategy has emerged from the need of making the business sustainable in the long term and a deep analysis of all aspects of business landscape. Our understanding of the viscose industry and textile value chain, our analysis of materiality issues concerning the MMCF and textile industry in particular and industry in general, our analysis of what the best available technologies can achieve, our analysis of how can we collaborate with our valuable stakeholders, led to the formation of the five focus areas for long term business sustainability. The strategy looks minutely at every stage of the value chain in order to find opportunities to enhance the sustainability aspects of the process.

Birla Cellulose has set well defined short term and long term goals in all the five areas of its strategy and aligning these goals with UN SDGs.

# Corporate Governance

## Management Approach

Our philosophy for ensuring good corporate governance stems from the robust Aditya Birla Group Corporate Principles and Code of Conduct. The Principles and Codes are practiced and monitored within the group with an aim to follow the highest standards of ethics and values.

**Corporate governance refers to a set of laws, regulations and good practices that enable an organisation to perform efficiently, and ethically generate long-term wealth and create value for all its stakeholders.**

### Our Corporate Governance Principles and Philosophy



We are committed to the adoption of best governance practices and its adherence in the true spirit, at all times. These practices are self-driven, reflecting the culture of the trusteeship that is deeply ingrained in our value system and reflected in our strategic growth process.

#### Six basic tenets of our governance philosophy



In line with the above philosophy, Birla Cellulose continuously strives for excellence through adoption of best governance and disclosure practices. Our sustainable business programme is supported by a solid governance structure that engages senior management as well as those on the ground. This ensures that all colleagues are driving change in a uniform manner.

### Governance Structure for the Implementation of Sustainability

The Executive Committee (ExCom) is chaired by the Business Director and is responsible for the overall integration of the sustainability strategy across the business, while initiatives that drive it through the business are also carried out. ExCom meets on a regular basis to oversee the progress of initiatives and acts as an advisory board for guidance in the implementation of strategies. The sustainability performance is presented by the Head of Sustainability to the ExCom, and it reviews the performance and provides directions for any changes in the programmes if necessary.



Site Heads at our facilities ensure the strategy is implemented on the ground. They are mandated to deliver the requirements outlined in our policies appropriately for the site and to put action plans in place. They also drive training and development needs in collaboration with other sites and exchange of best practices via learning and sharing. Central Sustainability Cell supports the sites in executing the policies and programmes related to Sustainability.

## Policies and Standards

We have developed policies for our Business taking into account our Group Policies & Values. We are working to improve our management systems and by doing so, we expect our performance at all levels to improve towards international best practices. We empower our employees to learn, understand and apply improvement techniques, so that everyone is involved in our efforts to reach higher standards of performance.

 For a deeper understanding of our policies visit: <http://sustainability.adityabirla.com/policies.php>

# Certifications

We follow global standards & business processes that are good for the health of the planet and its people. Our environmental and quality practices, and product certifications from globally reputed agencies, enable us to build professional credibility among our stakeholders, and is a hallmark of our commitment towards human and environmental health.

## Certifications and management systems give an overview of an organisations' alignment towards standard practices followed in the industry for its processes and products.

We have the following certifications and management systems for applying global best practices in our business processes.

### SUSTAINABLE FORESTRY CERTIFICATIONS

All our pulp and fibre units are certified with leading 'sustainable forestry certifications' that stress on responsible sourcing of raw materials from forests. We have collaborated with FSC®, SFI® and PEFC™ to get Chain of Custody (CoC) certified.

Chain of Custody certification is a way of tracking wood-based raw materials from the forest to the consumer, at each stage in ownership.



### ISO 9001:2015 CERTIFICATION

ISO 9001 certification consists of the sets of criteria for efficient quality management systems with respect to products and services. Our pulp and fibre units in India and units in Indonesia, Thailand, China and Sweden are covered under this certification.

### ISO 14001:2015 CERTIFICATION

All our pulp and fibre manufacturing sites have a systematic and efficient 'Environmental Management System' in place, which effectively contributes towards the environmental pillar of our sustainability framework. All our dissolving pulp and fibre manufacturing sites are certified for ISO 14001.

### OHSAS 18001:2007 / ISO 45001:2018 CERTIFICATION

OHSAS 18001 is a framework that sets out the minimum requirements for an occupational health and safety (OHS) management system to bring work health and safety into the business. Our pulp and fibre units in India, and units in Indonesia, China and AV Group NB in Canada are certified with OHSAS 18001.

### ISO 50001:2011 CERTIFICATION

Our units at Harihar and Domsjö are certified with ISO 50001, which is based on the management system model of continual improvement apart from ISO 9001 and ISO 14001. This makes it easier for us to integrate energy management into the overall efforts to improve quality and environmental management.

### SA 8000:2014 CERTIFICATION

SA 8000 represent the management of human rights and systems required for human development, be it employees, or contractors or the community. Our Nagda site is already certified for SA 8000 while others are in preparation of doing so.

### OEKO-TEX® STANDARD 100

All Birla Cellulose fibres are certified to Standard 100 by OEKO-TEX®, which is a worldwide consistent, independent testing and certification system for raw, semi-finished, and finished textile products at all processing levels.



### REACH

Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) addresses the production and use of chemical substances, and their potential impacts on both human health and the environment.

### SMETA AUDIT | SEDEX

Sedex Members Ethical Trade Audit (SMETA) is an ethical audit format, which reports on Sedex's four pillars of Labour, Health and Safety, Environment and Business Ethics.

### USDA BIOBASED CERTIFICATION

Birla Cellulose received this certification from US Department of Agriculture (USDA) for their Birla Viscose, Birla Modal, Birla Excel and Birla Spunshades fibres.



### OK CERTIFICATION

Regular viscose fibres from Birla Cellulose are certified according to OK scheme for composability in various conditions like industrial composting and biodegradability in soil, water & marine environments. The fibres are biodegradable and compostable at the end of life and this clearly shows the circular nature of the man-made cellulosic fibres coming from renewable and sustainable raw material wood.



### C2C MATERIAL HEALTH CERTIFICATE

The Cradle to Cradle standard assesses product safety to humans and the environment, as well as product design for material reuse. Based on the Cradle to Cradle 'industrial design philosophy', the initiative's purpose is to eliminate waste and to encourage products to be developed for closed-loop systems. We have received Gold Level Material Health Certification by C2CPII for our dope dyed VSF, which is branded as 'Birla Spunshades'.

### FKT LABEL "MEDICALLY TESTED - TESTED FOR TOXINS"

The FKT label "Medically Tested - Tested for Toxins" label identifies textiles that do not release any chemicals that may irritate the skin or be harmful to health.



Birla Cellulosic, Kharach has provided the logo of STANDARD 100 by OEKO-TEX® for the illustration purpose.

# Way Forward

Birla Cellulose is aligned with the sustainability strategy of ABG:

## Think About Tomorrow, Today!

Our efforts are directed towards **renewing, conserving, and preserving** natural resources for the future to come, while creating value for all our stakeholders. We have been moving gradually, taking consistent steps in this journey to achieve our sustainability goals and targets.



Amid the shortage of natural resources today and an impending crisis tomorrow, the textile industry is increasingly looking for sustainable materials with environment-friendly attributes such as natural renewable sources, less resource use while processing, and materials that can address end of life cycle issues such as biodegradability and microfibres in aquatic bodies.

Consumers too are aware of these issues and have been demanding the right balance between their lifestyle choices and their cost to the environment. Textile solutions which are resource-efficient and do not degrade the environment during production, use and post-use, are increasing in demand.

Birla Cellulose has been pioneering products and solutions that cater to precisely these needs of the consumers. We have been offering more responsibly made fibres, from fully renewable natural sources and with excellent biodegradability, creating a positive impact on the lives of people and the planet.

The guiding principles of our sustainability strategy are derived from the United Nations Sustainable Development Goals, coupled with the materiality issues identified in consultation with our stakeholders.

Our strategy framework for sustainability incorporates five pillars to ensure that the entire pulp & fibre value chain is included, and covers all aspects related to sustainability across the value chain.



### Five Pillars



RESPONSIBLE SOURCING



RESPONSIBLE MANUFACTURING



SUSTAINABLE PRODUCTS & CIRCULAR ECONOMY



VALUABLE PARTNERSHIPS



SOCIAL RESPONSIBILITY

THESE PILLARS UNDERPIN HEALTH & WELL-BEING OF THE PEOPLE AND THE PLANET

## From Conservation to Rejuvenation

### RESPONSIBLE SOURCING

We are taking a series of efforts in sourcing, directed towards rejuvenating the environment and not just conserving it. The actions on responsible sourcing are designed with a view to improve the sustainability of the supply chain.

### FOCUS

- 100% of the wood from FSC®, SFI®, PEFC™ certified sources and aligned to Canopy's wood sourcing requirements
- To assess important vendors for sustainability performance on EHS standards, ZDHC standards, labour regulations, Fair-Trade guidelines, and Supplier Code of Conduct
- Developing alternative raw materials for cellulose by utilising recycled pre- and post-consumer waste
- Substituting hazardous substances from the Manufacturing Restricted Substances Lists (MRSL) in our supply chain
- Localising supply of goods and services, and developing local communities

## From Good Practices to Global Benchmarks

### RESPONSIBLE MANUFACTURING

Birla Cellulose has built sustainable process efficiencies, keeping in mind the health and safety of the environment and people. We are now taking these practices a notch higher by moving towards global benchmarks.

### FOCUS

- Establishing new benchmarks in resource efficiency by application of Best Available Technologies for closed-loop production system at all sites
- Establish new benchmarks in water usage in pulp & fibre industry, and reduce water footprint significantly
- Continually reduce GHG intensity of our products by improving the energy efficiency of our processes by use of renewable energy and carbon sequestering
- Implementing global standards across all sites (WASH Pledge, Higg (3.0) FEM, ZDHC, EU BAT, EU Ecolabel, SA 8000, OHSAS 18001, Life Cycle Assessment, etc.)
- Reducing solid waste generation at all sites and develop applications for waste going to landfill

## From Product Focus to Consumer Solutions

### SUSTAINABLE PRODUCTS & CIRCULAR ECONOMY

We have been creating value for our customers through our sustainable products. The focus is now on providing the same products with higher resource-efficiency and give a new life to them when they reach end of life.

### FOCUS

- Increasing the share of sustainability-enhanced products to form a major share in our product basket (like LivaEco, Dope dyed, Lyocell)
- Collaborations and co-branding initiatives with leading brands on sustainable fashion lines
- Traceability & transparency solutions across the value chain
- Commercialisation of fibre using alternate feedstock such as recycled cellulosic waste (pre- & post-consumer) and developing value chain for its recycling
- Getting the products certified and endorsed from expert bodies/organisations after rigorous testing on sustainability credentials

## From Transactional to Transformative Partnerships

### VALUABLE PARTNERSHIPS

Birla Cellulose is committed to collaborative strategic partnerships. Our valuable partnerships with institutions, multi stakeholder organisations, experts and think tanks enable us to adopt scientific & technological advances.

### FOCUS

- Lead the sustainability practices in the MMCF industry by being a learning organisation and continuously engaging with experts, institutes and international bodies of repute
- Collaborate actively with organisations such as Forest Departments, Settlers, Canopy, WWF, Forest Institute UNB, and IIFM to ensure sustainable forestry
- Implementing state-of-the-art Pulp and Fibre Manufacturing Technologies - collaborating with research institutions, technology and equipment suppliers, experts and consultants
- Building relations with sustainability focussed non-profit organisations such as Changing Markets, Sustainable Apparel Coalition (SAC), ZDHC, Textile Exchange, Greenpeace, UNFCCC, WBCSD and others, to continuously communicate our programme and seek feedback for improvements
- Collaborating with community, local bodies and NGOs for need-based CSR projects directed at upliftment of weaker sections of society
- Engaging with value chain to improve the sustainability practices across the MMCF industry and provide training and knowledge to build their capability

## From Need Alleviation to Systemic Transformation

### SOCIAL RESPONSIBILITY

Birla Cellulose has been taking up need-based initiatives for people and communities. We are now in the process of bringing cultural and socio-economic transformation.

### FOCUS

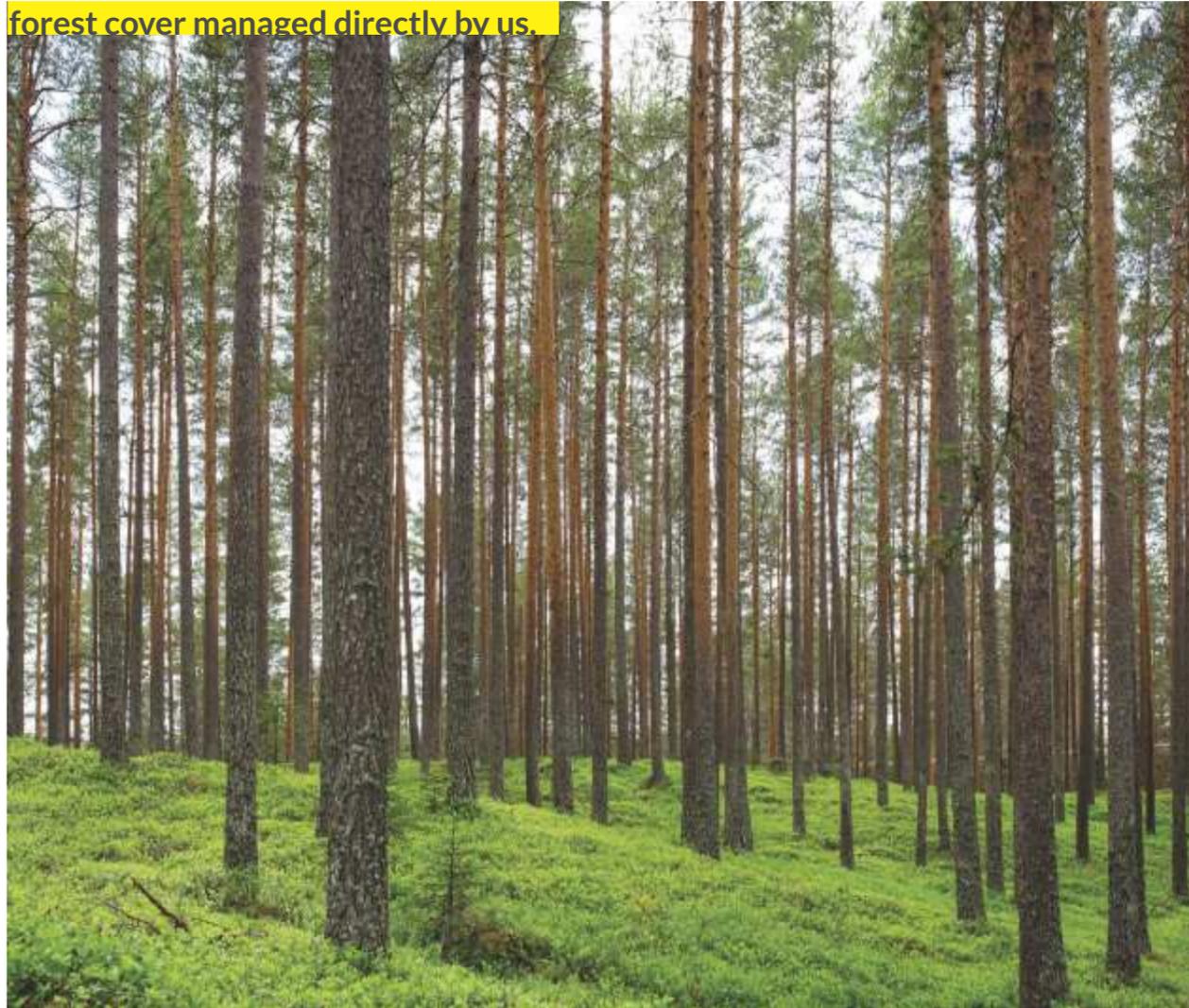
- Goal 'Zero' - No Loss Time Injuries - Applying the world class standards in our Safety Management Practices to achieve No Loss Time incidents at Pulp and Fibre facilities
- Grooming and nurturing talent at all levels to build an exceptional team
- Training and skilling women in the geographies we operate, to make them financially independent
- Managing grievances to ensure quick response on issues raised by internal and external stakeholders and giving them feedback on actions taken
- Enhancing transparency by disclosure of our sustainability performance on our website, through sustainability reports and real time display of data on factory gates
- Need-based community engagement and CSR programmes to make meaningful changes in the lives of weaker sections of society



## Birla Cellulose is Carbon Neutral in Scope 1 & 2 emissions

Birla Cellulose has evaluated its greenhouse gas (GHG) emissions across its entire global operations.

**We are the first company in the MMFC industry to be carbon neutral in Scope 1 & 2 GHG emissions. This is a result of years of focussed efforts in making the process energy efficient, use of renewable energy and ensuring net positive growth of the forest cover managed directly by us.**



Total Scope 1 & 2 GHG emissions were found to be 3.22 Mt CO<sub>2</sub>e, and carbon sequestering was 3.44 Mt CO<sub>2</sub>e due to directly managed forests, completely offsetting Scope 1 & 2 emissions. The data of FY 2019 was used to conduct the evaluation. The GHG emissions evaluation includes all the 12 sites of Birla Cellulose (incl. AV Terrace Bay). The evaluation was done using the Greenhouse Gas Protocol and IPCC guidelines.

Birla Cellulose is the first company in MMCF industry to do the Scope 3 GHG emissions accounting which was part of this very comprehensive exercise using GHG Protocol Corporate Value Chain Accounting and

Reporting Standards (Scope 3). The Scope 3 evaluation included purchased goods and services, fuel and energy related activities, upstream transportation and distribution, waste generation in operations, business travel, and downstream distribution. The total Scope 3 GHG emissions were evaluated to be 2.01 Mt CO<sub>2</sub>e.

Birla Cellulose is preparing its plan to further reduce its GHG intensity by implementation of energy efficient technologies, increasing the use of renewable energy, improving energy efficiency of its supply chain, and increasing carbon sequestering in collaboration with its strategic partners.

## Learning from external audits with a fresh pair of eyes

Birla Cellulose has implemented several global best practices at all its sites which includes standards such as SAC Higg (3.0) FEM, ZDHC, etc.



To study the effectiveness of implementation of these standards in controlling the impact of our operations on environment, health and safety of our employees, contractors and communities around us, Birla Cellulose has instituted third party audits by reputed organisations from time to time, which includes Sustainable Textile Solutions (UK) and Environmental Resource Management (ERM, USA) for several of our facilities.

The scope of audit also includes comparison of our practices with other progressive companies in the textile industry in addition to benchmark standards. These audits have been a great source of learnings and helped us improve our systems and processes, increasing capability of the teams, reducing our impact on environment, improving the safety standards, and making the business more sustainable.

To highlight a few items that these audits helped us learn on the external interface is setting up a faster and better feedback mechanism for interacting with external stakeholders, where we can capture the feedback and respond faster enabling us to establish need based CSR programmes. On the safety and health

systems, upgradation of the sealing arrangement of our machines has helped to capture all the emissions and direct it to control technologies. The newer methods to quantify personal exposure of gases have been done for employees working near machines. Benchmarking has resulted in putting good systems in place for chemicals inventory and improving our risk assessment and controls from chemicals. MRSL assessment of our suppliers based on ZDHC protocols has helped us to ensure that these are not used in our processes. In summary, our engagement with organisations like STS and ERM has resulted in strengthening our sustainable business practices. We plan to further carry out such evaluations to continually update and adopt best practices.

## Implementation of closed-loop technologies to meet EU BAT / EU Ecolabel norms

Birla Cellulose plans to implement the most stringent environment standards, going beyond the regulatory norms applicable in the countries it operates its fibre plants. We have identified EU BAT and EU Ecolabel as the reference target standards for viscose fibre manufacturing. **A capital expenditure of US\$ 170 million has been committed for implementation of the best available closed-loop technologies to achieve the EU BAT norms at all our sites by year 2022.**

All our sites currently meet most of the norms laid down in EU BAT. However, some sites do not meet CS<sub>2</sub> consumption norm, sulphur release to air, COD and zinc norms. Target for all sites to meet CS<sub>2</sub> consumption norm is year 2022 while target for wastewater COD and zinc norms is year 2021. All sites will meet EU BAT norms of 20 kg sulphur release to air by the year 2022.

# Sustainability Goals & Targets

The Sustainability Strategy, along with material issues, will catapult Birla Cellulose to a leadership position in the sustainability space and strengthen our vision of being the most sustainable viscose manufacturer, while working towards the United Nations Sustainable Development Goals.

We aspire to remain ahead of the curve when it comes to sustainable practices in critical areas of wood sourcing, closed-loop technology, water consumption, greenhouse gas emissions and community work.

## GOAL 1

### Reduce sulphur release to air by 70% at all fibre sites by 2022

We will implement closed-loop technologies at all the fibre sites to achieve the EU BAT norms (20 kg per ton of fibre) for sulphur release to air by end of 2022 thereby achieving 70% reduction from baseline of FY'15.

## GOAL 2

### Reduce water intensity by 50% in VSF manufacturing by 2025 over baseline of FY'15

We are applying innovative technologies to reduce water consumption, including the use of state-of-the-art membrane based technologies. Our efforts have led to water reduction in viscose process and has established new global benchmarks for water intensity at less than 19 m<sup>3</sup> per ton of fibre which is much lower than even the stringent European norms for water consumption (30-70 m<sup>3</sup>/TF).

## GOAL 3

### Reduce the Loss Time Injury Frequency Rate (LTIFR) below 90% over baseline of FY'15

Safety of our employees, suppliers and nearby communities is the highest priority of our organisation. A strong focus on safety has resulted in drastic reduction in loss time incident rates. Our target is to reduce the LTIFR by 90% from the baseline of FY'15.

## GOAL 4

### Assess and improve the sustainability performance of key suppliers by 2025

The suppliers will be assessed for their sustainability, safety and health practices, legal compliances, ethics and labour rights. Globally recognised standards will be the criteria for evaluation for supplier selection and suppliers will be encouraged to adapt these best practices.

## GOAL 5

### Increase the use of alternative feedstock such as of pre- and post-consumer waste cellulose

Our R&D team is working on increasing the use of alternative feedstock such as pre- and post-consumer waste as feed to viscose process. The intensive efforts are in progress to increase the share of recycling by working on the technology as well as working on the reverse logistics supply chain to optimise the process. The target will be realised in steps and has been first established in India. It will be gradually scaled up and in the next stage will be established in other countries.

## GOAL 6

### Development of alternative applications to reduce the solid waste by 25% by 2030 over FY'15

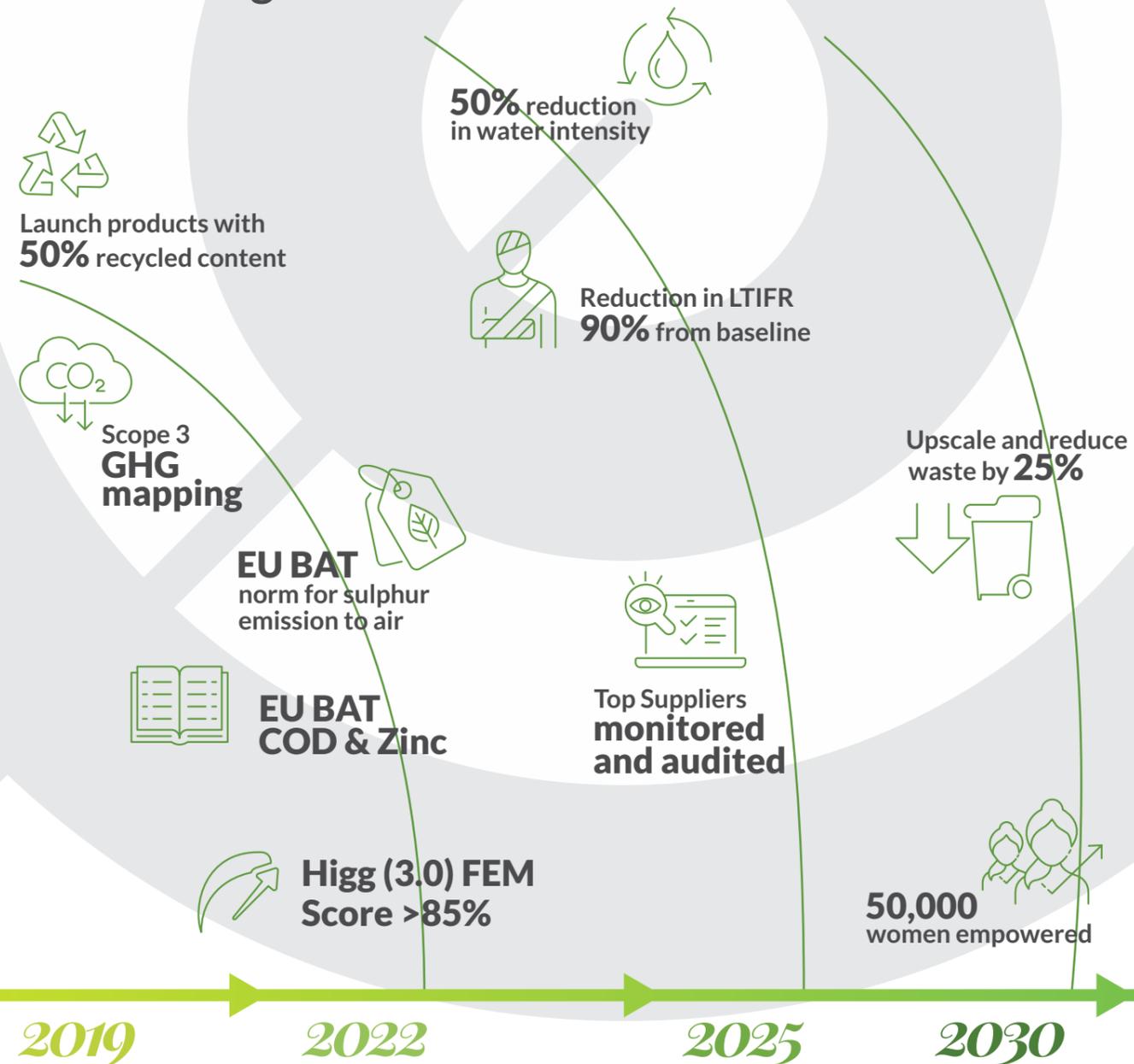
The solid waste generated out of viscose process is already partly recycled or reused. However, there are opportunities to further reduce waste and these are being evaluated for alternative applications in the infrastructure industry in close collaboration with other industries.

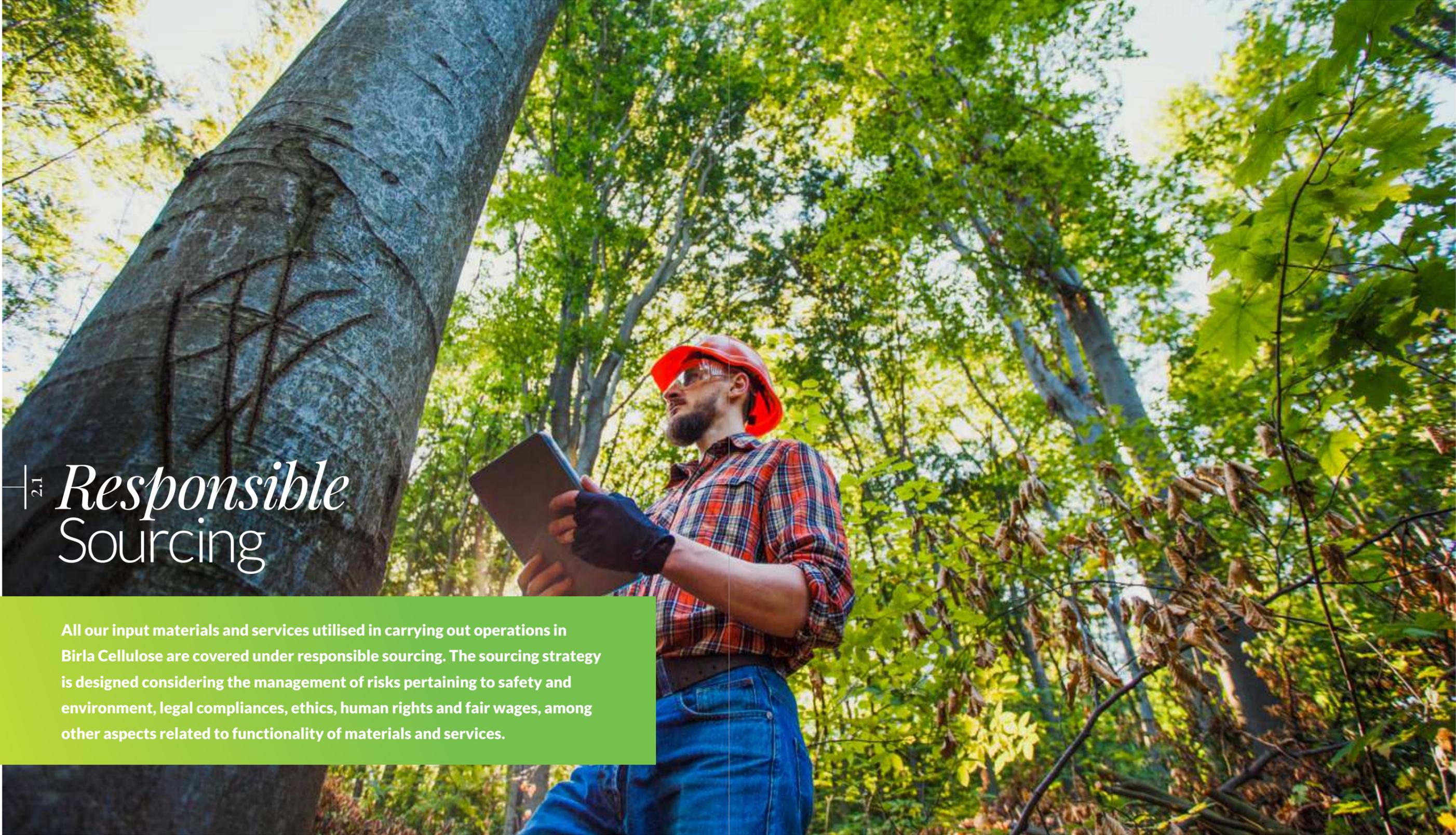
## GOAL 7

### Empower 50,000 women by making them financially independent on chosen vocations by 2030

Gender equality, women empowerment and education of girl child are the key developmental gaps in some of the counties where we operate. We target to empower 50,000 women by capacity building and making them financially independent by 2030.

## Timelines of Goals & Targets





# Responsible Sourcing

All our input materials and services utilised in carrying out operations in Birla Cellulose are covered under responsible sourcing. The sourcing strategy is designed considering the management of risks pertaining to safety and environment, legal compliances, ethics, human rights and fair wages, among other aspects related to functionality of materials and services.

- 100% of wood from FSC®, SFI®, PEFC™ certified sources and aligned to Canopy requirements
- Develop Alternative Raw materials for cellulose by utilising recycling pre and post use consumer waste

- Substituting Hazardous Substances from the Manufacturing Restricted Substances Lists (MRSL) in our supply chain
- Empowering farmers through Social forestry and Agroforestry

- Assess important vendors for sustainability performance and EHS standards, ZDHC standards, labour regulations and the Supplier Code of Conduct
- Localisation of supply of goods and services and develop local suppliers

- Introduced traceability solution - 'Chain of Custody' for brands

In today's hyperconnected world, consumers are more aware and sensitive towards global issues, such as climate change, and this awareness plays a significant role in the lifestyle choices they make. Since fashion is one of the key aspects of lifestyle, consumers and other stakeholders demand more transparency and are interested in knowing where the raw material for their garment is sourced from, whether it is sourced responsibly, who are the people making them, are the fibre and fabrics produced in an environment friendly manner and if these people are employed ethically?

**Being part of the entire textile value chain, right from forest to fashion, Birla Cellulose has been sourcing raw materials such as wood, pulp and chemicals, keeping socio-economic and environmental progress at the core of our business strategy and respecting the consumers' expectations.**

**We have integrated sustainability into our operations and products to take on the challenges of the ever-evolving dynamics of the industry.**

We acknowledge how important forests are for maintaining balance in the global ecosystem, and strive to become a leading organisation that sources wood from sustainably managed forests. A rigorous system of policies and governance mechanisms are in place to ensure sustainable sourcing of raw materials, especially wood.

A 'Wood Sourcing Policy' which is aligned to global benchmark practices has been in place and fully implemented, which encompasses an internal mechanism and system of checks to trace the source and origin of woods that we use. The implementation of this policy has resulted in gradually achieving a global benchmark that 100% of our wood is procured from controlled sources.

Furthermore, our close collaborations with leading forestry conservation nonprofit organisations like SFI®, FSC®, PEFC™ and Canopy, ensure we obtain certified wood as raw material to drive various operations. Sustainable forestry and social forestry have been initiated to enhance the regenerative capacity of the forests and ensure a sustainable and continual supply of wood for years to come.

We recognise that our businesses can have an effect on the local ecology of the areas where we operate and that we have an important role to play in protecting the fragile ecosystems around us. We are aligned with Aditya Birla Group's biodiversity policy, technical standards and guidance notes to manage biodiversity based on a No Net Loss (NNL) approach.

NNL calls for negative biodiversity impacts caused by projects to be balanced by biodiversity gains through compensation measures implemented in the region. These gains are evaluated against a baseline of the relevant biodiversity values being impacted.



## Supplier Code of Conduct

Our Supplier Code of Conduct establishes the standards required from all suppliers who do business with Birla Cellulose. The code covers key aspects related to: **Human Rights | Environment Health and Safety | Workplace Environment | Legal Compliances Applicable to Local and International Laws | Business Ethics**

Birla Cellulose requires its suppliers to agree to the supplier code of conduct and align their policies of management with the code.

For the chemical suppliers, it includes requirements such as no use of Manufacturing Restricted Substances List of ZDHC (MRSL). Transportation and packaging safety guidelines are included in the requirements from suppliers, based on the nature of materials supplied. The purpose of the Supplier Code of Conduct is to procure all our material and services from sustainable sources adhering to high environment, social and safety standards. The code also ensures all transactions are done in ethical ways, following regulatory requirements. Safety, health, environment and development of human resources is of paramount importance to us and therefore we consistently interact with suppliers on these issues.

We periodically assess the risks in the supply chain, on a case-to-case basis, investigate/audit facilities and encourage the suppliers to establish best practices.

## Wood and Pulp Sourcing

Pulp is our main raw material for the manufacturing of fibre, while wood sourced from sustainably managed forests are the main raw material for pulp. Therefore, responsible sourcing of wood carries a very high importance and weightage in our control philosophy.

This responsible fibre is woven into fabric for our customers and enables them to be more sustainable.

## Wood Sourcing Policy

We strictly implement our requirements of controlled wood supply across all our pulp suppliers to ensure that the wood used by them are sourced from sustainably managed forests and plantations, while also following the laws of the land in this regard.

Management of wood and forest is a complex process and to support our policy, we have partnered with organisations such as Forest Stewardship Council, Sustainable Forestry Initiative and have implemented 'Chain of Custody' Certifications.

The pulp used in our manufacturing process is controlled wood and has certification from FSC® (Forest Stewardship Council), SFI® (Sustainable Forestry Initiative) and PEFC™ (Programme for the Endorsement of Forest Certification).

We continue to implement strict controls on the wood sourcing to ensure our sustainability practices start right from the very first stage of procurement. Apart from ensuring certifications of harvested wood from leading organisations working towards forest management, we have a rigorous wood sourcing policy in place that keeps a check on the source of the wood procured, valid across all our operations.



All the Pulp and Fibre Units of Birla Cellulose are certified for FSC® CoC and other standards as below.

Certification System	Facility Name
Sustainable Forestry Initiative, SFI® CoC	AV Group NB, Canada
Programme for the Endorsement of Forest Certification, PEFC™ CoC	Birla Cellulosic, Kharach, India (PEFC/01-31-423)
Forest Stewardship Council, FSC® CoC	AV Group NB, Canada (FSC-C135798); Domsjö Fabriker, Sweden (FSC-C124657); Birla Cellulosic, Kharach (FSC-C118017); Grasim Cellulosic Division, Vilayat (FSC-C135325); Excel Fibre Division (FSC-C143454) & Staple Fibre Division, Nagda (FSC-C144869); PT Indo Bharat Rayon, Indonesia (FSC-C084644); Birla Jingwei Fibres Co. Ltd., China (FSC-C123357); Thai Rayon Public Co. Ltd., Thailand (FSC-C145152); Harihar Polyfibers and Grasilene Division, Harihar (FSC-C145993)

## CanopyStyle Initiative

Fashion which uses natural fibres, especially wood, comes with a hidden environmental cost. To curb the felling of trees from ancient and endangered forests for the fashion industry, Canopy started the CanopyStyle initiative and has been working with brands to avoid sourcing fabrics that use wood from these forests. The initiative enables fashion brands and retailers to robustly assess producers' impact on the world's forests. It has become a "go-to" resource for fashion brands and now has 200+ participating apparel brands, designers and retailers.

Birla Cellulose announced its Wood Sourcing Policy in the year 2015 and since then, has been audited against the CanopyStyle Verification Framework & Guidelines and collaborating with Canopy to reach the targets set by the CanopyStyle initiative.

In 2017, NEPCoN (formerly Rainforest Alliance) completed an independent third-party audit of our fibre supply chain based on the CanopyStyle requirements and framework. A second audit is underway in 2019.

### SUSTAINABLE HARVESTING

Birla Cellulose has demonstrated valuable global leadership by agreeing to a moratoria on 1.1 million hectares of intact forests in Canada's Boreal, with very limited sourcing. It has partnered with conservation organisations and invested resources to proactively develop conservation scenarios based on best-available science, in order to help protect intact forests and support local communities in this area near their AV Terrace Bay mill in Ontario, Canada. Birla Cellulose is committed to forwarding lasting conservation solutions in the region as a key stakeholder and using our influence and sourcing decisions to do so in the coming months.

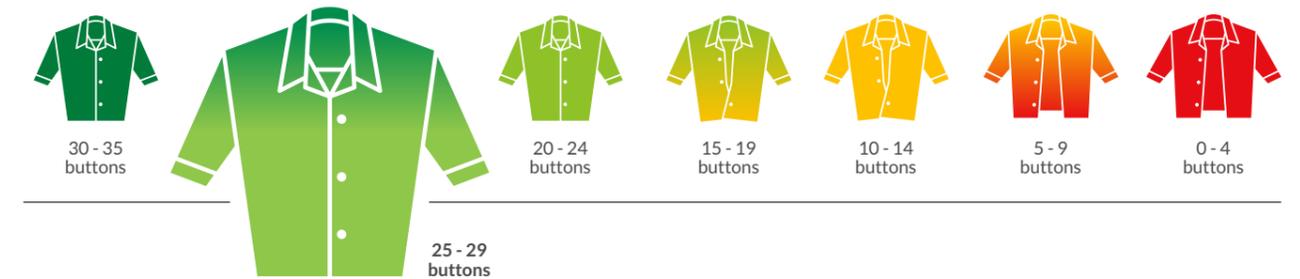
### AUDIT RESULTS

The CanopyStyle Audit of Birla Cellulose's wood fibre sourcing yielded results confirming that the current supply chain is at 'low risk' of sourcing wood from ancient and endangered forests. As such, it was awarded a "Light Green Shirt with Dark Green Shading" ranking in the Hot Button Report 2019, which is an industry leading result.

Also, key observations in the audit included that Birla Cellulose has a comprehensive understanding of a supply chain structure and the geography of all dissolving wood pulp manufacturers, and a strong commitment to avoid sourcing wood from ancient and endangered forests.

### Canopy

#### SHIRT RANKING



**In the latest Hot Button Report, published in December 2019, Birla Cellulose achieved a "light green shirt with dark green shading" ranking, confirming that there is a low risk of sourcing wood from ancient and endangered forests when consumers are using Birla Cellulose fibres.**

### GOING FORWARD

We intend to further improve sustainability from forest to fashion, by undertaking steps that include the following:

- Continue to advance research and development on new technologies of recycled and alternative fibres
- Support conservation solutions in the world's ancient and endangered forests
- Ensure all Birla Cellulose owned mills and its wood suppliers continue to maintain their own independent 3rd party certification systems
- Build on Birla Cellulose's existing chain of custody systems and certified material sources

## Social Forestry

Assuring Farmers' Income & Sustaining Our Operations



High yielding eucalyptus clonal plantlets at state-of-the-art Clonal Production Centre, Harihar

Using sustainable fibres can transform lives and sustain operations. Birla Cellulose works with farmers for the afforestation of barren and deforested land with the purpose of environmental, social and rural development. This is a win-win proposition for the farmers and for Birla Cellulose. Farmers receive better income leading to a better standard of life, and we gain a secured supply of wood for making viscose fibre.

Harihar Polyfibers, pulp manufacturing unit, established a state-of-the-art Clonal Production Centre at our mill premises, where we can produce about 1 crore high yielding clonal plantlets per year. Since 2010, we have continuously produced and distributed clonal plantlets to the farmers of Karnataka.

We aim to develop and deploy high yielding, fast growing, site-specific and disease resistant clones of eucalyptus and the promotion of technology-based, clonal farm forestry plantations in Karnataka. We motivate the farming community to plant pulp wood

species for improving the productivity and profitability of plantations and making Farm forestry and Agroforestry an attractive land use option.

The major R&D emphasis has been on genetic improvement of planting stock and improvement in the practices used by growers. Significant gains in productivity of eucalyptus have been achieved through vegetative propagation and cloning techniques, raising large-scale commercial clonal eucalyptus plantations.

**With these efforts, we are ensuring to elevate income generation of the farming community and the sustainable supply of wood for our operations.**



## Traceability

Innovative Solutions for Brands

Wood from forests goes through a complex chain, including processing, manufacturing and distribution, before ending up becoming a fashion product. As more and more environmentally conscious consumers are demanding information, not just about new fashion or fabric, but also about the origins and sustainability credentials of the garment, global brands are shifting their portfolios to fibres with established credentials.

In collaboration with leading global brands, Birla Cellulose has developed a block chain based traceability solution, that helps brands and the consumer verify sustainable fibres across the value chain. As per garment tagging requirement, the value chain needs a source and this is where the solution by Birla Cellulose comes in. By scanning a QR code, the complete value chain can be established.

**Our forest to fashion traceability solution offers two-fold provenance tracking, based on 3-directional 'live' linking.**

The process is quite simple. First, the brands need to upload the information on the chain of custody based solution. Only key parameters relevant for traceability are included - entity name, product description, date and quantities. Brands will have full visibility of the entire value chain, albeit for their orders only. Value chain partners will also have visibility for 'their own immediate' orders and supplies, only to avoid any misuse of the information. As soon as the brands establish the link, they can access the entire chain of custody of material from forest to garment. This can be downloaded as a QR code and utilised as desired.



### HOW THE BLOCKCHAIN SOLUTION WORKS

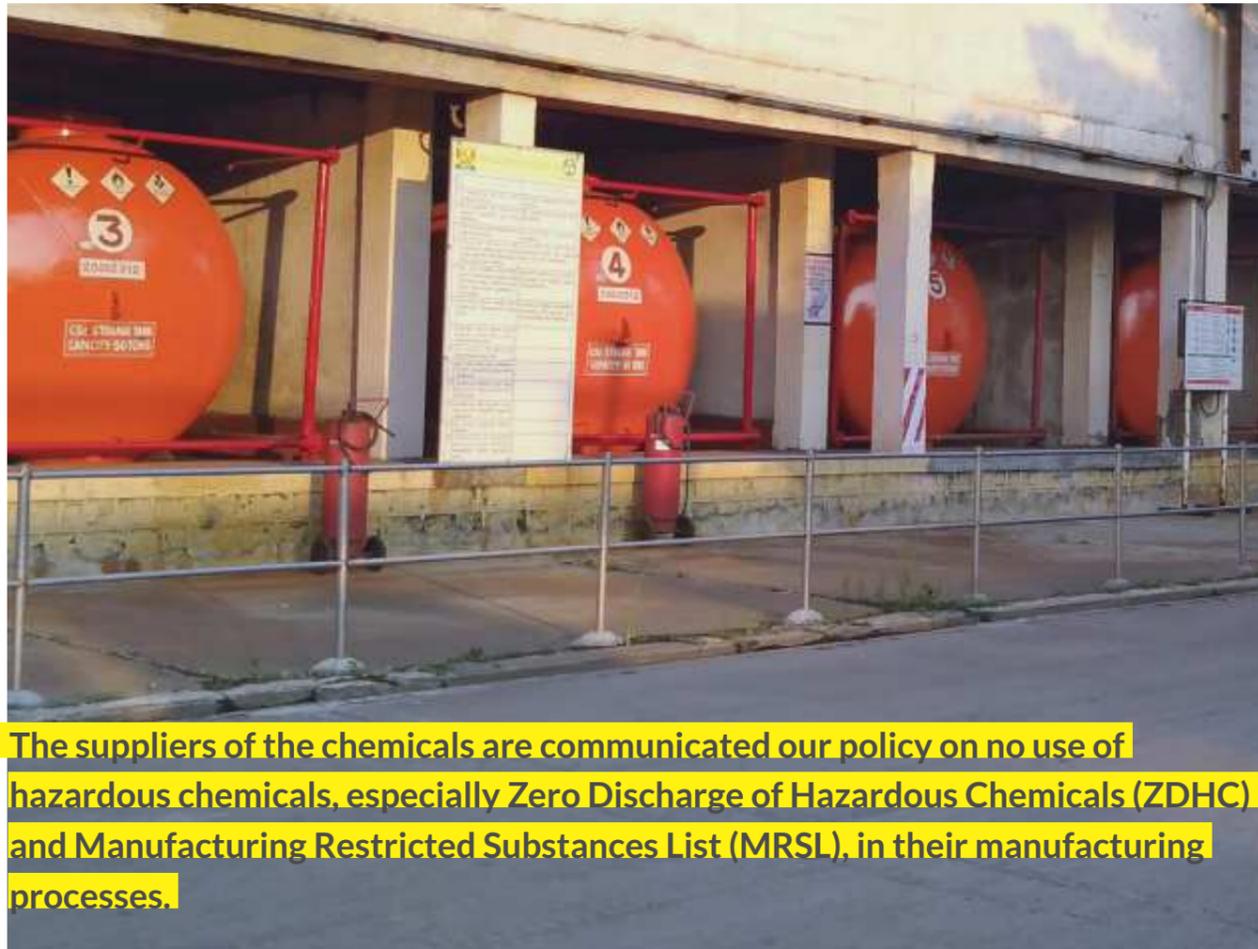


# Chemical Sourcing & Other Key Raw Materials

Chemicals are integral to viscose production. They are used at various stages of viscose fibre production – from making pulp from wood chips, to making fibre from viscose. We acknowledge the impact of the chemicals we use and have implemented a robust chemical management system that indicates our overarching strategies and intentions.

We are committed to minimising the impact of chemicals and related risks associated with them, on the human and environment health. The fibre manufacturing involves certain basic chemicals, such as caustic, sulphuric acid, carbon disulphide and zinc, and does not have complex chemistry and other harmful chemicals that are common in the textile processing industry. Though the use of these chemicals is essential in our business, we also understand risks associated with them for our employees, for society and for the environment.

## Effective Chemical Management Programme



**The suppliers of the chemicals are communicated our policy on no use of hazardous chemicals, especially Zero Discharge of Hazardous Chemicals (ZDHC) and Manufacturing Restricted Substances List (MRSL), in their manufacturing processes.**

We have a Chemical Management Programme for safety and storage of chemicals in our facilities. Special attention is paid to labelling requirements and storage of these chemicals at the site. The chemicals are segregated based on an interaction matrix and have a containment dyke to prevent any uncontrolled spillage, in case of leaks. Efficiently using these chemicals, help in reducing the impact on our operations and environment. Along with this, we are working on closed-loop recycling of chemicals to reduce the impact of our operations.

## Safety in Logistics

The transportation of the chemicals is done in safe and government approved vehicles, designed to carry such chemicals and are fit and suitable for its transport. The drivers are specially trained for hazard management in case of any accidents. TREM Cards are used for chemicals like Carbon Disulfide transportation. Emergency Response system is established to take care of any unforeseen incident. Stringent safety practices are applied in the transportation of other chemicals, such as sulphuric acid, caustic and sulphur.

Training is provided to the warehouse staff who receive and store these materials, for safe handling and storage practices.



The safety documents such as MSDS, the risk assessment, compatibility study etc., are ensured before the material is purchased at site. The policy requires that proper preventive and protective equipment are provided to handle the chemicals safely.

## Packaging

The packaging material and its proper design is critical for managing the risks from packaged chemicals. The packing material suitability is an important part of discussion while procuring any chemicals to ensure that packaging is designed for safe handling and storage. The products must be labelled properly and hazards must be identified with the appropriate Global Harmonized System (GHS) signage, required on packing material.

There has been an initiative to reuse packing material. The bales used for packing fibres are sold to the recyclers. The paper used for packing the pulp are recycled. The sodium sulphate bulk packing is recycled, wherever the customers have the capability of doing so, whereas bulk trucks have replaced the packing material in several sites, where the customers have the facility to unload these trucks, so the use of packing material is totally avoided. Recycling and Reduction in packaging material has contributed to our journey towards reducing our footprint on the environment, as well as reducing the cost for our customers.



**Mr. Vinod Tiwari**  
COO - Pulp Operations

### *What is the focal point of sourcing strategy at Birla Cellulose?*

Inducing sustainability in our operations and products is the first step towards our goal of becoming a company that is ready to take on the challenges of the ever-evolving dynamics of the industry.

We acknowledge how important forests are for maintaining the balance in global ecosystem and strive to become a leading organization that believes in utilising responsibly sourced materials from sustainably managed forests.

Our aim is to ensure a continual supply of raw materials without affecting the society and environment within which we operate for years to come.

### *Is there any governance mechanism established to ensure sustainable sourcing of woods?*

We, at Birla Cellulose, have a rigorous system of policies and governance mechanisms to ensure sustainable sourcing of raw materials especially wood. We have a procurement policy for wood, termed as 'wood sourcing policy' which encompasses an internal mechanism and system of checks to trace the source and origin of woods that we use. Furthermore, our close collaborations with the leading environmental organisations like SFI®, FSC®, PEFC™ and Canopy ensures that we obtain certified wood as raw material to drive various operations. We have also introduced sustainable forestry and social forestry in order to enhance the regenerative capacity of the forests and ensure sustainable and continual supply of wood for years to come.

Our efforts towards responsible sourcing of wood can be corroborated from the fact that we have been ranked as No. 1 in the Hot Button Report as published by Canopy in the year 2017 globally.



# 2.2 Responsible Manufacturing

Excellence is not achieved overnight, but by facing the challenges that come along and by doing the right thing, at the right time and in the right manner. Birla Cellulose has been consistently taking steps to attain global benchmarks in manufacturing man-made cellulosic fibres (MMCF), by consistently improving sourcing and manufacturing practices. The benchmarks also serve as moving targets for us, and once they are achieved, we work towards establishing newer, more innovative benchmarks.

• Domsjö Fabriker is the world's one and only closed-loop and chlorine-free bleach plant.

• Verified Higg (3.0) FEM with average score of 90 at fibre manufacturing sites.

• 30% reduction in water intensity in last 5 years for VSF manufacturing.

• About 25% reduction in sulphur emission intensity in last 5 years in VSF manufacturing process.

While the CanopyStyle initiative is for responsible wood sourcing and its efforts are directed towards making raw material sourcing more sustainable, we have made the decision to invest USD 170 million to upgrade our closed-loop technologies at all fibre plants towards implementation of Best Available Technologies to achieve performance levels beyond the applicable regulatory norms. This will further enable us to achieve some of the most rigorous global standards such as EU BAT, EU Ecolabel and ZDHC Guidelines.

**The objective of these technologies is to keep the material in loop, by re-using the waste generated from the processes, as defined by the principles of Circular Economy.**

During the manufacturing of pulp and fibre, it is ensured that during each stage of the process, input materials such as wood, chemicals, energy and water are sourced responsibly, used judiciously and at the end, recovered sustainably for reuse, by the implementation of the best available closed-loop technologies.



During the manufacturing process, the health and safety of our employees and nearby community is our highest priority. With control systems in place in the manufacturing process, our operating teams are trained in a way to effectively mitigate health and safety risks.



## Management Approach

We have a holistic approach towards sustainable manufacturing of viscose fibre. We apply the best combination of best in class technology, global benchmark management practices and a well skilled and trained operations team to deliver the highest quality fibre in a safe and environment friendly manner. All the pulp and viscose manufacturing sites are certified for Environment Management System i.e. ISO 14001:2015. By continuously innovating the processes and technology, the Pulp and Fibre units have been able to significantly reduce the resource consumption, including raw materials, water, energy and waste. This not only makes our plants more efficient but also help the economics of the process by making our products more competitive.



Special technologies have been applied at several plants so as to reduce the consumption of materials to the extent of 50% or even more compared to its own baselines, as well as beating global standards like EU BAT consumption norms. For instance, the water consumption at many of our plants in the fibre manufacturing is running 30% to 40% less than even the lower limit of EU BAT norms. Several projects have been implemented in the past and new initiatives for reduction in water consumption, continuous focus on improving energy efficiency, managing air emissions and wastewater across business are underway. The focus is abatement at the source to reduce the impact of our operations on the environment and to move towards closed-loop manufacturing.



## Concept of Closed-Loop in Pulp Manufacturing

In the closed-loop pulp manufacturing, the concept is to recycle majority of the input materials such as wood, chemicals, water, energy and other raw materials used during production, and prevent the process from negatively impacting environment. The output streams are reused and recycled to minimise consumption of fresh raw materials, reuse waste, enhance process efficiency, product quality, make new products and minimise our impact on ecology.

### Biorefinery

Domsjö Fabriker, which operates as a biorefinery, is a totally chlorine free (TCF) closed-loop manufacturing plant built on the solid foundation of 'making more from every tree'. Over the years, Domsjö Fabriker has transformed and developed into a biorefinery where multiple products using the various components of wood, cellulose, hemicellulose and lignin are produced. This shift from a linear model to circular model is done to maximise the output and minimise the waste produced as a consequence of the manufacturing processes.



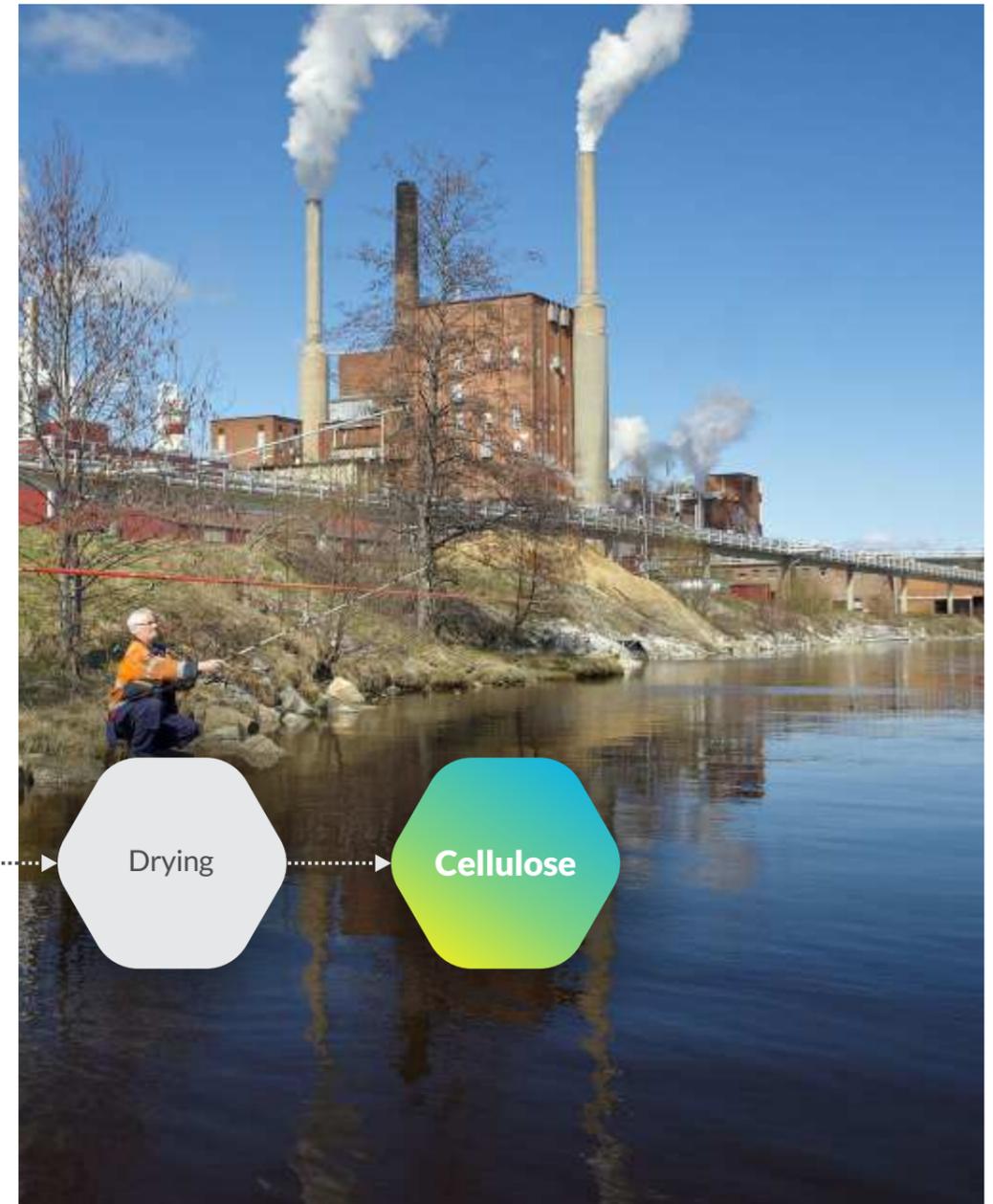
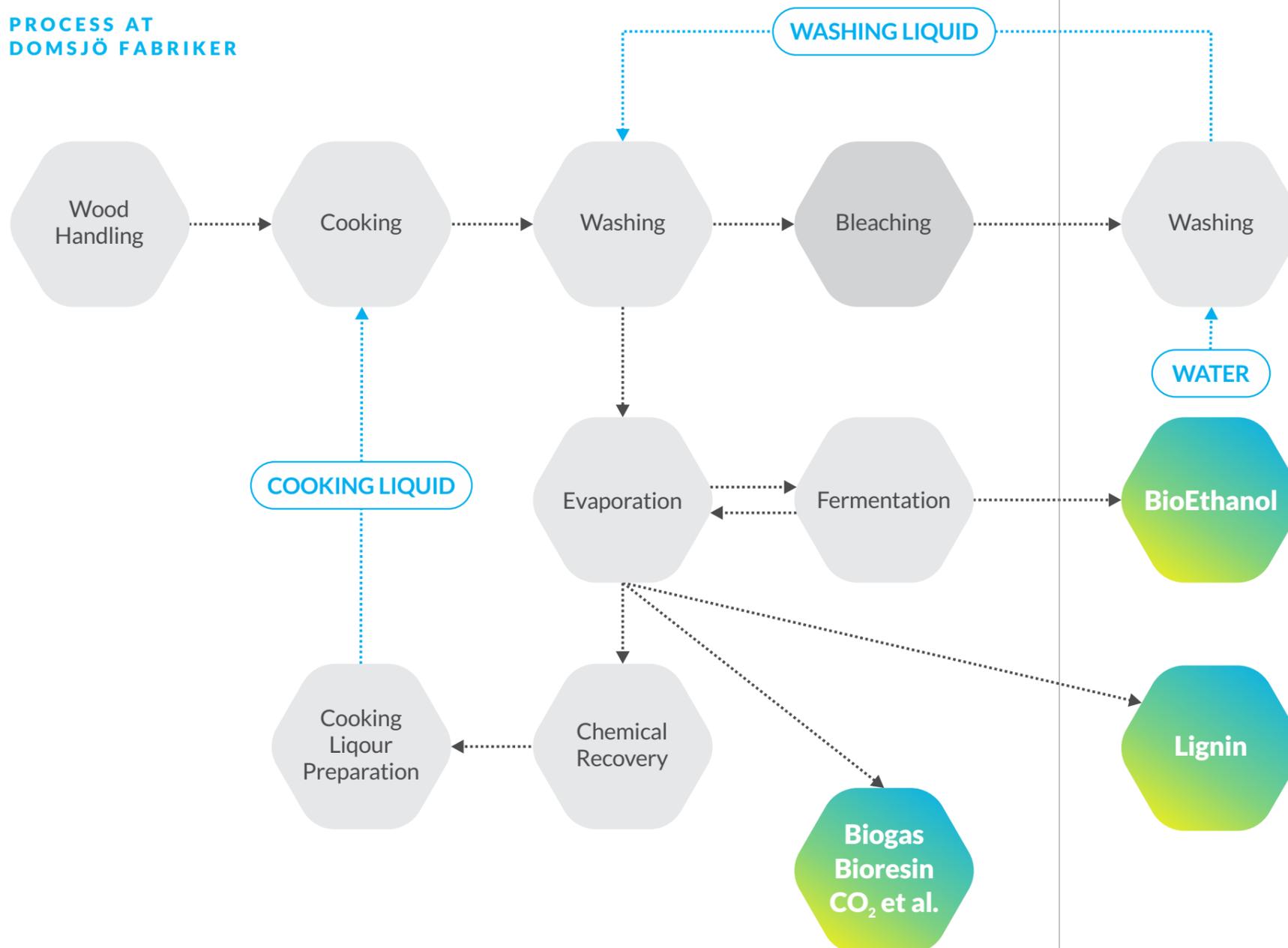
## THE PROCESS

The logs are debarked, chipped and fed into the digesters together with cooking chemicals. The bark is incinerated and provides energy as steam, electric power and district heating. After cooking, the cellulose is washed and bleached using only hydrogen peroxide. The plant is the world's one and only closed-loop and chlorine-free bleach plant. The bleached cellulose is finally dried and shipped. The entire process, from tree to finished cellulose bale, takes about 40 hours.

During cooking, hemicellulose and lignin are dissolved. The hemicellulose is fermented and distilled to bioethanol. The lignin becomes lignosulfonate during the cooking process and is dried and packed in either small or large bags. The cooking chemicals are recycled in recovery boilers, providing steam and electric power used in the processes.

About 80% of the energy requirement is met by renewable resources. Domsjö Fabriker is certified according to ISO 9001:2015 quality management system, ISO 50001:2011 energy management system and ISO 14001:2015 environmental management system.

## PROCESS AT DOMSJÖ FABRIKER



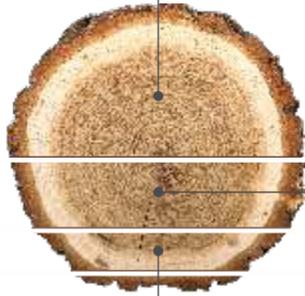
Products	Uses in other industry
Dissolving Cellulose	Viscose fibre manufacture
Bioethanol	Renewable energy source
Bioresin	Alternative to traditional polyurethane based plastics
Lignin	Agricultural chemicals, micronutrients, natural binders, etc.
Carbon Dioxide	Refrigeration and cooling

These by-products are derived from wood and chemicals in a closed-loop production and their uses.



### SPECIALTY CELLULOSE

Domsjö Cellulose is bleached in a unique, totally chlorine-free and closed-loop process, resulting in high bright cellulose.



### LIGNIN



The unique process gives a modified lignin, i.e. lignosulfonate.



### BIOETHANOL

The cooking process releases hemicellulose as sugar, which is fermented in the ethanol plant. In the fermentation process, both bioethanol and carbon dioxide are produced.



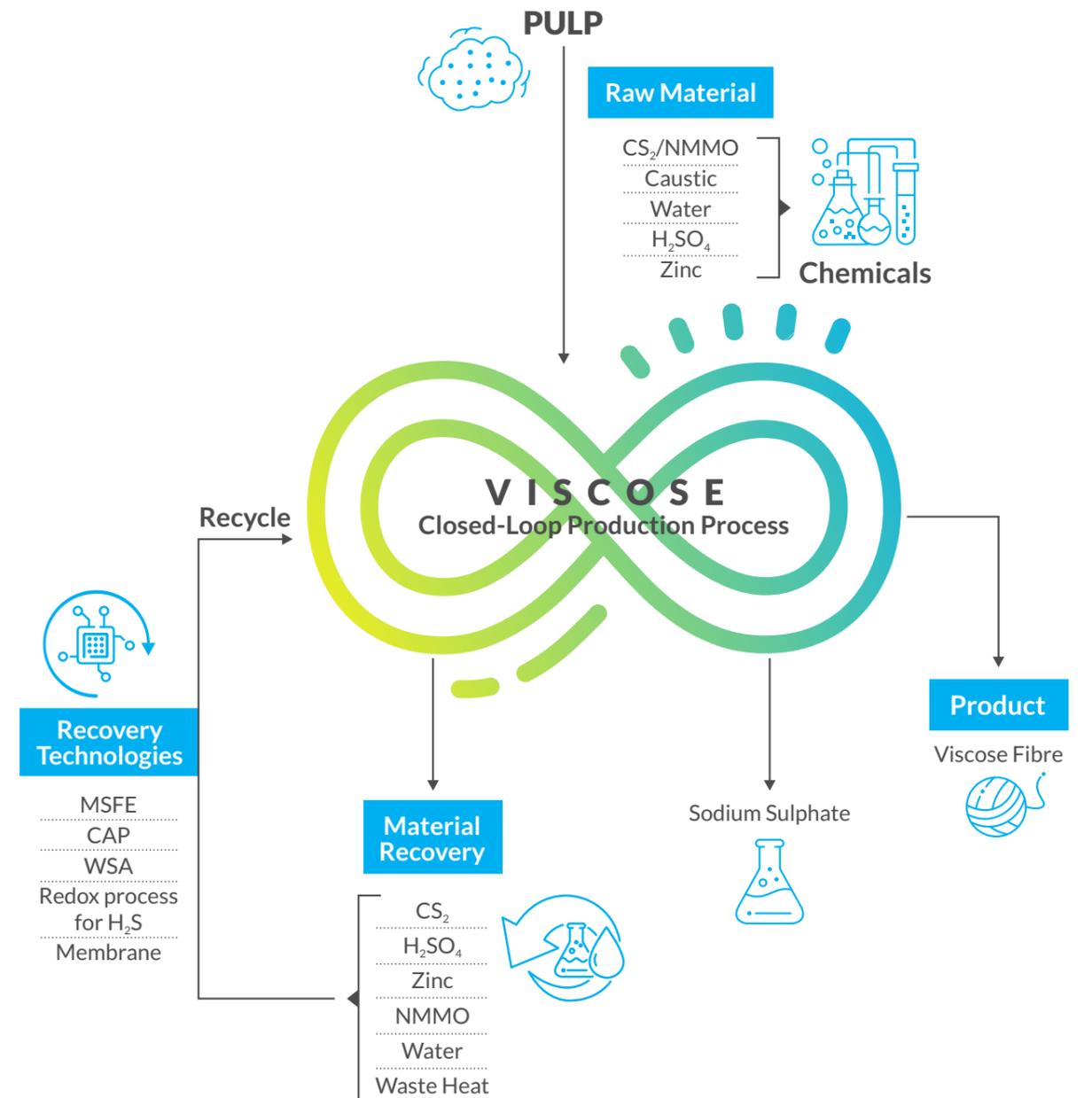
## Closing the Loop in Fibre Manufacturing

In a closed-loop fibre manufacturing, at each and every stage of our process, we ensure that the output material is reused. The 3R philosophy has been institutionalised at Birla Cellulose to eliminate waste and preserve natural resources.

Here are some key viscose manufacturing stages and the way the input materials are reused in making new products.

### Dissolution

The pulp is dissolved in caustic and squeezed in the dissolution stage. The squeezed liquid contains caustic, which is reused in process after filtration. Further, the Alkali-Cellulose reacts with CS<sub>2</sub> to form viscose. This is filtered in multiple steps. In each step, the reject material is used again after filtration.





## Regeneration

In the regeneration stage, viscose reacts with sulphuric acid to form regenerated cellulosic fibre. The spent solution is again reconditioned in evaporators to be reused. Also, the sodium sulphate salt formed in this process is crystallised and recovered as by-product. During the reaction, there is release of  $CS_2$  and  $H_2S$ , which are captured and sent to the gas treatment unit. **The salt recovery in Birla Cellulose plants is among the highest in the industry globally.**



## Steam

The steam used in the process is flashed and the flashed steam is again used. The hot condensate of the steam is collected and is recycled to make more steam in the boiler. **Our manufacturing plants are one of the most energy efficient plants in the world with minimum Greenhouse gas emissions.**

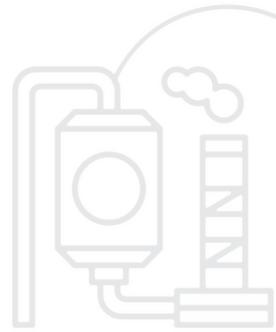


**We are installing Carbon Adsorption System (CAP) & EDTA to recover  $CS_2$ , and our target is to fully implement the  $H_2S$  and  $CS_2$  recovery modules by the year 2022 in all the Birla Cellulose sites.**



## $CS_2$ and Sulphur Recovery

In all our plants,  $CS_2$  condensation unit is installed, which recovers  $CS_2$  and then this  $CS_2$  is reused again in dissolution of viscose. In some of our plants, Claus Sulphur Recovery technology has been adopted to recover Sulphur in molten form from  $H_2S$  tail gas and some have Wet Sulphuric Acid (WSA) plants. The molten sulphur is reused in making sulphuric acid. In some of the plants, the exhaust gas is treated to remove  $H_2S$ , and the  $CS_2$  containing gas is fed to Carbon Adsorption System where the  $CS_2$  is recovered. The recovered  $CS_2$  is reused in viscose process. The recovered sulphuric acid is also reused directly in the process. The recovered sulphur is converted to sulphuric acid and reused in this process. The combined recovery of sulphur could be greater than 90%.



## Water

Birla Cellulose is proud of the fact that we have been able to close the loop on water to a large extent and have delivered the world's lowest water consumption numbers in some of the most water stressed geographies, where we operate. **We have reduced the consumption to as much as 50% below the lower limits of EU BAT norms for process water, which is a global benchmark in the viscose industry.**



# Reducing Environmental Footprint



Achieving more with fewer resources, is a key priority area for our business. We have a very focused approach and have taken several steps in this direction. As the business expands, resource requirement increases, so it becomes inevitable to conserve the naturally occurring resources. **Our emphasis is on 'abatement at source' to reduce the consumption of important resources.**



Closed-Loop production process of fibre ensures that the waste is minimised in the process by maximising the efficiency of the process and reducing/reusing the generated waste. In past years, our efforts have been to strengthen the closed-loop technologies and bring in the Best Available Technologies to improve our process efficiency and recover and reuse the waste and by-products generated in the manufacturing process.



**As a manufacturer of great fibre and a leader in sustainable business practices in the industry, it is imperative for us to continually reduce ecological footprint in our value chain.**

**We have been taking several initiatives at various units to reduce our impact on the environment, setting an example for the viscose industry.**

## CASE STUDY

# Reducing the Caustic Consumption in Fibre Manufacturing



### ■ CHALLENGE

High amounts of caustic go into making viscose fibre. The demand increases together with the production and the waste generated lead to environmental challenges, and hence a need was felt to reduce its consumption. Overall caustic consumption in all units was as high as 500-550 kg per ton of fibre in FY 2015-16.

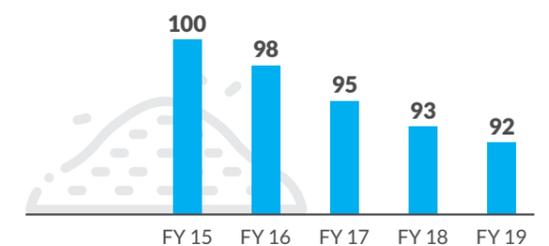
### ■ ACTION

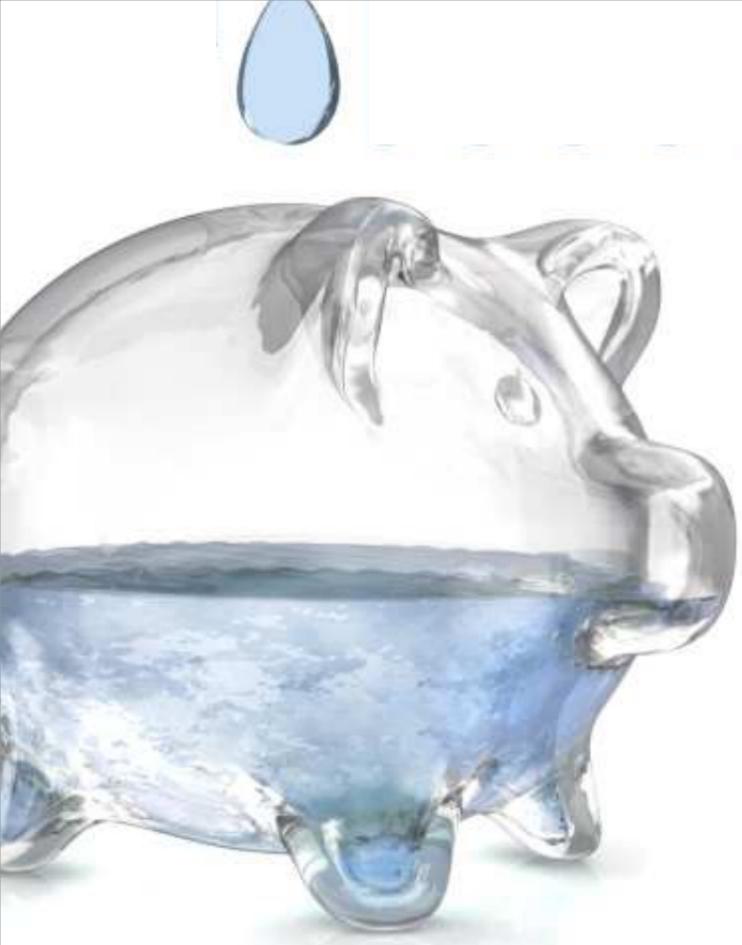
Entire viscose preparation process chain was innovated with new techniques, which led to huge reduction in caustic consumption. The development was done in a phased manner without affecting the process parameters and product quality. As a result, caustic consumption was reduced by >8% in the last 4 years across all units. Further optimisation is in progress.

### ■ OUTCOME

Caustic consumption in viscose fibre units has reduced significantly, leading to a huge reduction of caustic consumption. The practice was first spearheaded by the BJFC, China, and the initiative was then quickly replicated in all other units in a phased manner. This resulted in setting up a new benchmark in caustic consumption, much lower than the limits prescribed in EU BAT.

Caustic Consumption





## Water

Water is the lifeline of the viscose production value chain. The success of our operations is acutely tied to water accessibility as it impacts the life cycle of our business. Protecting and conserving water resources through excellent water management practices and governance systems are a priority for our business and is integral to our commitment towards water stewardship.

We use water responsibly with equitable sharing by end users, respecting the diversity of needs. The manufacturing processes of pulp and fibre are inherently water-intensive by nature. As water availability is being impacted due to ill-effects of climate change, focusing on our water use and water sources is critical for our business to be sustainable in present times as well as for the future.

The water withdrawal for pulp & fibre manufacturing for last 2 years is given in the table below.

	<i>million m<sup>3</sup></i>	
	FY 2017-18	FY 2018-19
Surface Water	137.47	136.75
Ground Water	0	0
Wastewater from Other Organisations	0.25	0.23
Water from Municipality / Water Utility	9.04	9.66
<b>Total Water Withdrawn</b>	<b>146.76</b>	<b>146.64</b>



The main source of water for our operations are rivers/lakes nearby our units. Most of our water withdrawal is from surface water sources, which get used in our plant operations as well as at our colonies. Some of our pulp and fibre units also withdraw wastewater from other plants, while others derive the same from water utilities. The group strives forth to ensure that the extracted water causes no negative environmental impact and constantly invests in technology upgradation in order to become water efficient. We do not use ground water for our operations.

The business is working on various initiatives to reduce its fresh water use, prevent wastewater generation, maximise reuse and recycle through reverse osmosis (RO) units.

**We adopted recycling of effluent through installation of Reverse Osmosis technology for the first time in VSF to reduce freshwater consumption by increasing water recycling.**

### CASE STUDY

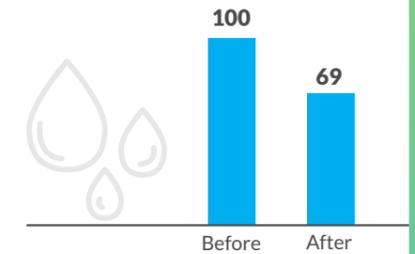
## Oxygen Delignification to reduce water consumption & improve pulp quality

### Harihar Polyfibers Pulp Unit

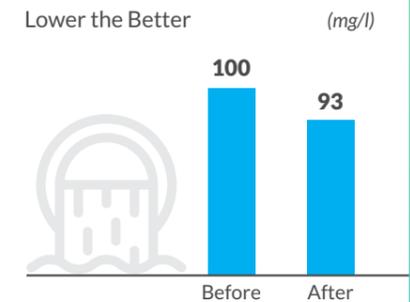


#### OUTCOMES (all figures in index)

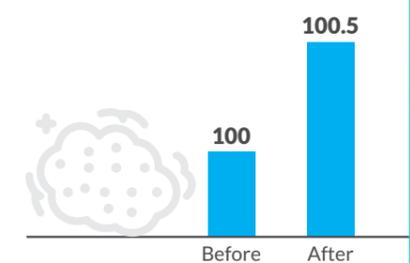
##### Water Consumption (m<sup>3</sup> per Ton of Pulp)



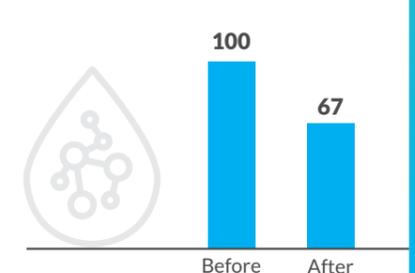
##### Wastewater COD (mg/l)



##### Pulp Whiteness (Berger %)



##### Acid Insolubles (ppm)



#### CHALLENGE

Harihar Polyfibers practised conventional bleaching process, that required substantial quantity of water, and in turn generated high volume of effluent having brownish colour due to presence of lignin. For long term sustenance of plant operation, it was essential to cut down water consumption and effluent volume, improve effluent quality & pulp quality.

#### ACTION

- Targets for environmental improvement and pulp quality improvement in line with the customer requirement were finalised considering long term sustenance.
- Comprehensive study of entire plant was carried out to identify equipment health & efficiency that would meet environmental and pulp quality improvement targets.
- Scouted process consultants having experience in the field of dissolving grade pulp for best available technologies.
- Brainstorming sessions held with mill technical team, other pulp units and with equipment suppliers to firm up high consistency screening, oxygen delignification and modified bleaching sequence to achieve the objectives.

# Conserving Water through 3R

All VSF units



## CHALLENGE

Water and coal are important material issues for Birla Cellulose. Hence, conserving these resources is good for the business and for the health of the planet and people. There were two major challenges before us. One, at various units we were losing water due to various reasons: overflowing of water, water used for wash, wastewater was not reused, using fresh water in belt press which was adding to our consumption. Second, we were unable to utilise multi-stage flash evaporator vapour condensate fully, in the Auxiliary Department's spin bath filter backwash and lime batch making.

## ACTION

The mantra of 3R principle was applied across all the units (Reduce, Reuse and Recycle). Each site worked out alternative innovative processes for water savings. These included technologies for improving the efficiency of processes to reduce consumption, technologies that allowed reuse of water multiple times, and also technologies which could clean up and recycle the wastewater.

Technical solutions for improving the processes were designed to:

- Improve washing of fibres in spinning while using less water
- Substituting water with other solutions in spinning and other locations in Auxiliary Department
- Installation of state-of-the-art membrane technologies to recycle wastewater

## Fibre Process - Water Intensity

(m<sup>3</sup> per Ton of Fibre)



## OUTCOME

### Tangible Benefits

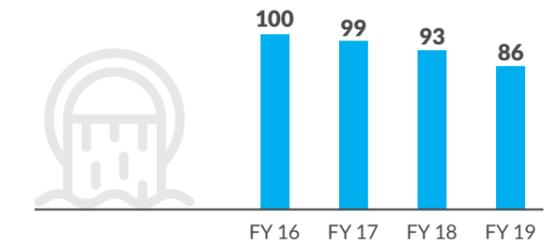
- New benchmark was established in the water intake going much lower than EU BAT specified limits.
- Reduction in fresh water intake by more than 50% at several sites was achieved.
- Reduction in wastewater generation and pollution load to the extent of more than 50% was achieved at several of our units.
- COD/BOD and zinc load were reduced by more than 50% at the fibre manufacturing units.

### Intangible Benefits

- More water is available for alternate purpose in the rivers which can be used by villages and civil society in a highly water stressed area.
- Reduced energy consumption due to load reduction on intake and effluent discharge pump.
- Natural resources are conserved/recycled.
- Lesser maintenance of effluent discharge line due to lesser load.
- Improvement in productivity due to decreased production cuts (since water availability has increased within existing reservoirs).
- Attained leadership in water consumption in the viscose industry.

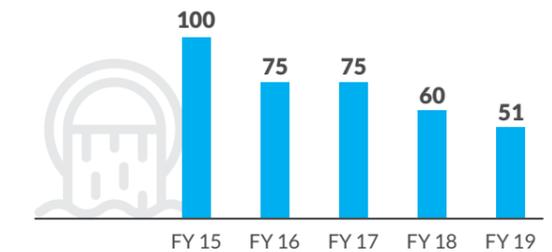
## Wastewater Discharge Quantity

(m<sup>3</sup> per Ton of Fibre)



## GCD Vilayat Wastewater COD

(kg per Ton of Fibre)



## Overall Wastewater COD

(kg per Ton of Fibre)



# Treated Wastewater Discharge

Responsible and safe management of treated wastewater from the point of generation until the final disposal is a key priority at our sites. All our sites have an operational effluent treatment plant (ETP). Birla Cellulose is committed to minimise the potential adverse impact on the environment by implementing best practices in wastewater management. The current set-up at our plants meet or exceed the local requirements as per the legal framework of the country, where the site is located.



The business approach has moved from looking at wastewater treatment from 'end of pipe' to 'source segregation and treatment'. The total quantity of effluents discharged by all our pulp and fibre units combined into the local water bodies like sea, river and lakes, for the reporting year is 125.99 million m<sup>3</sup>.

The quality of effluent discharged has been summarised in the table herein.

	million m <sup>3</sup>	
	FY 2017-18	FY 2018-19
Treated Effluent	129.26	125.99

The quality of treated effluent discharge meets the local regulatory norms.

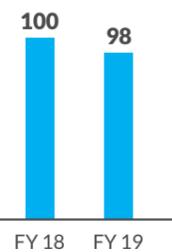
We have undertaken several initiatives to use water judiciously to carry out all our activities within the manufacturing facilities of our pulp and fibre business.

We have undertaken a progressive initiative of reducing COD in the treated wastewater discharge at one of our units in order to have a good amount of nutrients and lesser emission of COD containing effluents in the outgoing water.

## Treated Wastewater COD (Tons per annum)



Note: Indexed FY'18 = 100



### CASE STUDY

## Removing Effluent Colour

### Harihar Polyfibers Pulp Unit



#### CHALLENGE

The effluent of about 30,000 m<sup>3</sup>/day from Harihar Pulp Unit is discharged into nearby Tungabhadra River after an exhaustive treatment, according to the standards stipulated by State Pollution Control Board. However, the treated effluent has a tinge of brownish colour due to the presence of lignin, a non-toxic substance, which does not get removed in the above treatment processes. The unit was continuously improving the pollution abatement & treatment methods, except for managing the concerns of colour, as the river looked dark for a considerable stretch from disposal point during the lean season.

#### ACTION

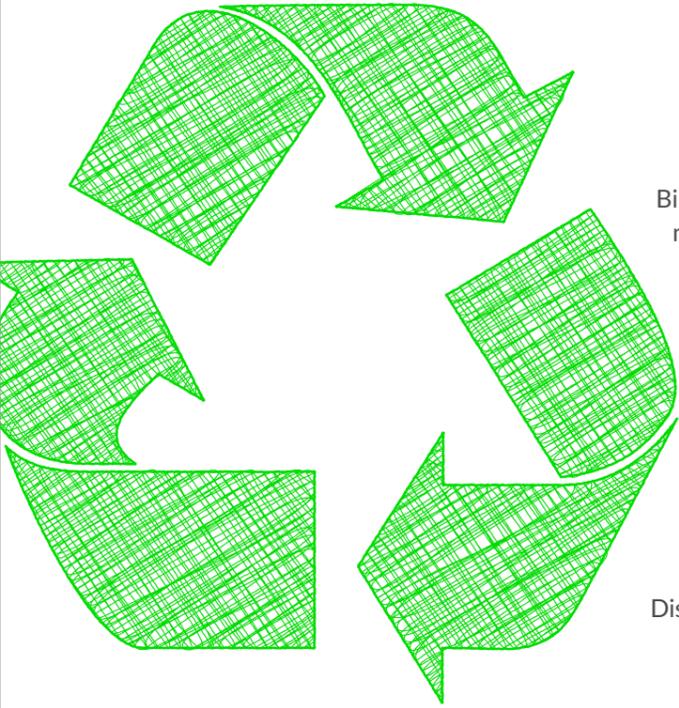
To address this issue, an ambitious project was conceptualised. Due to the non-degradable nature of lignin, it was decided to reduce the colour deploying the physio-chemical means. Starting from scratch and with in-house talent, several laboratory trials were conducted. Based on the success of the lab trials, the plant was designed with in-house talent, including sizing of various equipment, storages, filtration systems, etc.

#### OUTCOME

A colour reduction of >75% has been achieved through this initiative. Treated effluent with reduced colour from the pulp plant has significantly changed the quality of the downstream river water quality in terms of the aesthetic impact.

There has been a lot of appreciation from the downstream villagers for the industry's effort to reduce effluent colour. Regulatory authorities have also appreciated this project of reducing the effluent colour, which has eliminated societal pressure on them. This project has substantially improved the industry's image as 'caring for people' among downstream villagers.

**Harihar Pulp Unit was awarded with Golden Peacock Award for Sustainability in 2018 for the above case study.**



## Waste

Birla Cellulose is striving to move away from 'take, make, dispose' model to a model more closely aligned with 'take, make, recycle' or in short to be part of a circular economy model. We expect to see more stringent legislative changes across the globe for waste management practices as market demands and resource scarcity drive the need for further efficiencies and complete waste elimination.

We ensure that waste generated from our operations is handled/treated as per the regulatory requirements. The hazardous waste generated at our units is either supplied to authorised recyclers, disposed through Treatment Storage and Disposal Facilities, or supplied to other industries as raw material.

The details of the waste generated by the activities of business have been summarised in the table that shows the total weight of waste for the reporting year.

### WASTE DISPOSAL

	Metric Tons	
	FY 2017-18	FY 2018-19
Total waste	4,21,154	4,90,367

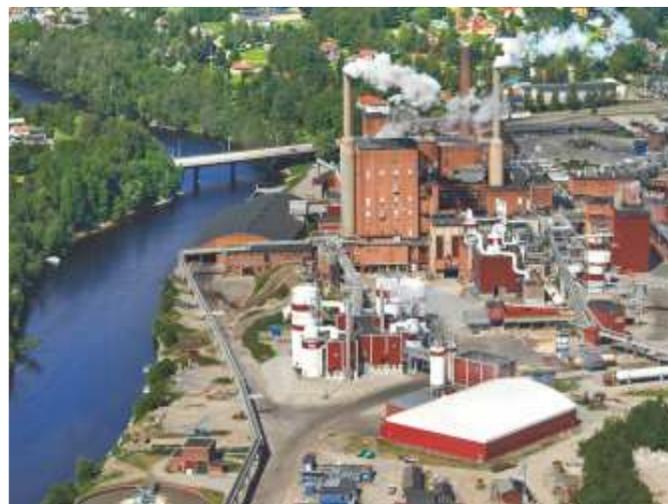


## INITIATIVE

### Optimising Feeding of Nutrients in the Biological Treatment Plant

#### Domsjö Unit

In any biological treatment plant, it is crucial to add nutrients to the microorganisms to have a good reduction of oxygen demanding material. Balance of nutrients' quantity is important; shortfall can lead to dead-sea beds whereas overdosage of nutrients can lead to expansion of algae in the sea. Therefore, it is highly desirable to have an optimised dosage of nutrients based on the properties of the effluents going into the treatment plant. Our Domsjö unit made efforts to optimise the quantity of nutrients over the last year and observed that a lesser amount of sulphur, phosphorous and nitrogen was discharged into the sea.



## Energy

Climate change impacts the way we live today and will most certainly affect our operations of tomorrow. Viscose fibre production is an energy intensive process and energy use from non-renewable sources contribute to CO<sub>2</sub> emissions leading to climate change.

As a major international business, we have a significant energy footprint using fossil fuels. Currently, we utilise both types of energies - renewable and non-renewable to drive our operations. The breakup of the energy type in Giga Joules (GJ) is given below:

	million GJ	
	FY 2017-18	FY 2018-19
Non-renewable Energy Consumption	32.39	34.17
Renewable Energy Consumption	20.66	19.03
<b>Total Energy Consumption</b>	<b>53.05</b>	<b>53.19</b>



Birla Cellulose is engaged in the process of energy conservation through continuous improvements in operational and maintenance practices.





## KEY ENERGY CONSERVATION MEASURES



### Improving utilisation of heat available in the system by heat integration of various processes to save steam and power

- Preheating of air in fibre dryer using waste heat.
- Energy savings in steeping press by alternate source of cooling.
- Utilisation of waste heat in drying of salts in the closed-loop salt recovery system.



### Process improvement to save energy

- Installation of additional biogas reactor to utilise organic waste to generate biogas and save furnace oil.
- Innovative technical solutions to improve energy efficiency of the crystalliser.
- Energy efficient routing in viscose to optimise energy consumption.
- Optimisation of energy consumption in pulping operations.

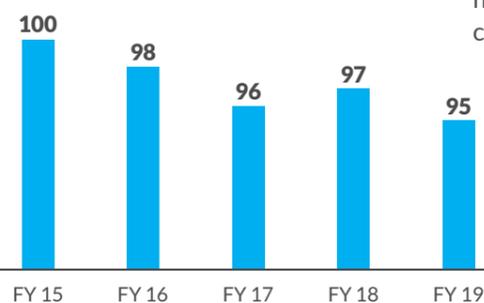


### Adoption of high efficiency equipment to reduce energy consumption

- Installation of Variable Frequency Drives (VFDs) for critical and high power applications.
- Installation of state-of-the-art high energy equipment for refrigeration loads.
- Installation of highly efficient LED lighting.
- New generation high efficiency pultruded cooling towers in place of old cooling towers. Replacing older motors with high efficiency motors.
- Steam ejector replacement with new high efficiency design for salt crystallisation.

### Fibre Process Energy Intensity

GJ per Ton of Fibre



Note: Indexed FY'15 = 100



## Emissions to Air

We are committed to keeping our emissions within permissible limits, as well as finding innovative solutions to reduce them to contribute to positive climate change.

We currently monitor Scope 1 and Scope 2 GHG emissions, emissions of SO<sub>x</sub>, NO<sub>x</sub> and other gases. Scope 1 GHG emissions include emissions due to usage of primary fuels such as coal and Scope 2 GHG emissions are mainly from the purchased electricity.

Scope 3 emissions and carbon sequestration data from our own managed forests for period of FY 2019 has been mapped for all our DWP & VSF sites. Scope 3 emissions are due to various activities beyond the boundaries of our control.

Our total Scope 3 emissions for FY '19 are 1.92 million MT.

	million MT	
	FY 2017-18	FY 2018-19
Scope 1 Emissions (direct emissions)	2.73	2.92
Scope 2 Emissions (indirect emissions)	0.15	0.16
Total Scope 1 + 2 Emissions	2.88	3.08
Carbon Sequestered	-	3.44

**Birla Cellulose is Carbon Neutral as Carbon Sequestered is more than Scope 1 & 2 emissions combined together.**

In the fibre plants, there are various technologies installed to collect and treat the CS<sub>2</sub> and H<sub>2</sub>S emissions from the processes.

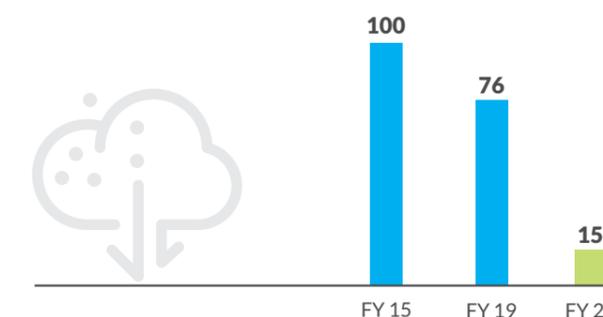
These technologies include condensation of CS<sub>2</sub>, oxidation of H<sub>2</sub>S, Wet Sulphuric Acid processes, Carbon Adsorption Technology, scrubbers, etc.

Birla Cellulose is further upgrading its closed-loop production system by an investment of USD 170 million so that the latest Best Available Technologies are applied at all its location and reach the stringent EU BAT norms.

### Fibre Process - Sulphur Emission

kg per Ton of Fibre

Note: Indexed FY'15 = 100



## Improving Recovery to Reduce CS<sub>2</sub> Emissions

Thai Rayon Public Co. Ltd.



### ■ CHALLENGE

During the regeneration of cellulose in VSF manufacturing, CS<sub>2</sub> is liberated and part of it gets converted to H<sub>2</sub>S. A part of CS<sub>2</sub> is recovered in CS<sub>2</sub> Recovery Trough, while the rest, along with H<sub>2</sub>S in diluted form is exhausted through the chimney. The challenge was to curb emissions by improving recovery.

### ■ ACTION

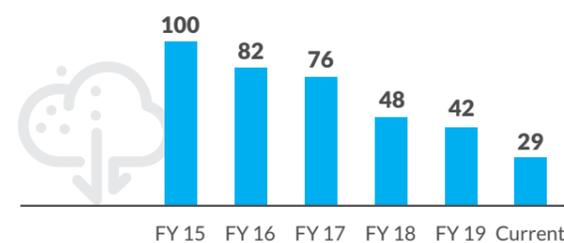
TRC installed the closed-loop technologies in the CS<sub>2</sub> and H<sub>2</sub>S emission routes and developed an in-house state-of-the-art technology to remove H<sub>2</sub>S from the exhaust gases by oxidation process that produces elemental sulphur, which is later recycled in the viscose manufacturing process after converting it to H<sub>2</sub>SO<sub>4</sub>. Apart from that, the unit also adopted the Carbon Adsorption Process (CAP) for recovering CS<sub>2</sub> from the exhaust gas. The recovered CS<sub>2</sub> is recycled and reused in the process, thereby bringing the CS<sub>2</sub> consumption below the EU BAT limits. This system was adopted in two phases, the first phase in 2016 and the second in 2017. Both of these initiatives were first of its kind in the group units for its application.

### ■ OUTCOME

A considerable amount of reduction in the emission of H<sub>2</sub>S and CS<sub>2</sub> was observed, which helped the site to achieve the targeted EU Ecolabel norms for the sulphur emissions to air. TRC also operates the plant below consumption level of CS<sub>2</sub> specified in the EU BAT norms.

**Fibre Process - Sulphur Emissions**

(kg per Ton of Fibre)



Note: Indexed FY'15 = 100

## Adding Lignin to Concrete as an Admixture for CO<sub>2</sub> Emission Reduction

Domsjö Fabriker



### ■ CHALLENGE

Domsjö gets modified lignin or lignosulfonate as a by-product during the pulp manufacturing in its biorefinery. This by-product can be used in various industries, including the admixture for concrete and as a water reducer in concrete manufacturing while maintaining the strength of the concrete structure. The challenge was to encourage the cement industry to use more and more lignin for cement production.

### ■ OUTCOME

The lignin from our process is dried using biogas from the biological treatment process and shipped to customers in over 60 countries around the world.

Currently, Domsjö Fabriker delivers approximately 90,000 tonnes of lignin per year to the concrete additive business, which leads to 1.8 million tonnes reduction in global CO<sub>2</sub>.

### ■ ACTION

Domsjö Fabriker's innovation team, DomInnova, identified ways to reduce GHG emissions through product applications.

Estimates show that adding one kilo of lignin to concrete reduces CO<sub>2</sub> emissions from cement production by 20 kg, due to reduced demand for cement. Also, lignin improves the concrete's flow properties and therefore reduces the need for cement.

The annual lignin capacity at Domsjö Fabriker is 1,20,000 tonnes, which if all used in concrete, would reduce the need for cement equivalent to 2.4 million tonnes less CO<sub>2</sub> emissions from the cement industry. This corresponds to the emissions from more than 6,00,000 medium sized cars, each driving 15,000 km a year.

# Adapting Globally Recognised Standards and Systems

We are striving to adopt standards and systems accepted and recognised globally. Our collaboration with experts, external agencies, and reference systems like the EU BAT are some of the steps to make our processes more environment friendly.



## EU BAT

The Best Available Technology (BAT) is approved for limiting pollutant discharges concerning an abatement strategy. BAT, for a given industrial sector, is described in BAT Reference documents (BREFs). BREFs are the result of an exchange of information between European Union Member States, the industries concerned, non-governmental organisations promoting environmental protection and the European Commission. 'Reference Document on Best Available Techniques in the Production of Polymers' has provided BAT for the production of viscose fibres. In the section 'Way Forward', our business is meeting most of the consumption and emission norms. However, we are still lagging in some aspects and expect to catch up soon to meet all the criterions.

## EU ECOLABEL

EU Ecolabel or EU Flower is a voluntary ecolabel scheme established in 1992 by the European Commission. It is a voluntary environmental performance certificate that is awarded to products and services. These products and services have to meet specific, identified criteria depending on the product groups, which reduce overall environmental impact. Birla Cellulose meets several criteria for EU Ecolabel and it is in the process of complying the other criteria as per the 'Way Forward'.

## HIGG INDEX

**Birla Cellulose started its self-assessment journey with Higg Index (2.0) FEM and adopted (3.0) FEM that links manufacturers, brands and retailers together on measuring the impacts on an industrial scale.**

The aim is to effectively utilise FEM 3.0 version at all fibre units to create opportunities for open conversations among supply chain partners.

Birla Cellulose has been a part of the Sustainable Apparel Coalition, USA, an industry-wide group of more than 200 leading institutes, trade bodies and NGOs working to reduce the environmental and social impacts of products around the world.



### ASSESSMENT SITES COVERED

7	Higg (3.0) FEM   2018
4	Higg (3.0) FEM   2017
4	Higg (2.0) FEM   2016



### 3<sup>rd</sup> PARTY VERIFIED SCORES

Higg (3.0) FEM   2018	90
Higg (3.0) FEM   2017	80
Higg (2.0) FEM   2016	77

## Ø ZDHC CONTRIBUTOR

### ZERO DISCHARGE OF HAZARDOUS CHEMICALS (ZDHC) - ROADMAP TO ZERO PROGRAMME

As a step towards incorporating the best chemical management practices, we made our way to ZDHC in 2018 to promote sustainable chemistry and drive innovations in the textile industry. The viscose industry is now taking steps to clean up production and ensure closed-loop manufacturing, whereby chemicals used in the process are captured and reused.

ZDHC ensures best chemical management practices, especially for textile industry via its leading ZDHC tools that include ZDHC wastewater guidelines and ZDHC MSRL.



## DEMONSTRATING POSITIVE LEGAL COMPLIANCE

Good compliance practices drive sustainable business.

**We have implemented a compliance programme via an 'IT-enabled legal compliance management tool'**

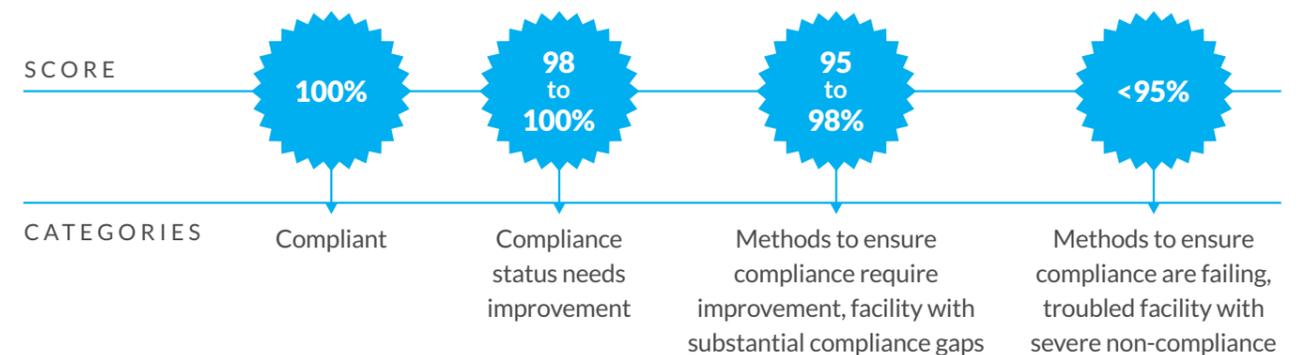
(e.g. Enhesa legal questionnaires hosted on Enablon). We operate at 12 manufacturing sites located in 6 countries. The legal self-assessment questionnaires (SAQ) are now available to cover all the sites of Pulp & Fibre Business.



Our compliance and assurance programme is designed to ensure that we can prove, we meet the requirements of local laws. The programme is cost effective because it is only when a high level of compliance and conformance is reported by the site validators that the Group's Assurance Experts visit a site to provide an 'integrity check' in line with our Group Values. Weaknesses found during the assurance self-assessment are built into a gap analysis that gives managers the independence to develop and implement appropriate improvement plans for their operations. A low score results in subject matter experts being deployed to help the site make the improvements that are needed.

## Tracking Performance Against Legal Compliance

The manufacturing sites are classified based on the scores obtained through the assessment and legal questionnaires.



## SELF-ASSESSMENT QUESTIONNAIRES (SAQS) TO ENSURE CONFORMANCE TO INTERNATIONAL STANDARDS

The Aditya Birla Group Sustainable Business Framework has been assured by an internationally renowned independent third party to ensure that it conforms to the various international standards that are incorporated into it. These include:

- IFC Performance Standards
- OECD Guidelines
- United Nations Principles for Responsible Investment
- United Nations Global Compact (UNGC)
- United Nations Guiding Principles for Business and Human Rights
- US OSHA Standards
- United States National Institute for Occupational Safety and Health (NIOSH)
- American Conference of Governmental Industrial Hygienists (ACGIH)
- International Standards Organisation
- International Labour Organisation Standards
- Alliance for Water Stewardship Standard
- World Resources Institute (WRI) – Aqueduct
- US Environmental Protection Agency (EPA).



Our manufacturing sites are subject to a range of compliance and conformance obligations relating to sustainability issues. To assist with this process, we have developed scoring and heat map reports to gauge and monitor site performance against the ABG Standards and an action plan is developed to ensure improvements.

### An evidence-based approach

The self-assessment mechanism places responsibility on our site managers to engage with our standards and to drive the changes required to place our operations on a sustainable path. By promoting transparency in our systems, we are driving the sharing of best practice and learning across the Business. We believe that the promotion of transparency rather than pursuing a culture of audit is a more effective way of both increasing the efficiency of our operations and promoting the transition to best practice standards. This marks an innovation in traditional corporate practices and our businesses are responding very positively to this cultural and operational shift.

We have also introduced a series of Assurance Principles to guide the self-assessment and verification process. These are:

#### THOROUGHNESS

Mandating the completion of all questions

#### COMPLETENESS

Ensuring that all supporting evidence are provided

#### RELEVANCE

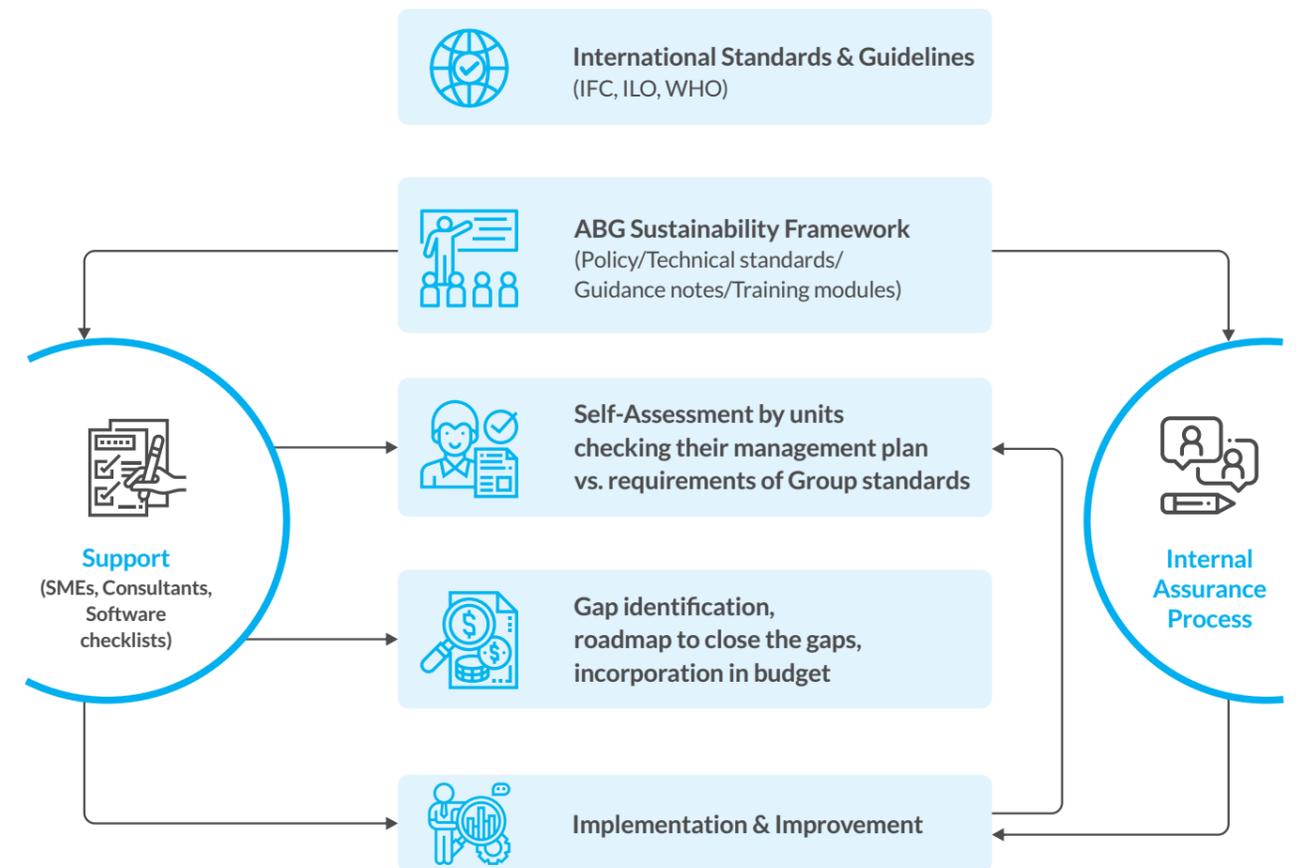
Only focusing on the appropriate data to evidence claims

#### CONSISTENCY

To ensure consistency in the data that is checked and provided to demonstrate success

## Our self-assessment process

By adopting an evidence-based approach, we are ensuring rigour and consistency in our processes. Colleagues have to provide details of the systems that they have in place and the resulting performance through photographs, documents and registers uploaded as part of the SAQs. Those that rank themselves 'high' are reviewed off-site and the highest performers are visited in order to verify the consistency of their results.



#### TRANSPARENCY

Information must be accessible to the reviewer

#### CONSERVATIVENESS

Ensure that information or data is not exaggerated

#### TRUTHFULNESS

All evidences must be easily corroborated

Today, all the sites are operating at green status, in Birla Cellulose, reflecting the high importance given to the implementation of global best practices as well as meeting the applicable local and international regulations.

# Quality Management - 'Product-by-Process'

Quality of our products and processes is a collective responsibility owned by employees at Birla Cellulose. We have a well implemented Quality Management system with ISO 9001:2015 that ensures that products of high quality are produced across most of our manufacturing facilities.

**This quality focused approach is adopted to ensure consistency in the end products that are also a key aspect to ensure long term sustainability of our operations, products and hence, the business.**

We have been pursuing a Quality Initiative for continuously improving product consistency and customer's performance. The testing of the finished product has a limitation and only a certain number of parameters can be tested at a given frequency.

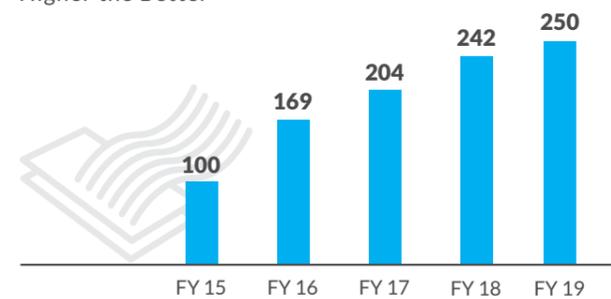
## The "Product-by-process" Quality Concept

The concept ensures that the product that is produced is validated on real time basis and is based on the critical operational parameters, based on which the finished product quality can be assured.

The tool called First Pass Yield (FPY) delivers a real time quality of the product being produced and helps the operator to make corrections in case of any deviations. The tool monitors all the critical parameters and deviations, and applies tools such as SPC (Statistical Process Control) and standard deviations, to predict the quality of the product and give feedback to the operators.

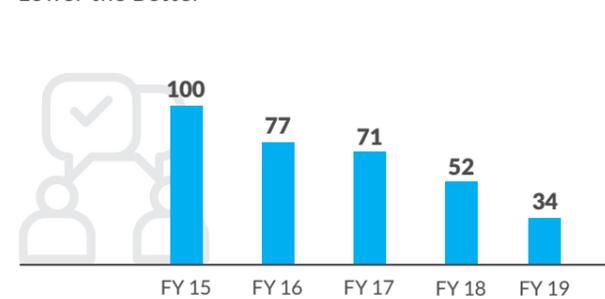
Critical process parameters are identified for each process step and aim values and maximum limits of deviation from aim are defined as per the equipment design, variation in raw material and control systems being used. The data is systematically analysed and used to develop process design improvements and new control techniques, which reduce the process variations. This has resulted in significant improvement in product quality and the production of off-grade has reduced sharply at all the units.

**Fibre Process - FPY (%)**  
Higher the Better



Note: Indexed FY'15 = 100

**Fibre Customer Complaints (Nos. per '000 tons)**  
Lower the Better



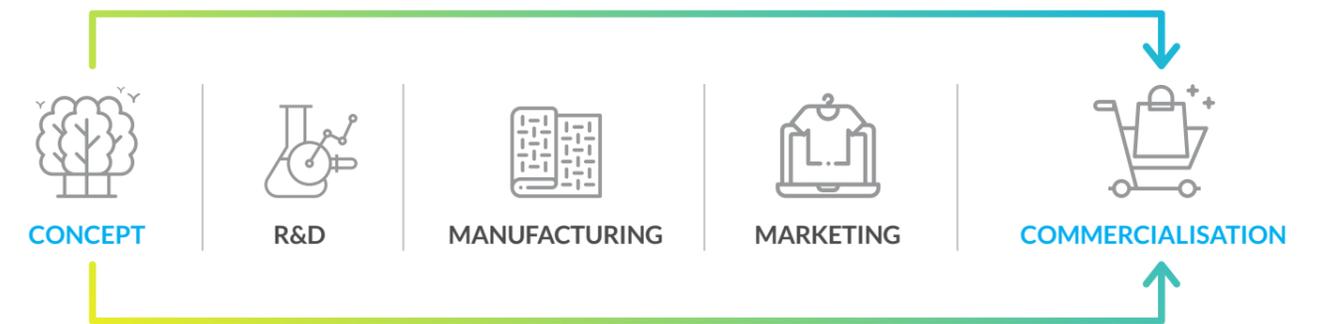
Note: Indexed FY'15 = 100



# End-to-End Innovation Management

Our Forestry Management experts working closely with the pulp & fibre and textile value chains have recently innovated to develop improved traceability of our forest products through our pulp and fibre mills and into the customer.

**By finding a new way to meet our customers' needs, the Pulp and Fibre Business aims to build a robust and sustainable business model.**



The approach to synergistically integrate our forests with our marketing and manufacturing functions means that innovation and change management is guided through a stage-gate process where manufacturing, marketing and R&D are brought together to work on projects from concept to commercialisation.



Our scientists have achieved processes that allow reduced consumption of key conversion facilitating chemicals. These have been implemented in production plants on selected sites leading to lowest consumption ratios. Great care has been taken to ensure product quality has been improved, making these innovations a win-win.

For the long term, our research and development continues to focus on the creation of brand new processes that will make a step-change reduction in material consumption and fulfil our vision of creating new global benchmarks, and hence, a leadership position in the increasingly competitive market of future.

By working closely with a group of strategic stakeholders, including our supply chain, we have been able to find innovative ways to dramatically reduce in-house fault levels in solvent spun fibre pilot projects.

The outcomes are exciting, and they are now being extended to our commercial production processes.

**These breakthroughs together with our successful development of dope-dyed black modal for textile applications and colour guard, antimicrobial fibre for nonwoven applications, open up future opportunities to participate and lead in our area of operation and give us the potential for exponential capacity increases in the future.**

Further strategic collaboration with domain experts such as the world leader in enzyme technology has helped develop processes that reduce material wastage and consumption, especially of chlorine chemicals.

## Process Improvement

We invest in areas that enhance productivity, improve efficiency and lead to better resource optimisation. In the reporting period, we focused on two major aspects:

### 1 FOREST TO FASHION TRACEABILITY

Introduction of a system to trace the value chain for the movement from Pulp to Fibre to Garment made for retail. This will help to know the real time movement of orders flowing through the value chain. Deployment of this tool in the first phase for FSC® Certified VSF for global brands and subsequently for LIVA in the domestic market.

### 2 FIBRE RECOGNITION THROUGH THE CHAIN

A revolutionary solution in the sustainability world for the source verification of the product; this is being done through a unique technology to identify fibre in the garment if a consumer wishes to do so. The system ensures complete traceability from wood-to-fibre-garment, enhances the trust of global brands in VSF products and adds to the brand image.



The key achievements by virtue of carrying out process improvement include:

- **Developing technological capabilities for improving quality and wider shade range for spun dyed fibre.**
- **Reduction in fault levels in solvent spun cellulosic fibre.**

All such innovation efforts, besides contributing to product or process development and helping us serve our customer better, lead to some unintended benefits that come along the way. These indirect benefits are mentioned below.

### INCREASED WORKFORCE PRODUCTIVITY

As they proudly claim that 'The best thing after their technology is what weavers do with the fabric'. It is by virtue of investment in research and development of processes and percolating down the information and techniques to the workforce, that not only increases their productivity but also enhances their skill set.



### KNOWLEDGE ENHANCEMENT

Development of R&D centres provide a hub of knowledge, which contribute to advancement of technological processes, thereby improving the quality of finished products. Carrying our R&D activities right from plantations to its applications, the research centres provide benefits across the value chain of our Pulp & Fibre Business.

### GREATER COLLABORATION

Bringing the processes like manufacturing, marketing and R&D under the same umbrella of innovation, several facilities and nerve centres for research and development have been established by Aditya Birla Group. These centres act as a point of convergence for all such processes that brings forth with it, a strong commitment of developing eco-friendly and sustainable products which future-proof our Pulp and Fibre Business



**Mr. H. K. Agarwal**  
COO Global Fibre  
Manufacturing &  
Business Head

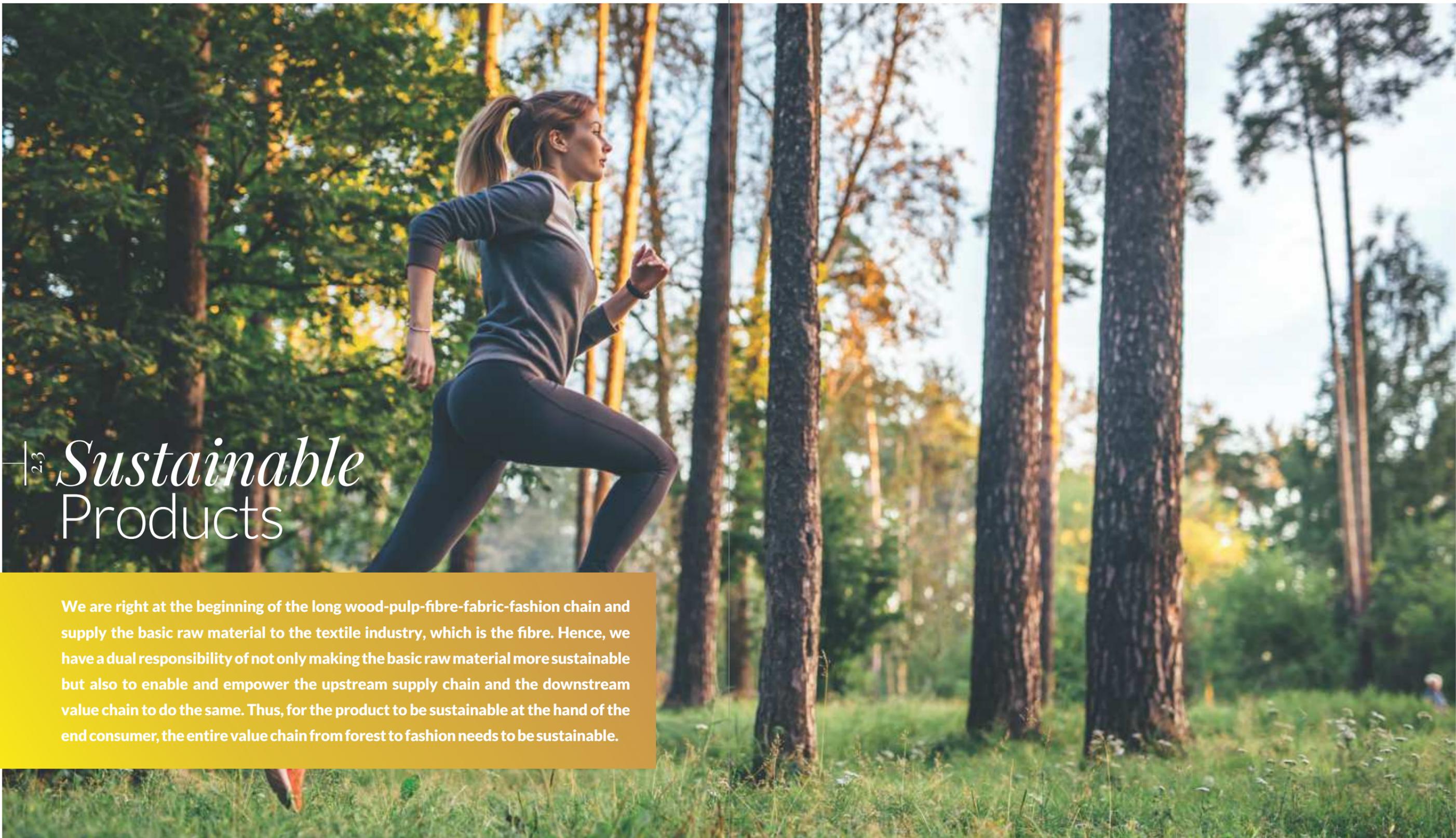
### What is the approach for making manufacturing more sustainable in the organisation?

The challenges in manufacturing are growing day by day and there are increasing pressures on availability of natural resources, and thus, the need to conserve them and use them responsibly. For viscose manufacturing, we need water, chemicals and fossil fuel for energy generation among others. We have a clear focus on conserving all the natural resources by application of closed-loop technologies. In the last five years, our consumption of chemicals such as caustic, sulfuric acid and carbon-di-sulphide has reduced sharply. Also, there is more than 30% reduction in water consumption and 5% reduction in energy intensity. We also have clear focus on reducing our emissions-to-air and improving treatment of wastewater to the stringent European levels.

Our philosophy is to make the operations more sustainable by application of latest technologies, and hence, we are readying the operations to meet the most stringent norms which may be applied by regulatory authorities on the industry. This makes our business more resilient and we term this as future-proofing our business by application of sustainable business practices.

### How are you preparing or prepared about the current sustainability issues MMCF industry is facing?

Using our five pillar strategy, we are making the entire MMCF value chain more sustainable, including sourcing of wood and chemicals, applying best available technologies, using world-class best practices to manage our operations and bringing transparency in our operations and governance. Also, we constantly get our sites audited by third party experts who bring in great experience and knowledge and suggest improvements to our process. By collaborating with these experts of environment, technology, chemicals management, safety and ethical practices, we try to ensure that all our operations are benchmarked to latest standards and we get opportunity to learn and apply the industry best practices.



## 2.3 Sustainable Products

We are right at the beginning of the long wood-pulp-fibre-fabric-fashion chain and supply the basic raw material to the textile industry, which is the fibre. Hence, we have a dual responsibility of not only making the basic raw material more sustainable but also to enable and empower the upstream supply chain and the downstream value chain to do the same. Thus, for the product to be sustainable at the hand of the end consumer, the entire value chain from forest to fashion needs to be sustainable.

- 1st VSF company to receive Gold Level Material Health Certificate by C2CPII, USA for Dope dyed VSF
- USDA Biobased certification for Birla Viscose, Birla Modal, Birla Excel and Birla Spunshades

- LCA was conducted for Dissolving Grade Wood Pulp (DGP) & Viscose Staple Fibre (VSF) to quantify the environmental impacts over the cradle-to-gate life cycle

- Regular Viscose Fibres are certified to OK Scheme for Biodegradability & Compostability
- Launched sustainably enhanced viscose fibre - LivaEco

MMCF is used predominantly by the textile industry to make a range of products for diverse applications such as fashion, home, medical and hygiene. The products can be called sustainable only if they are made from sustainable raw material, are produced using best available technologies that conserve the natural resources, and supplied to end consumers after validations of sustainability credentials in a transparent and traceable manner.

### Innovations in the process Lead to Outstanding features of Viscose Fibres.

When it comes to choosing a fibre based on sustainable credentials and natural comfort, **Viscose comes out as the natural choice** which offers outstanding benefits in both these areas.



So by definition of a sustainable product, it must meet the below four criteria:

1

MADE FROM SUSTAINABLE AND RENEWABLE RAW MATERIAL



2

MADE USING BEST AVAILABLE TECHNOLOGIES APPLYING 3R PRINCIPLES OF CIRCULAR ECONOMY (REDUCE, REUSE AND RECYCLE), THEREBY MINIMISING THE USE OF NATURAL RESOURCES



4

END-OF-LIFE BACK TO NATURE



3

DELIVERED TO END CONSUMER IN A TRANSPARENT AND TRACEABLE MANNER WITH VALIDATED SUSTAINABILITY CREDENTIALS



## Sustainability Credentials

- Fully renewable raw material
- Natural based on cellulose coming from wood
- Well managed forests ensure exceptional sequestering as the forests need to be replanted continually, sinking in more carbon than it would do by just maintaining the forests
- Land requirements, a fraction of other natural fibres
- Water requirement is very less as compared to other natural fibres
- Does not degrade land and ground water due to excessive use of chemicals and fertilizers
- Innovations in products design and manufacturing technologies ensure that the entire goodness of the naturally sourced fibres are sustainably transformed in high quality fibres using most sustainable processes
- Recycle possible for cellulosic waste and pre/post-consumer waste
- Water used in the processes is recycled several times and reused
- Made with the Best Available Technologies using the closed-loop production systems that minimises the use of raw materials, chemicals, water and energy
- The health and safety of the suppliers, operating staff, and nearby community is the highest priority and continually improved by applying industry best practices and training of the staff

## Functional Superiorities

- Moisture absorption much higher than that of cotton; cools skin faster
- Soft and pleasant to the skin
- Lightweight
- No unpleasant odours and skin irritations
- Brilliant lustre
- Excellent blending ability with cotton and other fibres
- Large range of colours and good drape; first choice of high-fashion brands
- Easy to style
- Drapes well, high flow ability and fluidity
- Retains freshness even after repeated washes

## Life Cycle Benefits

- Easy to establish the traceability from forest to fashion
- Does not result in the plastic micro-fibre generation that pollute aquatic bodies
- Fully biodegradable, and fastest biodegradability among all types of fibres
- Does not cause the issue of filling up of landfills due to easy compostability

Life cycle assessment studies are conducted to assess the environmental impact of our products at all stages. Viscose is associated with use of various chemicals in the manufacturing process. We ensure to minimise the use of hazardous chemicals in the process and also replacement with non-hazardous or environmental friendly substitutes.

# Sustainable Products Profile

## TEXTILE FIBRES



### Birla Spunshades™

Birla Spunshades are coloured man-made cellulosic fibre where pigments are injected into the viscose dope before the fibre is spun and cut. **This ensures that colours seep deep inside the core of the fibre resulting in a host of benefits.** The spun dyed fibre eliminates the dyeing step at the fabric stage, saving large amount of water, chemicals and energy. Also there is no generation of wastewater from these processes in downstream industry.

#### Benefits of Spunshades

##### For Value Chain

- Uniformity across & within lot
- Saves water in downstream process
- Lower wet processing cost, effluent load, energy consumption and auxiliary usage

##### For End Consumer

- Colour fastness even after repeated washes
- Eco-friendly & sustainable
- High absorbency & comfort
- Fashionable hues
- OEKO-TEX 100 certified, safe even for baby's skin
- Gold Level Material Health Certificate
- Medically Tested - Tested for toxins, certified by FKT



### Birla Viscose™

Birla Viscose is the first generation regenerated cellulosic fibre made from wood pulp, a sustainable natural resource. Viscose fibre is not only biodegradable and eco-friendly, but it is also one of the most purified forms of cellulose. **Birla Viscose enriches every garment with fluidity, lustre, softness, drape and comfort.** Excellent for skin, these delightful fibres, inspire soft drapes, effortless style and are bound to make your everyday moments turn glamorous.

#### Advantages of using Birla Viscose

- Made using most sustainable closed-loop technologies and innovative product design
- STANDARD 100 by OEKO-TEX® certified meeting ecological requirements
- High tenacity, high whiteness and excellent dye-ability
- Good spin-ability for advance spinning systems like compact spinning, open end and vortex yarn technologies
- Super Fine: 0.9 Denier is one of the finest VSF in the world



### Birla Modal™

A fibre that combines aesthetics and elegance with performance, **Birla Modal is the second generation in man-made cellulosic fibres which couples great consumer and value chain benefits.** 'Modal' as defined by The International Bureau for Standardisation of Man- Made Fibres (BISFA) is a distinct viscose fibre genre, which has a higher wet modulus and satisfies a minimum value of tenacity in the wet stage at 5% elongation.

#### Technical Marvel

The superior physical properties such as Tenacity, Elongation and Wet Modulus make fabrics last longer with an enduring look and feel.

#### Finest Fibre

With the fibre of 0.9 Denier, it extends the do-good attributes to a finer platform. Superfine counts which are hitherto a dream have been made a reality by Birla Modal in pure and blend compositions. This translates into superfine, lightweight clothing.

#### Dimensional Stability

Textiles made from Birla Modal display high dimensional stability due to the morphological structure which imparts excellent elastic properties.



#### Eco-friendly

This eco-friendly and biodegradable fibre is made from high quality wood pulp, a renewable natural resource. It has all the advantages of an engineered fibre in terms of high degree of uniformity, consistent quality, high purity, optimal linear density and staple length.

#### Great Absorbency

Absorbs moisture even more, and quicker than cotton. Even after repeated washes, it remains as supple and absorbent.

#### Brilliant Colours and Unmatched Lustre

It takes up colour uniformly, deeply and fast, thereby bringing out the natural brilliance.

#### Blends Beautifully

Though cotton remains an old favourite blend partner, Birla Modal blends beautifully with almost all textile fibres.



## Birla Excel™

A fibre that's truly environment friendly, Excel is made from a unique closed-loop process, where the byproducts of the process are reused in the process itself, thereby minimising discharge and resulting in a near zero environmental impact.

**The solvent recovery from this process is as high as 99.7%, easily exceeding recycling of any other available viscose closed-loop technology. The process is also the most water efficient process for MMCF industry.**

### Excellent Lustre & High Colour Depth

Birla Excel imparts excellent colour depth and lustre to fabrics, garments and made-ups which remain true, even after repeated washing. This is due to the highly uniform morphological structure of Birla Excel. The fabric's appearance is luxurious as silk and the colour palette gets enhanced with Birla Excel.

### Fibrillation and Suede Effect

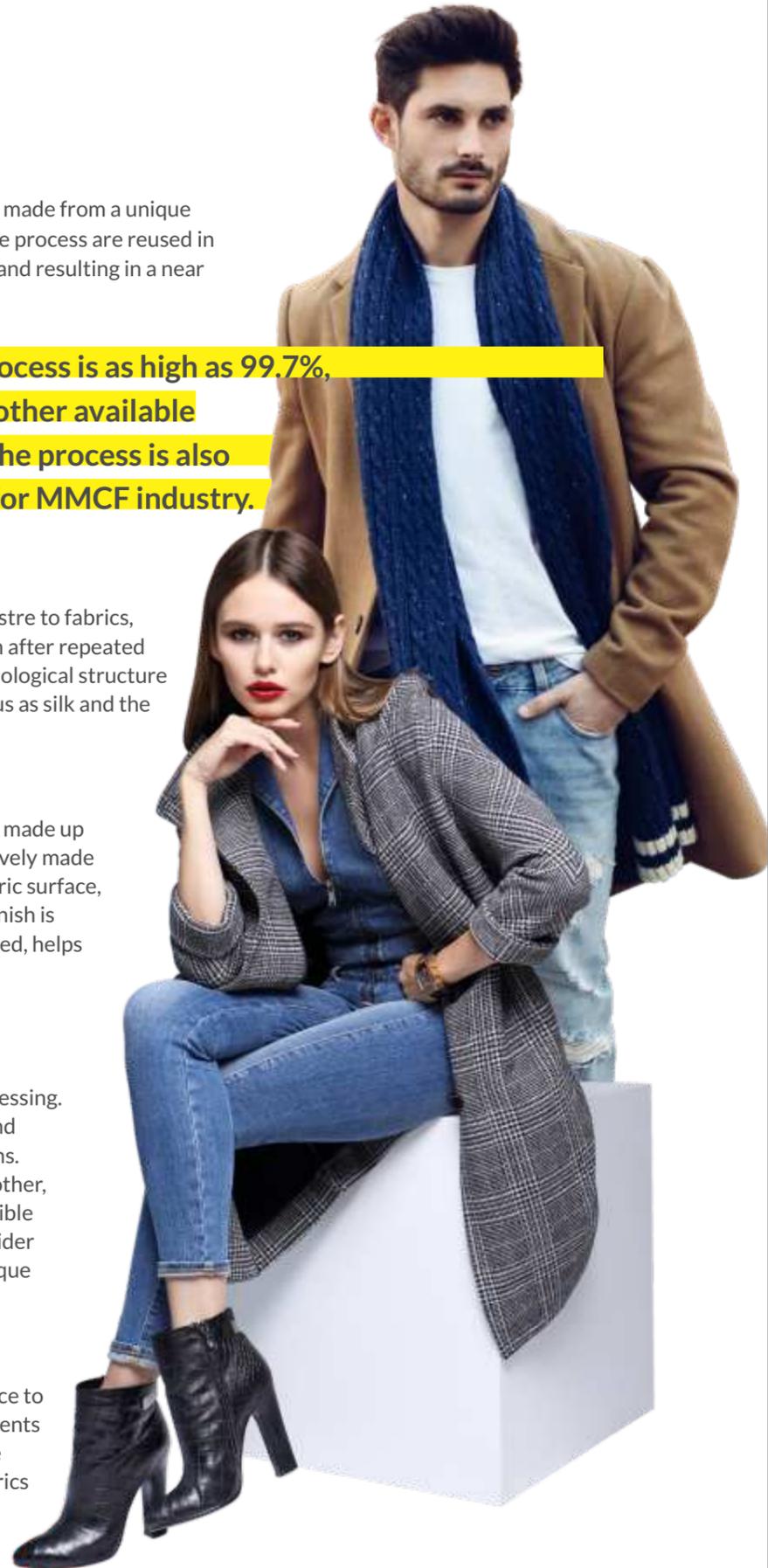
Birla Excel has an inherent dry surface structure made up of multiple micro fibrils. The fibrils can be effectively made to generate micro hair-like features over the fabric surface, similar to the human skin. This soft, velvet-like finish is optional to the fabric designer and when leveraged, helps in a unique look, feel and moisture management.

### Unique Drape and Fluidity

Birla Excel yarns are compact by nature and its fabrics exhibit a unique behaviour post wet processing. The fabrics shrink in a lateral manner in water and thereafter on drying create spaces between yarns. This enables the yarns to move relative to each other, thereby imparting fabric fluidity and drape, possible only with this fibre. Fabricators usually have a wider set of the greige fabric stage to leverage this unique property to enhance fluidity.

### Wash and Wear Characteristic

Birla Excel fabrics have a high degree of resistance to deterioration usually noticed with strong detergents during washing cycles. The high strength, unique cross section and structure make Birla Excel fabrics appear fresh even after repeated washes.



## Our Fibres in Use

### APPARELS



Vibrant Party-wear



Elegant Formal Work-wear



High Fashion Womenswear



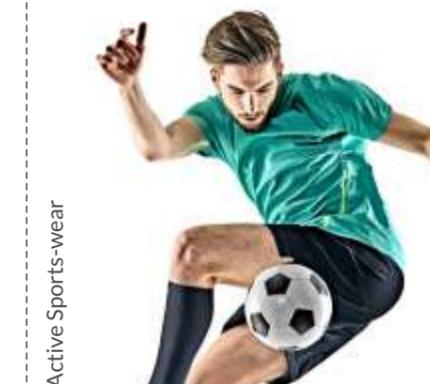
Versatile Knitted Leisure-wear



Comfortable Intimate-wear

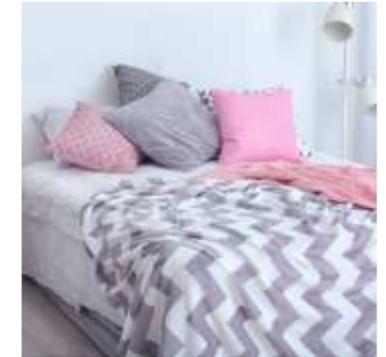


Robust Work-wear



Active Sports-wear

### HOME TEXTILES



Bed Linen



Bath Linen



Kitchen Linen



Furnishing

# Sustainable Products Profile

## NONWOVEN FIBRES

Birla Purocel is a **100%** nature-based nonwoven fibre.

It offers a wide range of fibres for nonwoven applications with a focus on sustainability, innovation and partnership. **Purocel is ideal for personal care, hygiene and medical usage, and next-to-skin applications.**



### FINE DENIER

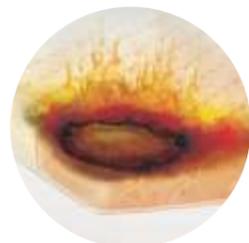
Fibres for creating differentiated softer and lighter nonwoven end products

The fibres help to get much softer, lighter and fuller nonwoven fabrics to add value to the wipes and other end consumer products.

### FACE MASK

Smoothest experience for next-to-skin applications with advanced moisture management

Birla Purocel Face Mask fibres have been specifically developed for use in facial masks. The smooth fibre surface with unique structure provides superior moisture management for a soft silky feeling.



### HOPE FR

Inherent flame retardant fibres for mattress and upholstery products

Flame retardant property in nonwovens help in making the mattresses and upholstered furniture more safe for consumers at home and public places.



### PUROCEL ECOFLUSH

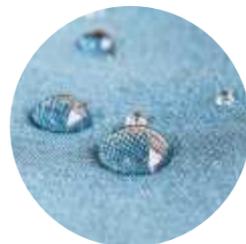
Short length fibres for biofriendly flushable nonwovens and other applications

EcoFlush can be used to produce the nonwoven wipes that provide fine balance between strength and dispersion.

### PUROCEL ECODRY

Biodegradable and compostable fibres for sustainable and environment friendly hygiene disposable products

Birla Purocel Ecodry is a viscose fibre incorporated with durable hydrophobicity based on covalently bound water repellent hydrocarbon chains to the fibres. It helps in creating nonwovens that keep the user's skin dry and at the same time allowing fluids to get transferred to the absorbent core.



## Our Fibres in Use



Personal Care | Baby Care | Surface Cleaning  
Flushable | Face Mask



Medical Disposables | Surgicals



Automotives | Filters | Precursors



Feminine Care | Diapers



Mattresses | Shoes | Interlining | Speciality Papers

# Product Innovation

We continue to march forth with a vision to develop sustainable products and processes along with consistent efforts towards becoming domain experts in the business. Our global R&D centres work collaboratively to make our processes and products more sustainable. Many of these innovations in product design have delivered extraordinary products that provide outstanding comfort and feel to the end consumers.

Development of next generation products such as Birla Modal, Birla Excel and Birla Spunshades has been a game changer in the industry. These innovations not only made the products more sustainable but also improved the sustainability of the entire value chain.

Innovations in technology development have resulted in Birla Cellulose setting new benchmarks in the raw material and chemical consumption, going much lower than the stringent EU BAT consumption norms for water, pulp, caustic, zinc and others, leading the industry in a new direction for sustainable production practices.

**The closed-loop technologies developed in some of our plants have brought their water intensity of producing the fibre to the lowest level globally.**

Clonal Production Centre for developing high yielding eucalyptus clones, Pulp Research Institute at Dominova, Sweden for pulp research, Birla Research Institute for fibre research, Pulp & Fibre Innovation Centre (PFIC) pilot plant for fibre innovation and the Textile Research & Application Development Centre (TRADC) for fibre to fashion, have been consistently innovating and mainstreaming new products to delight customers and fight climate change.

Some of the key innovations include:

## LIVA | New Age Fluid Fabric



Bringing a revolution in the fibre industry and charting its new course, we launched a new age fabric called 'LIVA' which is made from natural cellulosic fibres. The unique selling point of the fabric is that its natural cellulosic fibres are produced from the wood pulp which is a natural renewable source.

**Birla Cellulose has become the only company in the world to operate fully integrated manufacturing facilities extending from fibre to fashion, all under the umbrella of brand LIVA.**

The environment friendly fabric has greater breathability, absorption and comfort, making it a superior choice for consumers. It has brought a drastic change in the mindset of consumers by bringing sustainable fashion trends that blend the industry with nature. LIVA is a cut above the rest owing to its stylish nature that is delivered through an accredited value chain.

# LivaEco | Sustainable Fibre

LivaEco is the latest fibre from Birla Cellulose with a host of sustainability features while retaining the fashion quotient of the brand. LivaEco comes from FSC® certified sustainable forests, thus conserving biodiversity, saving endangered forests and increasing overall green cover.

**LivaEco promises minimal usage of water vis-à-vis other natural fibres in its manufacturing process and lower greenhouse gas emissions.**

LivaEco can be identified in the stores through a LivaEco green tag on the garment. Every LivaEco garment has a unique molecular tracer which helps the end buyer trace the origin and full journey of the garment he/she is buying.





## LivaSno Optically White VSF

Liva Sno is made through an innovative technology wherein whiteness index of the fibre is improved significantly, using an environmentally-friendly process. Conventional bleaching process involves use of chemicals leading to effluent generation with high COD.

**The process is environment friendly as no effluent is generated in downstream processing along with cost savings in bleaching cost at yarn/fabric stage.**

Lesser energy and time in bleaching as compared to conventional process while getting higher whiteness index.

## Purocel Antibac Plus

AntiBac Plus is a unique fibre that helps to create nonwovens that restrict the growth of odour-causing bacteria.

Antibac Plus by Birla Cellulose is an antibacterial fibre created for fast, effective and long lasting antibacterial protection. This specially treated fibre eliminates the step of antibacterial treatment for your product without compromising on its purity, hygiene and performance. The fibre retains its efficacy after standard spunlacing. It can be used in a wide range of applications, from surface cleaning/skin care wipes, medical and wound care and substrate for industrial applications.



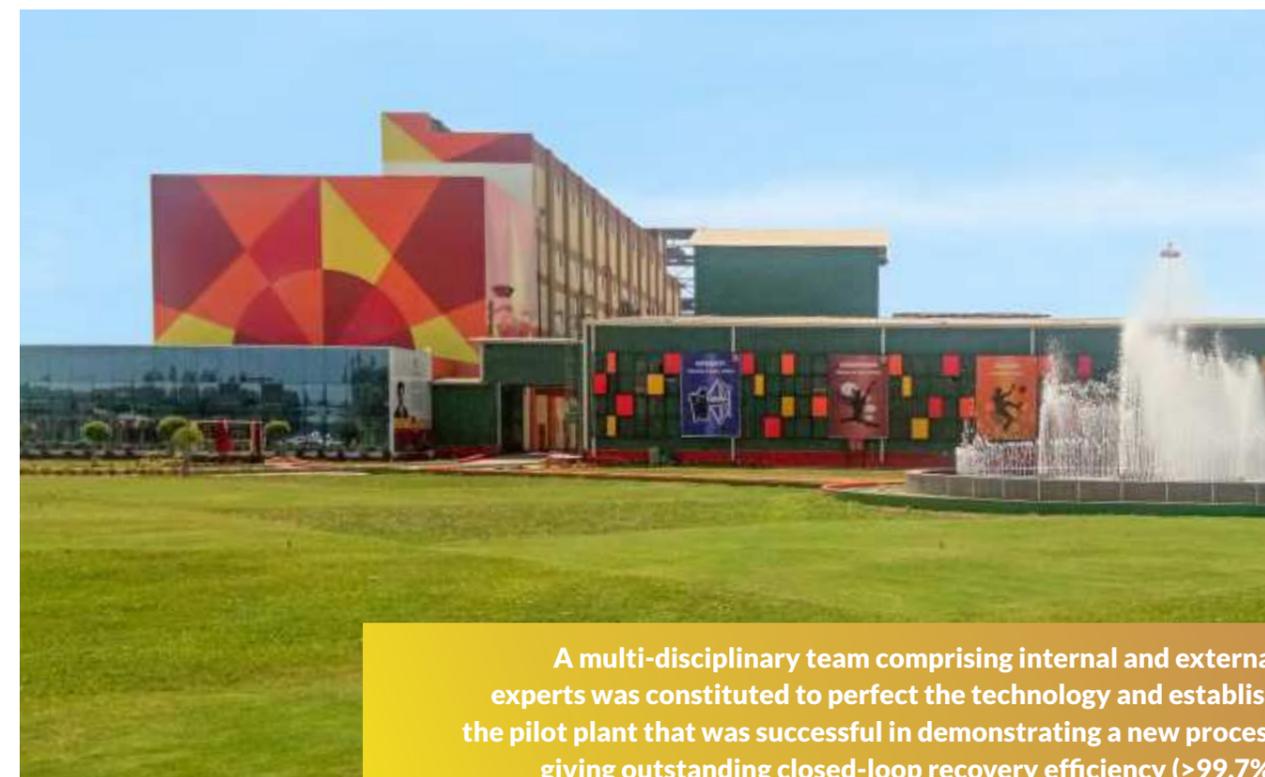
## Colour Guard

Colour Guard is a speciality viscose which has superior colour absorption properties. With its high affinity to dyestuffs, colour guard helps in absorbing run-off colour in the process of washing coloured textiles. This fibre helps in avoiding the staining of garments during the laundry process.

## Capacity Expansion Next-Generation Fibre

We started developing Lyocell fibre named as Birla Excel with two small productions lines of 10 tons per day (TPD) and 20 TPD capacity. By FY 2016, only about 16 TPD was achieved and the product started to get established in the market gradually. The assessment revealed the strategic business needs to develop enhanced basic data and rapidly scale up the technology.

A task force was formed to develop a blueprint for a new generation technology for the Lyocell production that can give us the capacity and a next-generation Lyocell product quickly.



**A multi-disciplinary team comprising internal and external experts was constituted to perfect the technology and establish the pilot plant that was successful in demonstrating a new process giving outstanding closed-loop recovery efficiency (>99.7%) and a superb product successful in the fabric trials.**

The team continued successful technological innovations and new technologies were scaled up and implemented at commercial scale. A new plant using state-of-the-art Lyocell technology of 45 TPD capacity was designed and commissioned successfully in record time in early 2019. The production from the new plant is stabilised and the products are being supplied to leading customers worldwide, with enhanced benefits of excellent styling and comfortable fabric, as well as sustainability characteristics of extremely high efficiency in resource usage.

# Life Cycle Assessment

## PULP & VISCOSE STAPLE FIBRE (VSF) PRODUCTS

A product can be considered truly sustainable, if it remains so during the entire phase of its life – development, introduction, growth, maturity, and decline. Life Cycle Assessment is the technique to assess the environmental impacts associated with all the stages of a product's life.

Birla Cellulose assessed the environmental impact of its Pulp & Fibre products across various life cycle stages for all the locations. The company seeks reliable scientific information to communicate the environmental performance of its products to various stakeholders. The objective was to build capabilities for conducting the 'Life Cycle Assessment' as per ISO 14040/44 standard as well as conduct LCA for the Pulp and Fibre products.

The awareness session on LCA was conducted by experts during the course of the project.



**The goal of the LCA study conducted by Birla Cellulose was to quantify the environmental impacts of Dissolving Grade Wood Pulp (DGP) & Viscose Staple Fibre (VSF) manufactured over the cradle-to-gate system boundary.**

Process specific data collection questionnaires were prepared, and data was collected for all the manufacturing units. The data examined in the LCA refers to annual production and ponders “inflows” such as the water consumption, non-renewable and renewable energy sources and “outflows” such as products, by-products, wastewater, air emissions, waste and transport. Finally, LCA models were created using the GaBi software for Life Cycle Impact Assessment, to quantify the environmental impacts.

# Circularity in Design

While we continue making products and services that delight customers, Birla Cellulose has been adopting circularity in design to produce more with less. We are gradually moving towards circular economy, a regenerative system where resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing energy and material loops; this can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, recycling and upcycling. This is in contrast to a linear economy which is a 'take, make, dispose' model of production.

The circularity in design in totality in the value chain and within its individual loops is applied at each and every stage of the value chain.



**Virgin Raw Material** - The feedstock is sourced from fully sustainable forests that are continually re-generated, resulting in significant carbon sequestering. The demand created by viscose for sustainable forestry has enhanced planting and increased green cover in areas where we source our raw materials from.

**Raw Material from Waste** - The raw material can be sourced from pre and post-consumer waste as well as agri waste of cellulosic origin. This ensures that the material is kept in loop as long as possible. This is a novel area, is fast developing, and newer technologies are being explored to make this process more efficient and versatile.

Closed-loop manufacturing process ensures that wastes produced in the process are utilised as much as possible; this includes the waste gas streams, wastewater, waste heat as well as other types of wastes. The use of natural resources is minimised by keeping the material in loop as much as possible.



The product is fully biodegradable and compostable, hence does not add to the landfill or waste going to marine bodies. The viscose process is unique in that all the cellulosic waste from other natural fibres can be recycled in this process, which eliminates several of the manufacturing steps required to make pulp.



As a product, viscose staple fibre (VSF) starts with raw material sourced responsibly from forests, and at the end of its life is returned to nature due to its biodegradable properties. Therefore, the characteristics of our product are intrinsically inclined towards circularity and resources are continually regenerated to provide a sustainable source.

The viscose production process involves an environmental footprint that needs to be responsibly managed. To ensure that the production is done using the closed-loop technology that minimises the resource usage such as raw materials, chemicals, water and energy, the technology in the manufacturing plants are continually upgraded with best available technologies for maximising the resource efficiency

**We consider waste as a resource. Hence, our efforts are driven towards closing the loop in manufacturing operations where we constantly focus on generating maximum output from a given input. More than 99.7% of solvent in Lyocell process and more than 90% of sulphur in viscose process is recovered from waste gas stream and recycled.**

We have also introduced sustainable forestry and social forestry in order to enhance the regenerative capacity of the forests and ensure sustainable and continual supply of wood for years to come. Domsjo Fabriker, our pulp unit which operates as a bio-refinery is totally chlorine free closed-loop manufacturing plant built on the strong foundation of 'making more from every tree.' All the wastes and by-products are recovered and reused to the optimum level, thereby reducing our requirements for fresh raw materials.

and improving recycling of chemicals, water and energy. At the moment another wave of technology transformation is being implemented at all the facilities to bring all the plants at par, meeting the most stringent standards such as EU BAT and EU Ecolabel.

Manufacturing of VSF is energy intensive. Wastes generated in our plants are evaluated for their recovery and reuse. Approximately 85% of the required energy for our pulp plants comes from utilisation of the waste generated in these plants. We majorly use black/red liquor to generate energy which is re-utilised in pulp operations at various dissolving pulp manufacturing units. This not only reduces the waste disposal requirements but also creates circularity in our process.

## End of Life Considerations

Fashion is responsible for 92 million tons of solid waste dumped in landfills each year, according to the Copenhagen Fashion Summit. The garments which land up as waste do not decompose due to the use of synthetic fibres and hazardous chemicals used in the process of making them, leading to land and water pollution.

All our products including Birla Viscose, Birla Modal, Birla Excel and Birla Spunshades are USDA bio-based certified. **Birla Spunshades possesses the Gold Level Material Health Certification from Cradle to Cradle Products Innovation Institute.**

### End of Life - Biodegradable & Compostable

Birla Cellulose considers end-scenario of the products that we make. Our fibres are made from renewable wood from managed forests.

Viscose staple fibre is cellulose based fibre and hence follows a natural cycle. It comes from nature and goes back to nature. Cellulose is the most abundant natural polymer. Therefore, its recycling in nature by biodegradation is indispensable by carbon cycle. Viscose degrades within 4-6 weeks into the soil. By virtue of this characteristic of viscose staple fibres, they have minimal impact on the environment during and at the end of its

life cycle. The products like apparels made from our fibres are therefore biodegradable if they are not mixed with some other synthetic fibres i.e. the biodegradability of end product depends on the processing of fibre in the value chain.

Our viscose fibres fulfil the criteria for the TUV AB's OK scheme for biodegradability and compostability and hence are awarded with OK Biodegradable Soil, OK Biodegradable Water, OK Biodegradable Marine, OK Compost and OK Compost Home Certifications.

**Birla Cellulose fibres are compostable in industrial and home conditions as well as biodegradable in water, soil and marine environment.**



## Recyclability - Fibre Recycling

We are working on developing alternate sustainable raw materials for wood pulp. This includes pre and post consumer waste converted into dissolving grade wood pulp through a sustainable process. We are closely working with global brands to have better sustainability credentials and for our commitment towards circular economy.



## Product Safety

Our products are used as ingredients for other products which are used on daily basis for various applications: apparel and home décor, personal care, hygiene and medical. Safety of our products, is therefore, a top priority. We make sure they are safe for use during their use phase and do not degrade the environment in their post-use phase.

**Our products are certified with OEKO-TEX Standard 100 both for textile and nonwoven applications and allays any concern regarding the safe use of products which are worn next to the skin.**

Our fibres have qualified for 'Skin Compatibility & Skin Irritation' tests by the German Institute FKT - Fördergemeinschaft Körperverträgliche Textilien. The test proves that Birla Viscose & Birla Spun-dyed are suitable for 'next-to-skin' applications.

## Marine Plastic Pollution

Marine plastic pollution is one of the most serious emerging threats to the health of oceans and a major hazard to marine biodiversity. Several thousand tons of plastic leaks into the ocean each year. It is estimated that by 2050 there will be more plastic in the ocean than fish.

Ocean plastic waste might be the next climate change - we need to innovate our way out of this mess. Though the use of synthetic polymers has eased the life of humans, the disposal of these items has given a unique challenge. Most of this ends in marine environment via different media and due to their non-biodegradable properties persists in the ecosystem even as it eventually breaks apart.

About 60-65% of all the fibres used in textile and clothing industry is made out of synthetic polymers. Dependence on these synthetic polymers is one of the reasons why the fashion industry is one of the most polluting industries in the world; both in terms of its emissions-heavy production and the non-biodegradable waste it leaves behind.

During washing of textiles, the microfibrils (size less than 5 mm) break apart and get released into wastewater with many of them likely to pass through sewage treatment and into the environment and finally into the ocean.

## Viscose - Solution to Marine Pollution

Cellulosic fibres are natural material derived from plant based raw material. Our fibres are made from this naturally occurring polymer. In order to reduce marine pollution, cellulosic materials are the preferred material due to its natural origin and biodegradability over the life cycle. Our fibres are certified for biodegradability in marine environment and hence leads to no microplastic generation.



**Dr. Aspi Patel**  
Chief Technology Officer

*How does innovation play a role in business sustainability and what are the efforts Birla Cellulose is making in innovation?*

Innovation is the biggest value creation tool for any business today. It helps us to continually improve sustainability of our processes and deliver outstanding products and services to our customers. Innovations are nurtured and groomed into the culture of the organisation so that there is a strong conviction to achieve new benchmarks of excellence in all aspects of the business. Each process is minutely examined and innovated to deliver the best quality products and services in the most efficient manner. At Birla Cellulose, sustainability drives innovation in our manufacturing, in our products and in new technologies. The R&D efforts are continually focused to improve understanding of the customers' need and evaluate new technologies to delight the customers across the value chain and reduce our environmental footprint at the same time. Our focus is on both process and product innovations.

*What are some of the innovative products that Birla Cellulose has launched this year?*

Birla Cellulose continues to advance sustainable product development. We believe integration of sustainability to create sustainable products helps customers become more sustainable.

Some of our newly developed products like LivaSno (optically white VSF) helps in avoiding further dyeing; Colour Guard Fibre retains dye catching efficiency in downstream processes; are some of the game-changing innovations which will be useful to the industry and also reduce environmental footprint.



## 2.4 Valuable Partnerships

Whether it is conserving ancient forests, alternative raw materials, best technologies for closed-loop processes, sustainable products or circularity, Birla Cellulose is committed to a collaborative approach and strategic partnerships, where each of the partners bring their own capabilities and resources to realise greater objectives and to create combined higher value for all stakeholders.

- Launched an ingredient LIVA brand in collaboration with textile value chain

- Partnering global brands on forest to fashion traceability solutions

- Charting future roadmap of our business in partnership with Canopy, ZDHC, SAC, Changing Markets Foundation & Textile Exchange

- Joint technology collaboration with textile machinery manufacturer

- Showcased innovative product creations and developments by our partners at the LAPF Studio

- Partnering with cotton spinners to successfully process Birla Cellulose products

Sustainable businesses are not made by operating in isolation, but working together in synergy with all the stakeholders to utilise resources in a better way and create more value. Valuable Partnerships can bring a positive change in making an MMCF industry become more sustainable.

We aspire to understand expectations and obligations of our stakeholders, and convert them into meaningful long term partnerships, resulting in tangible benefits. The partners could be, but not limited to, customers, communities, suppliers, employees, non-governmental organisations, research institutes, regulatory bodies and contractors.

**Our scope of partnerships is vast and includes sustainable innovations, environment protection and people well-being, while aligning to the UN Sustainable Development Goals (SDGs).**

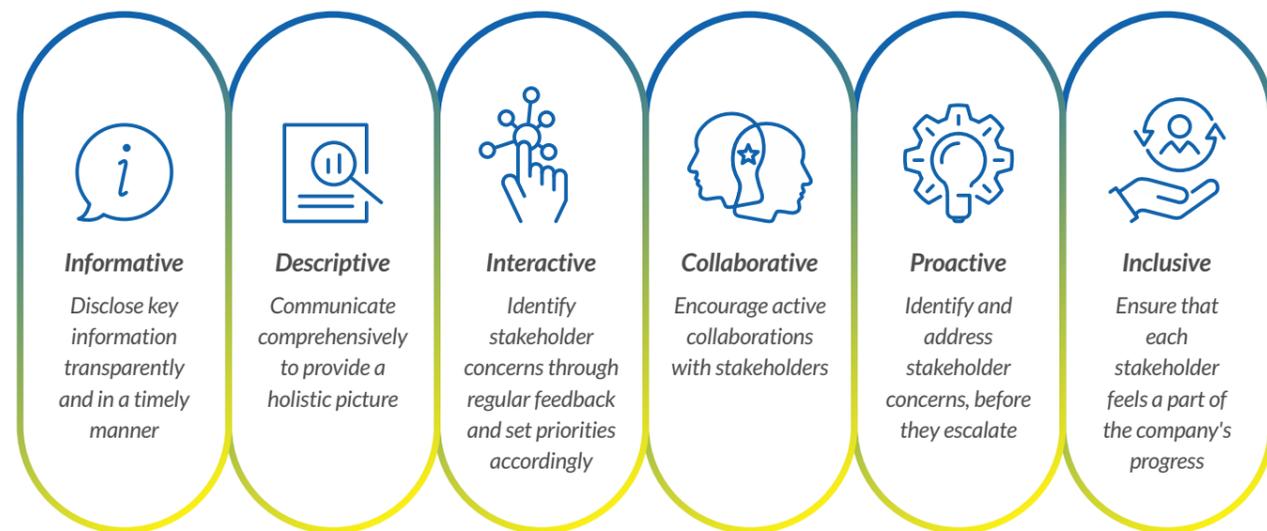
There are advancements taking place across the world in the fields of science and technology, at a phenomenal pace, and pockets of expertise and skill sets have developed amongst institutions, organisations, experts and think tanks. Our partnerships with experts in the field are extremely valuable to us in realising our common goals and we work with our stakeholders for a shared vision, fuelled by a philosophy built on collaboration, trust, respect and the need for a better tomorrow.

Valuable Partnerships, an important pillar of our sustainability strategy, is consistently applied across our other sustainability pillars, namely Responsible Sourcing, Responsible Manufacturing, Sustainable Products and Social Responsibility.

## Our Engagement Approach

Engaging with stakeholders is one of the key aspects of our sustainability strategy. We are aligned with the ABG Stakeholder Engagement Policy and Technical Standards, to incorporate stakeholder engagement into governance. A relationship of trust, communication, transparency and regular engagement with our key stakeholders, forms the foundation of our business value system.

Our stakeholder engagement has the following fundamentals in common:



**ENGAGEMENT PLATFORMS THROUGH WHICH WE CONNECT WITH OUR STAKEHOLDERS**



Stakeholder Group	Engagement Mechanism	Engagement Type	Stakeholder Expectations	Our Approach
<b>Employees</b>	Intranet Portal (ICON)	Continuous basis	<ul style="list-style-type: none"> <li>• Work-life balance</li> <li>• Career growth</li> <li>• Learning &amp; development</li> </ul>	<ul style="list-style-type: none"> <li>• Recreation facilities, celebration of major festivals, sports day, cultural programmes</li> </ul>
	Mailers for various initiatives	Continuous basis	<ul style="list-style-type: none"> <li>• Fair wages &amp; remuneration</li> </ul>	<ul style="list-style-type: none"> <li>• Employee performance management system, development plan for all employees</li> </ul>
	iSay - Interaction with Leadership Team	Annual	<ul style="list-style-type: none"> <li>• Health &amp; safety</li> <li>• Recognising talent</li> </ul>	<ul style="list-style-type: none"> <li>• Training Need Identification (TNI) is done at the start of each year</li> </ul>
	Townhall Meetings by CXOs	Regular		<ul style="list-style-type: none"> <li>• Functional &amp; Behavioural trainings provided based on TNI</li> </ul>
	Monetary Award, Recognition Scheme (iApplaud, PRIDE)	Regular		<ul style="list-style-type: none"> <li>• Specially designed programmes for Technical Leadership Development</li> </ul>
	Employee Satisfaction Survey	Annual		<ul style="list-style-type: none"> <li>• Compliant to applicable local laws, market-based approach is implemented</li> </ul>
	Training Programmes	Continuous basis		<ul style="list-style-type: none"> <li>• Health &amp; Safety programmes in all manufacturing sites, regular safety trainings are imparted not only to employees but to their families too, especially road and driving safety</li> </ul>
	Continuous Feedback Programme	Continuous basis		<ul style="list-style-type: none"> <li>• Monetary award schemes like iApplaud - an instant recognition scheme</li> </ul>
	Annual Performance Reviews	Annual		<ul style="list-style-type: none"> <li>• PRIDE scheme for a group of employees and awarded to a team for a high impact project in manufacturing, marketing etc.</li> </ul>



Stakeholder Group	Engagement Mechanism	Engagement Type	Stakeholder Expectations	Our Approach
<b>Customers</b>	Customer feedback	Every day	<ul style="list-style-type: none"> <li>• Customer experience</li> </ul>	<ul style="list-style-type: none"> <li>• Customer feedback is taken on a continuous basis on the product performance, quality, cost, service and delivery. Customer Happiness is a mission</li> </ul>
	Visit to customers	Regular	<ul style="list-style-type: none"> <li>• Customer value proposition, price, quality, delivery, product features</li> </ul>	<ul style="list-style-type: none"> <li>• Our product is certified by globally recognised certifications that ensure product safety</li> </ul>
	Customer conferences	Regular	<ul style="list-style-type: none"> <li>• Quality, price, timely delivery</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented Mission Happiness based on Net Promoter Score - combination of top down and bottom up approach</li> </ul>
	Customer Technical Services	Need based	<ul style="list-style-type: none"> <li>• Application development</li> </ul>	<ul style="list-style-type: none"> <li>• A dedicated Customer Technical Service team actively supports customers in application development, productivity and quality improvements and technical problem resolution</li> </ul>
	Customer satisfaction surveys	Continuous basis	<ul style="list-style-type: none"> <li>• After sales support</li> </ul>	<ul style="list-style-type: none"> <li>• Survey conducted to identify the customer needs and plan improvements</li> </ul>
	Grievance redressal	Case-to-case basis	<ul style="list-style-type: none"> <li>• Customer service</li> <li>• Complaint resolutions</li> </ul>	<ul style="list-style-type: none"> <li>• Customer complaint resolution process in place for quick feedback and resolution of the problem by root cause analysis</li> </ul>



Stakeholder Group	Engagement Mechanism	Engagement Type	Stakeholder Expectations	Our Approach
<b>Value Chain Partners</b>	LIVA Partnership Programme	Continuous basis	<ul style="list-style-type: none"> <li>• Create value from strong product and brand for Value Chain Partners</li> <li>• Provide visibility to future trends</li> <li>• Product and Application Development support for value chain</li> </ul>	<ul style="list-style-type: none"> <li>• Created LAPF to address issues such as fashion forecasts, product perfection, innovative yarns/fabrics, connecting partners with buyers</li> <li>• Fashion Studios launch collections every season which customers use to forecast their demand</li> <li>• The latest developments in product and processing techniques are shared with all the value chain partners. Target to introduce new products, improve sustainability, quality, productivity of the value chain</li> <li>• Joint development programmes for better materials, optimising cost, logistics, packaging</li> </ul>
	Fashion forecast	Each season		
	Exhibitions	Regular		
<b>Institutions of repute, NGOs, Expert Groups</b>	Innovation	Regular	<ul style="list-style-type: none"> <li>• Best-in-class technology and products</li> <li>• MMCF value chain sustainability</li> <li>• Apply Global Best Practices</li> </ul>	<ul style="list-style-type: none"> <li>• Collaborations with institutes and technology focussed organisations to continually apply latest knowhow</li> <li>• Develop roadmaps and action plans to improve sustainability of MMCF value chain by partnering with bodies such as Changing Markets Foundation, ZDHC and Canopy</li> <li>• Implementation of Global Best Practices In MMCF production and supply, Life Cycle Studies etc.</li> </ul>
	Sustainability	Regular		
	Best practices	Regular		



Stakeholder Group	Engagement Mechanism	Engagement Type	Stakeholder Expectations	Our Approach
	Standards development	Regular	<ul style="list-style-type: none"> <li>• Develop new standards</li> <li>• Develop weaker sections of society, women empowerment</li> </ul>	<ul style="list-style-type: none"> <li>• Working groups and regular collaboration with ZDHC, TE, Canopy, WBDSC, develop certification standards for sustainable viscose</li> <li>• Collaboration with local communities, NGOs and focus on women empowerment and financial independence</li> </ul>
	Social impact programmes	Continuous		
<b>Brands &amp; Retailers</b>	Fashion studios	Every season	<ul style="list-style-type: none"> <li>• New product innovations</li> <li>• Common goals for sustainability</li> </ul>	<ul style="list-style-type: none"> <li>• Regular meetings to understand the needs and share new designs and products</li> <li>• LivaEco – product aligned to the need of sustainability focussed customers</li> </ul>
	Partnering	Every opportunity		
<b>Suppliers &amp; Contractors</b>	Vendor assessment, supplier audits, review meetings, contractor management	Regular	<ul style="list-style-type: none"> <li>• Continuity of orders</li> <li>• Timely payment</li> <li>• Transparency</li> </ul>	<ul style="list-style-type: none"> <li>• Site visits</li> <li>• Contractor safety management</li> <li>• Supplier risk management process</li> <li>• Supplier Code of Conduct, compliance with company laws</li> <li>• Unbiased treatment, adherence to SLAs (Service Level Agreements)</li> <li>• Timely payments</li> </ul>



Stakeholder Group	Engagement Mechanism	Engagement Type	Stakeholder Expectations	Our Approach
<b>Communities</b>	Need assessment	Continuous basis	<ul style="list-style-type: none"> <li>Local employment</li> <li>Infrastructure development</li> <li>Livelihood &amp; training programmes</li> </ul>	<ul style="list-style-type: none"> <li>Community need assessment meetings with community representatives</li> <li>Development and construction of village roads, school renovation, street lights etc.</li> <li>Skill development programme on tailoring, embroidering and beautician business for women</li> <li>Health camps, pulse polio immunisation programme, rural/mobile clinics</li> <li>Animal husbandry projects, skill training, Self Help Groups for sustainable livelihood</li> </ul>
	CSR	Continuous basis		
	Meetings	Periodic		
<b>Investors &amp; Shareholders</b>	Investor results	Quarterly, half yearly, annual	<ul style="list-style-type: none"> <li>Corporate governance &amp; risk management</li> <li>Returns on investment</li> <li>Operational performance</li> </ul>	<ul style="list-style-type: none"> <li>Structured governance</li> <li>Structured Board of Directors</li> <li>Risk Management Committee</li> <li>Steady performance</li> <li>Cost reduction approach and initiatives</li> <li>Financial and operational performance discussion</li> <li>Value added products</li> <li>Site visits</li> </ul>
	Board Meeting	Quarterly, annual		
	Investor Day	Annual		



Stakeholder Group	Engagement Mechanism	Engagement Type	Stakeholder Expectations	Our Approach
<b>Media</b>	Corporate communications	Continuous basis	Developments in the organisation	<ul style="list-style-type: none"> <li>Regularly updating the websites and communicate any changes in the organisation, product launches etc.</li> <li>Using social media platforms for events organised, any publication done by the organisation</li> </ul>
	Interviews	As per requirement		
	Social media platforms	As per requirement		
<b>Government &amp; Regulatory Bodies</b>	Communication with regulatory bodies	At least once a year	<ul style="list-style-type: none"> <li>Payments of taxes</li> <li>Compliance to laws</li> <li>Pollution prevention</li> <li>Local economy growth</li> </ul>	<ul style="list-style-type: none"> <li>Regular payment of all applicable taxes in all the geographies wherever we operate</li> <li>Compliance to applicable laws of the land</li> <li>Adherence to all norms of Pollution Control Board</li> <li>Energy &amp; emission reduction initiatives</li> <li>Development of communities where we operate</li> <li>Employment of local people</li> </ul>
	Formal Dialogues	As per requirement		

# Customers & Value Chain

Birla Cellulose is a customer-centric brand. Keeping the customer at the heart of every decision that we take, is ingrained in our ethos. Our sustainability decisions are also aligned with the goals of our customers and amplify their efforts in making the planet and society better. Our Value Chain Partners make products and provide services based on the environmental, societal and economic expectations of the customers.

Some of the engagement initiatives taken up for customers and the value chain include:

## Customers

**Birla Cellulose has a global footprint with customers in more than 65 countries. It has a stronghold in each of the global textile clusters, that are developed or emergent.**

To understand expectations and preferences of customers and markets, we have a comprehensive mechanism that leverages multiple touchpoints across the ecosystem:

### MISSION HAPPINESS

Mission Happiness is an umbrella of various engagement activities done on a real-time basis, and initiatives related to customer centricity, which is undertaken to deliver a positive and uniform customer experience. Employees are encouraged and rewarded for being agile and proactive towards customers' queries. To supplement MH, we have built our customer centric culture through various initiatives.

#### Listening Kiosks

Electronic records of every feedback call, which can be accessed by any employee at any time, via remote Customer-Listening Kiosks, installed across all domestic unit shop-floors and regional offices, to help understand customer experiences.



### Smile Programme

Customer challenges or issues identified, are flagged and employees are incentivised through rewards and recognition, to develop innovative solutions. Tracking Smiles: an in-house business process for an online portal for tracking material was launched, wherein the customers could track the progress of their shipment in real-time, ensuring timely deliverables across the units, regardless of logistic ownership or contractual limitations

### CUSTOMER MEET

We engage with our customers on a continuous basis to understand and share with each other key industry trends, future business plans and new developments in the textile industry. We have organised several Customer Meets across regions. They include:

#### ConvergeX – Nonwoven Partners Meet

ConvergeX was the first Nonwoven Value Chain Partner Meet that was organised by Birla Cellulose. The event was attended by key members from the entire value chain of Nonwoven Wipes. The objective of the conference was to understand the challenges and opportunities envisioned for the nonwovens and wipes market. At the event, it was discussed what joint actions need to be taken that may help spur the growth of different nonwoven applications like wipes, and to help in overcoming key challenges that the industry might face.



**Birla Cellulose will continue taking this platform forward, while providing opportunities for Value Chain Partners to be more interactive and to overcome the challenges of the business. We have started work to engage closely with converters, brands and retailers to jointly work towards the betterment of this industry and help consumers with sustainable solutions.**

## CUSTOMER TECHNICAL SERVICES (CTS)

Robust customer service systems and rigorous mechanisms are in place to build a long-term relationship with our customers. A dedicated Customer Technical Services (CTS) is operational, to address the following:



Implementation of CTS strategy for the business to ensure optimal performance of our fibres in the customer's hands

Ensuring effective resolution of customer complaints by technical analysis, as and when they arise

Working closely with Manufacturing and R&D to overcome/surpass any gaps with regard to our competition

Ensuring effective monitoring of fibre quality by analysing quality and process data

The CTS team engages with the customer through reactive/proactive visits, complaint resolution, new product rollout, process optimisation projects and more. Our CTS team has also worked on several technical projects with Indian and overseas customers, as well as spinning machine manufacturers, helping both customers and the business in terms of value and volumes. Some of these projects include:

### Collaboration with industry players apart from direct customers:

CTS team has collaborated with machine manufacturers / research institutes so that consumers of Birla Cellulose fibre derive maximum value and customized solutions/insights are offered to them while using Birla Cellulose fibres.

### Collaboration with spinners not using man-made cellulosic fibres:

Our CTS team have collaborated with yarn manufacturers using other fibres and have been instrumental in successfully establishing Birla Cellulose fibres at such customers. This has resulted in enriching the product mix at customer's end and contributing to bottom line. This has been a major contributor in growth of VSF in Indian domestic market.

### Collaboration with existing customers:

- Team has collaborated so as to make a difference in the following areas at existing customers:
  - Improving productivity & yarn realizations at spinners and also subsequent value chain through improvement in yarn quality and spinning process optimization specially in high speed machines.
  - Enhancing performance by joint collaborative projects working both at yarn and fibre manufacturing.
  - Establishing value added products at customer's end viz. Neppy yarn, Slub yarn, Siro yarn, Melange yarn & Injection Slub yarn.

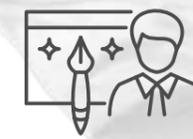
## Value Chain

### LIVA ACCREDITED PARTNER FORUM

LIVA Accredited Partner Forum (LAPF) is a group of value chain partners – starting from spinners to fabricators, to processors, who produce fabrics that meet LIVA standards.

**LIVA is a new age fabric, made from natural cellulosic fibres, and its USP is that the fibres are produced from wood pulp, which is a naturally renewable source.**

The accredited forum has a certification mechanism in place, and provides support on marketing, vendor management, design innovation, product perfection and sustainability.



#### Design & Development Support

To keep up with the latest fashion trends, we support our partners with innovations and fashion forecasts



#### Technical Support

With an efficient team of textile professionals and scientists, we help our partners in product perfection



#### Vendor Management Support

Our partners are linked to the finest sources for regular and innovative yarns, fabrics and garments



#### Marketing & Buyer Link Support

To aid further growth, we connect our partners with buyers across the value chain



#### Market Intelligence Support

To meet the increasing market demand, we keep our partners well-informed on consumer insights and market dynamics

### LAPF DESIGN STUDIOS

The LAPF Studio is a hi-tech experience centre, with thousands of samples of Viscose, Modal and Excel on display, with detailed technical specifications. At the studio, our LAPF partners have showcased their innovative product creations and developments. It is a one stop platform for buyers who prefer to review, want variety and convenience in buying, along with the ease of connecting with textile value chain partners. Moreover, LAPF Studio is not just about buying, it is also a hub to connect with over hundreds of garment manufacturers and exporters, local and international brands, international buying houses, agents and traders, and fashion design houses. We have state-of-the-art LAPF Studios in Noida, Tirupur and New York.



## REWARDING THE BRIGHT | LAPF CONFLUENCE 2018

Birla Cellulose organised the largest textile value chain networking event, the LAPF Confluence 2018, with almost 800 guests from across various textile hubs of India. At this event, ace designers presented a runway show of their collections made with LIVA. The ramp witnessed a range of designs and varied themes, with every designer bringing in elements of sustainability into their collections. For fabric innovation, the event received entries from 50+ partners and over 600 fabric innovations. Awards and recognitions categorised under Innovation and Exemplary Growth, Brands and Market Leadership were given out.



## GIVING YOUNG DESIGNERS AN OPPORTUNITY | LIVA PROTÉGÉ

Over 190 institutes participated in the 3rd edition of LIVA Protégé Talent Hunt, which had entries from across 50 cities with over 3,000 students applying for the competition. LIVA Protégé is a unique talent hunt competition which allows young fashion designers to showcase their talent.

The scope of the competition got bigger as LIVA Protégé 2017 winners had the opportunity to launch their collections exclusively on The Designer Boutique at Amazon.in and enjoy easy access to millions of nationwide customers.



## COLOURFUL SYMPHONY WITH KEY STAKEHOLDERS

The key stakeholder meet 'Colourful Symphony' was organised in Udaipur, Rajasthan, to engage our customers in dialogue on a shared platform. The objective of this meet was to explain the vision for the dope dyed business, in terms of the opportunities that lay before the company, where we stand and where we aim to go. We also shared our Vision 2020 pertaining to the dope dyed business, to build a unique ecosystem globally. Through this meet, we took into account the voices of various stakeholders that matter, in shaping the future of the company.



## NURTURING THE FUTURE ICHALKARANJI

Birla Cellulose, along with Ichalkaranji Shuttleless Loom Owners' Association (ISLOA) and Ichalkaranji Shuttleless Fabric Manufacturers' Association (ISFMA), organised an interactive Customer Meet in 2017-18 with Spinners, Weavers and Processors of Ichalkaranji. The meet was aimed at making Ichalkaranji a self-sufficient hub for finished fabrics made from Viscose Modal and Excel fibres, offered by Birla Cellulose. More than 200 representatives from the textile value chain fraternity attended this event. The opportunities in sizing, weaving, processing and various fabrics made by Birla Cellulose, were discussed at length during this meet. Buyers from Mumbai and Delhi have been networking and procuring high quality fabrics from Ichalkaranji.

## SHARING TECHNICAL KNOWLEDGE BANGLADESH

Birla Cellulose organised a Technical Symposium in Dhaka as a knowledge sharing platform for various members of the value chain. Topics such as product innovation, sustainability in operations, and consumer value creation were discussed. Leading global brands, readymade garment exporters, fabricators, spinners and designers who form the fulcrum of the Bangladesh Clothing and Textile Industry, participated in this symposium. Various aspects of MMCF were discussed in the technical session.

## CHEMICAL MANAGEMENT IN LAPF

Birla Cellulose has been engaging with LAPF partners through its accreditation programme to raise their overall quality standards and set the industry benchmark. The programme helps 'Certified Partners' deliver quality products consistently. LAPF acknowledges, encourages, and creates trusted sourcing partners for Birla Cellulose-based products and provides them with the required technical and marketing support, as and when needed. Birla Cellulose has partnered with a globally acclaimed solution provider, to help partner mills improve their environmental performance. The chosen partner has a proven track record in their ability to guide textile manufacturing units to optimise production and reduce costs, while supporting them to work towards Zero Discharge of Hazardous Chemicals.

## Brands and Retailers

Brands and Retailers have their fingers on the pulse of the trends as per consumer interests. Key information on new products, new developments and new market opportunities are discussed during our interactions.

Birla Cellulose is not only in the B2B domain, but also moving gradually into the B2B2C field.



Globally, the apparel industry is concerned with tracking materials used to make fabric and the conditions in which they are produced. Birla Cellulose has turned this concern into action, by providing relevant information in a standardised format and by taking up various traceability and transparency initiatives.

We have partnered with leading global brands on two things: one, to drive initiatives that trace the source of raw materials, and two, to help them trace their complicated supply chains in India. 'From Forest to Fashion' is the first supply chain mapping project of its kind in the apparel industry. It has provided clarity on value chain sourcing from India and improved transparency of the different players involved in the supply chain of some major brands.

# Non-Governmental Organisations, Think Tanks

Across the globe, the textile industry is resource intensive with significant impacts on people and the environment. We partner with NGOs and Think Tanks doing research and advocacy in this sector, to set sustainability targets and goals. We proactively work towards achieving the standards set by leading environmental organisations such as Sustainable Apparel Coalition (SAC), Canopy, ZDHC and Changing Market Foundation. As a result of our close association with these organisations, we can monitor our activities and carry out comprehensive self-assessments on which we develop our future roadmap.

Here are some of the key partnerships:

## CANOPY

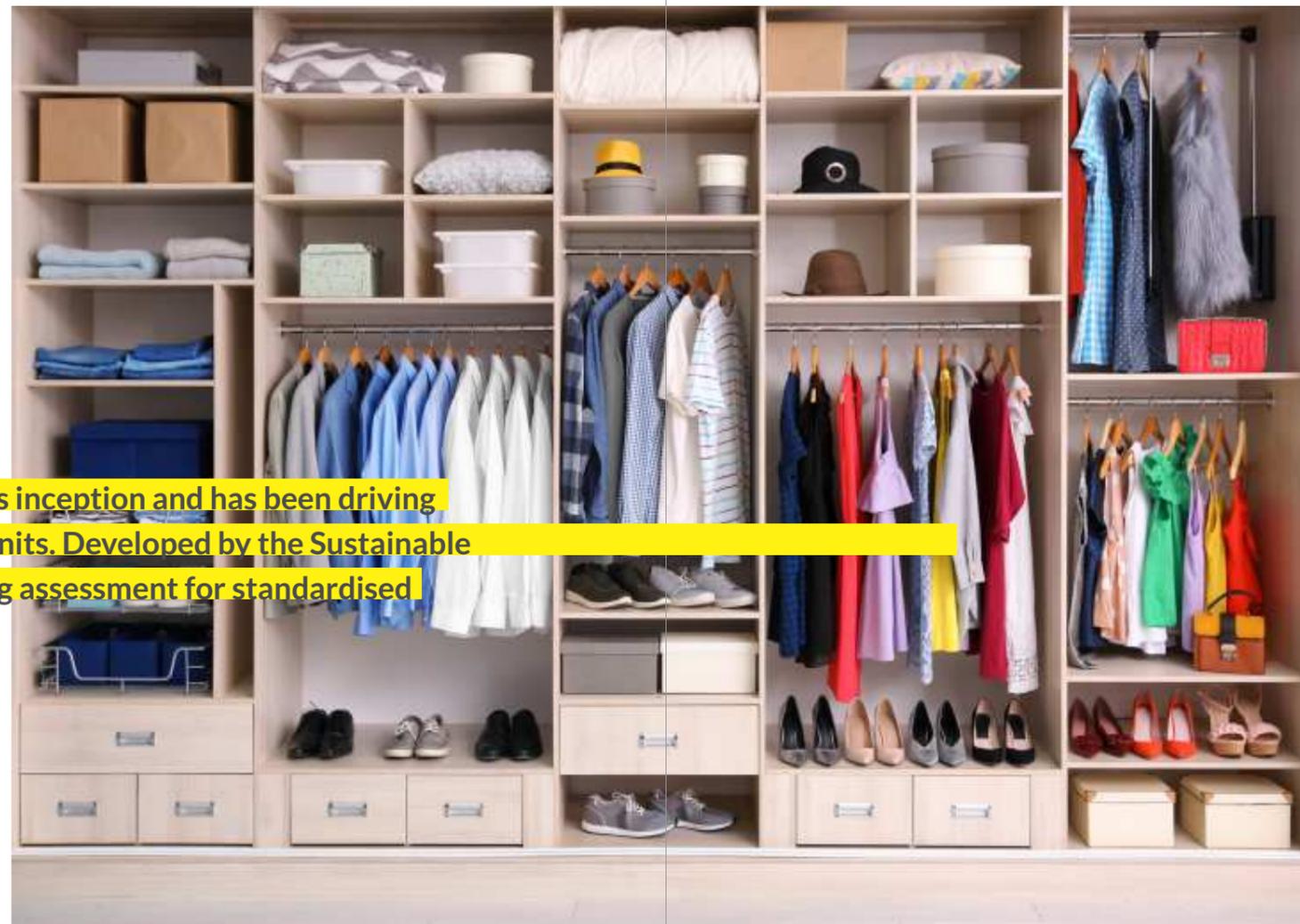
Canopy is a not-for-profit environmental organisation dedicated to protecting forests and biodiversity. Canopy engages with organisations for business solutions to protect forests, which are providers of livelihood to indigenous people. Birla Cellulose has partnered with Canopy to develop innovative solutions to make its supply chain more sustainable and help protect ancient and endangered forests.

For more details refer to our 'Responsible Sourcing' section on page no. 49.

## SUSTAINABLE APPAREL COALITION (SAC)

**Birla Cellulose is a member of SAC since its inception and has been driving Higg Index in all the fibre manufacturing units. Developed by the Sustainable Apparel Coalition, Higg Index is the leading assessment for standardised supply chain sustainability.**

SAC is an industry-wide group of more than 200 leading manufacturers, retailers, suppliers and brands of apparel, footwear and textiles, alongside service providers, trade associations, non-profits/NGOs, and academic institutions, all working to reduce the environmental and social impacts of products around the world. Through multi-stakeholder engagement, the SAC seeks to lead the industry towards a shared vision of sustainability built upon a common approach for measuring and evaluating apparel, footwear, and textile products' sustainability performance, that spotlight priorities for action and opportunities for technological innovation. The SAC was incorporated as a 501(c)(6) non-profit organisation and launched the ground breaking Higg Index suite of tools in 2011.



**The ZDHC Roadmap to Zero Programme is a coalition of fashion brands, value chain affiliates and associates, empowering the global textile, leather, apparel and footwear value chain to substitute hazardous chemicals for safer ones, in the production process.**

## ZDHC - ROADMAP TO ZERO PROGRAMME'S EXPANSION TO MMCF PRODUCTION

In 2018, ZDHC expanded the scope of the Roadmap to Zero Programme, to include the production of Man-Made Cellulosic Fibres (MMCF), the first fibre production area to be included in the Programme. They also hosted their maiden multi-stakeholder MMCF roundtable, with 80% of the global MMCF producers, including Birla Cellulose attending it.

The roundtable confirmed the need to develop a clear framework of guidelines for wastewater, sludge, waste and air emissions specific to MMCF production, a key priority for ZDHC. The discussions also confirmed that well-defined expectations for process by-product recovery, to address closed-loop commitments, are needed.

Birla Cellulose contributes significantly to the MMCF guideline development programmes, by sharing the expertise it has on the process and the safety and environmental aspects of viscose making. Through the dedicated work of its members, the MMCF taskforce hopes to bring out high environmental standards for water, air and solid waste in the near future.

## CHANGING MARKETS FOUNDATION (CMF)

Changing Markets Foundations has developed a roadmap for responsible viscose, in consultation with industry experts. Birla Cellulose is committed to work together with Changing Markets Foundation, in order to address the health and environment issues highlighted in its roadmap.

Also, Birla Cellulose is working closely with a multi stakeholder task force under the umbrella of ZDHC, to develop a comprehensive guideline for waste water, air emissions and solid waste, for the viscose industry.

Viscose has the potential of being one of the most sustainable fibres, if the key sustainability issues are addressed appropriately. A process of regular sharing of information, progress and taking feedback with Changing Markets Foundation, helps us in fine-tuning and improving the impact of our initiatives on sustainability.



The Dirty Fashion Campaign by CMF placed the environmental challenges linked to the production of viscose fibre, on the fashion industry's agenda and consumers' radar. Numerous high-street brands and retailers acknowledged the severity of the issue and have since engaged with their viscose fibre suppliers and Changing Markets to develop and implement possible solutions.

We engaged with CMF and developed a roadmap for closed-loop production and chemical management in our factories. We are committed to 'Sustainable & Responsible Viscose Production' and have prepared a roadmap to achieve the same.



## SUSTAINABLE FOREST MANAGEMENT

To ensure that our pulp and fibre business consistently strives to promote sustainable forestry i.e. use of forests and forest lands in such a manner that maintains its biodiversity, productivity, regenerative capacity, vitality and potential to fulfil current and future demands.

**We make sure that our group companies also follow the sustainability practices for effective management of forests.**



In addition to forest management plans, more detailed tactical plans (to guide road building and harvest schedules) are drawn up for specific operating areas and extend for 5 years. We also have in place bi-annual operating plans to identify exactly where and how harvesting operations and regeneration activities should occur in the given years. For executing the same, our critical areas of assessment and development for achieving Sustainable Development Goals include:

- Building the critical, long-term forest road system
- Building roads to ensure rivers and streams are protected
- Reforestation (within 2 years post-harvest, 100% of the land harvested is surveyed to ensure it is regenerating naturally and does not require planting)
- Forest Certification in Canada (SFI®, PEFC™, FSC® etc.)

## Employees

Our employees are our growth partners. They are aligned with the shared goal and common purpose of our business and work towards achieving it. Birla Cellulose supports them by providing an environment where they feel safe, work towards the goals, and thrive. We form collective bargaining agreements with union representatives in a transparent and fair manner through detailed discussions.

More details on the employee engagement initiatives, refer to our "Social Responsibility" on page 133.



## Local Communities

**Businesses prosper with the support and contribution of the local community. We work together with the community and make them an active participant in our business through employment generation and various livelihood opportunities.**

Empowering the community has always been a key component of our business strategy. Besides receiving manpower and resources, we engage with them and their families through programmes on education, sustainable livelihoods, healthcare, infrastructural development and social development. We have a dedicated budget for CSR, a defined CSR policy and a CSR committee which oversees and approves all our CSR related activities and expenditure.

Birla Cellulose has partnered with nearby communities to establish the infrastructure for villages, as well as non-government organisations that work with upliftment of weaker sections of society.

More details refer to our "Social Responsibility" on page 133.



## Industry Associations

Birla Cellulose is part of several industry bodies and associations, regularly engaging with them to keep abreast on what is the latest in the industry. Partnerships with these bodies help us introduce new standards and best practices to contribute to shaping the future of the viscose industry. Being a thought leader, we also empower others in the industry to implement the same.

### WBCSD'S FOREST SOLUTIONS GROUP

**Birla Cellulose collaborates with World Business Council for Sustainable Development and has joined WBCSD's Forest Solutions Group, a global platform for the forest sector value chain.**

The objective of this group is to advance the bio-economy and thriving forest sector, that sustains healthy productive forests and people's well-being. As part of this group, Birla Cellulose will be able to make a real impact on global corporate sustainability, forest-based industries and the fashion industry.



### SUSTAINABLE FORESTRY- NEW BRUNSWICK, CANADA

New Brunswick has one of the longest histories in North America's sustainable logging practices. All of New Brunswick has been harvested at some point in time, and some areas have been logged as many as 5 times in the last few hundred years. **We manage 6,90,000 hectares of public forests and 40,000 hectares of company forests are managed for multiple values.** We do so, by creating management plans and deciding on critical areas of development. To ensure the AV Group and ABG members are meeting all of its commitments in sustainable forest management, our forests are third party certified by an independent organisation who assess our forestry practices and policies, to ensure we meet the Sustainable Forestry Initiative (SFI®) Standard. This is supported by strong forest management regulations and an environmental management system. Our results support our reputation as a source of legally and sustainably produced forest products.

Industry Bodies & Associations		Nature of Partnership
<b>Global</b>	Sustainable Apparel Coalition (SAC)	Sustainability
	Canopy Planet Society	Sustainable Wood Sourcing
	Zero Discharge of Hazardous Chemicals (ZDHC)	Chemical Management
	Textile Exchange	Sustainability
	Forest Stewardship Council (FSC®)	Sustainable Forestry
	Sustainable Forestry Initiative (SFI®)	
	Programme for the Endorsement of Forest Certification (PEFC™)	
	World Business Council for Sustainable Development (WBCSD)	Health & Hygiene and Sustainable Forestry
	European Disposables and Nonwovens Association (EDANA)	Product Stewardship Regulatory Affairs Innovation & Research
<b>India</b>	Federation of Indian Chambers of Commerce and Industry (FICCI)	Trade & Commerce
	Confederation of Indian Industry (CII)	
	Confederation of Indian Textile Industry (CITI)	
	The Synthetic and Rayon Textiles Export Promotion Council (SRTEPC)	
	Association of Man-made Fibre Industry of India (AMFII)	
	Textile Association of India (TAI)	
	The Clothing Manufacturers Association of India (CMAI)	
	Indian Institute of Technology Mumbai	Research, Technology
	Institute of Chemical Technology, Mumbai	
National Environment Engineering Research Institute (NEERI)	Environment & Sustainability	
<b>Indonesia</b>	Indonesian Textile Association (API)	Trade & Commerce
	Asosiasi Produsen Serat Dan Benang Filamen Indonesia (Indonesian Fibre and Filament Yarn Makers Association)	
<b>Thailand</b>	India-Thai Chamber of Commerce	Trade & Commerce
	The Federation of Thai Industries	
	Thai Man-Made Fibre Industries Association	

Industry Bodies & Associations		Nature of Partnership
<b>Canada</b>	Forest Products Association of Canada (FPAC)	Forestry
	Ontario Forest Industries Association (OFIA)	
	Forest NB	
	Association of Professional Engineers & Geoscientists of New Brunswick (APEGNB)	
	Pulp and Paper Technical Association of Canada (PAPTAC)	Research
	Technical Association of Pulp & Paper Industry (TAPPI)	
	Campbellton Regional Chamber of Commerce	Trade & Commerce
<b>Sweden</b>	Skogsindustrierna (Swedish Forest Industries Federation)	Forestry Promotion
	Industriarbetsgivarna (The Swedish Association of Industrial Employers)	Employers Association
	BiInnovation	Research
	RISE (Research Institutes of Sweden)	



**Rajeev Gopal**  
Chief Sales and Marketing Officer

### How does Birla Cellulose engage with its stakeholders to promote its sustainability vision?

As the global population shifts its paradigm towards sustainable products, we strive to launch brands that are built on researched consumer insights to cater to the ever-evolving needs of the market. In order to strike a perfect balance between our production and consumer preferences, we regularly engage with our consumers via customer centric programmes that incorporate the most important aspects of learning directly from the source and ensures timely action on those responses.

Regular customer and value chain partner meets, are some of the engagement mechanisms to promote and create awareness on the Company's sustainability activities.

### How have consumer preferences changed over the years and how does LIVA fit in?

We launched our ingredient brand LIVA to bring traceability and consistency in our value chain, starting from sustainably harvested forests, leading up to sustainable apparel. We operate fully integrated manufacturing facilities extending from fibre to fashion, all under the umbrella of brand LIVA. We have formed the LIVA Accredited Partner Forum (LAPF) for our value chain partners – starting from spinners to fabricators to processors to produce fabrics that meets LIVA standards.

We frequently engage with our value chain partners through this platform to build their capacity through knowledge sharing and technology transfer. This report highlights some of our major events like – LAPF Confluence and LIVA Protégé, aimed at providing networking, knowledge sharing, and talent showcasing opportunities to our value chain partners.



# 2.5 Social Responsibility

The wonderful people who consume our products, the innovative people who create these products, the communities that exist around us and support our work, and the society at large, are the people who matter to us the most. The well-being of people is of paramount importance to us. At the Aditya Birla Group, we believe that people are our biggest strength and asset, and are the biggest enabler in delivering our vision and mission.

- Achieved reduction of about 50% in LTIFR to 1.11 in FY 2018-19 compared to 2.16 in FY 2015-16
- Developed a three-year Safety Excellence Roadmap to achieve our goal of 'ZERO HARM'

- Achieved a score of more than 90% on WASH by the end of March 2019
- Engaged a third-party expert agency, Environment Resources Management (ERM), headquartered in USA for deeper and systematic engagement with the neighbouring community

- Supported over 600 farmers through sustainable livelihood initiatives in Nagda
- Formed clubs for farmers at Vilayat unit to increase their agricultural productivity

- Improved drinking water infrastructure for the local community by installing drilling tub, pumping machinery, pipelines, etc. at Vorasamni & Derol villages and nearby schools
- Installed an RO plant to ensure regular supply of potable and clean drinking water in the area

## Management Approach

Our multidimensional initiatives include the environmental management system ISO 14001, ISO 18001, WASH Pledge, all of which help us to establish a safe work environment.

Outstanding products can be delivered only by building outstanding capabilities of the people. Capability building is an extremely important area where 'Training and Development' and a rigorous talent management process is applied at all our operations covering employees, contractors, supply chain and our downstream value chain.

**Safety and health of the people working at our sites and the community that surrounds us is our highest priority and is a precondition for smooth operations.**

**They form an integral part of our socioeconomic and inclusive development initiatives.**

Human rights, fair wages, gender equality, zero discrimination policy, grievances management and following ILO conventions are some of the enablers to create a healthy workplace. Transparency and continuous engagement with stakeholders is of utmost importance, and thus, information on our websites, disclosure of our sustainability performance, real time display of critical data at factory gates, whistle blowing policy, and third party audits form part of our communication to stakeholders.

Community Service is an extremely important part of our strategy and is deep rooted in the Aditya Birla Group's philanthropic philosophy of actively contributing to the social and economic development of the areas that we operate in. At the Aditya Birla Group, we measure our success not only by the profitable growth of our businesses, but also by the success of our efforts for economic and social development of the weaker sections of the society. We cannot celebrate success of one without the success of the other.

Social Responsibility pillar is very comprehensive in its scope and covers all aspects of human interface for our business processes, and the programmes aligned to it, touches aspects such as safety, health, environment, community services, corporate social responsibilities, talent management, training and career growth, transparency and grievance management. It covers all human interfaces internally and externally happening throughout our business transactions.

Birla Cellulose has a global presence and we operate in 6 different geographies (India, Indonesia, Thailand, China, Canada & Sweden), and hence an intermixing of diverse culture takes place in our day-to-day life and our teams help in transitioning of different cultures.



**At Birla Cellulose, employees with diverse skill sets and cultural background come together to provide innovative and sustainable solutions to our customers.**

We make them more productive by providing a healthy and safe work environment, opportunities to learn and grow, and recognising and rewarding their efforts.

# Health & Safety

A safe workplace is one of the most important factors impacting the work environment and morale of employees and workers. This in turn boosts the productivity of the workforce and confidence in the employer. Hence, safety is an integral part of our system and a well-defined framework for monitoring safety in all aspects is in place in the organisation.

We strive to create a safe and healthy workplace for our employees and workers. We encourage our employees to report safety gaps and opportunities for their improvement. This is facilitated by our IT enabled tool, Enablon, where employees can register their observations and a corrective action is then implemented.

**Our safety policy, safety principles and integrated safety management system work towards achieving a common goal of 'Zero Harm'.**

We firmly believe that:

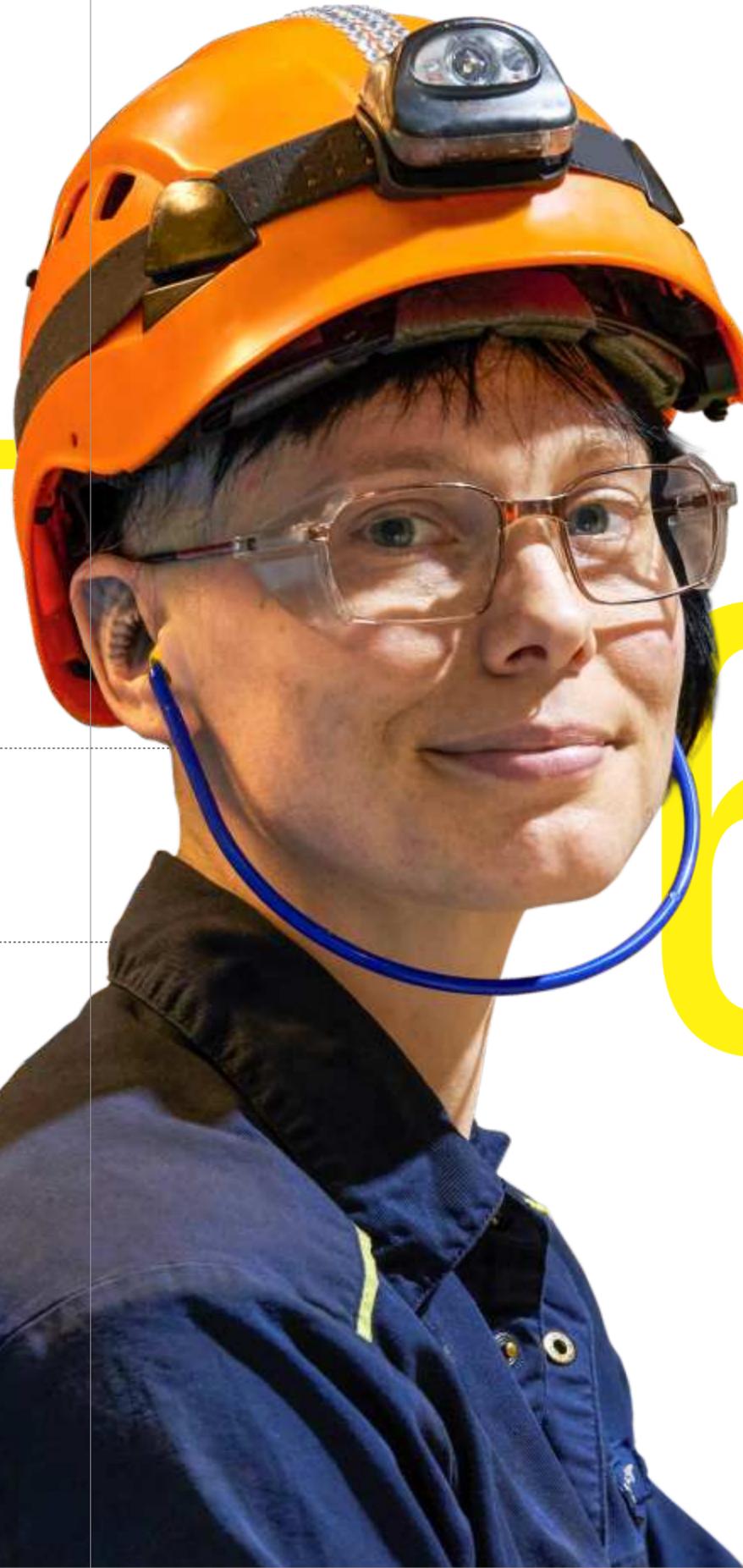
Safety is a part of  
*business & personal value*

All injuries and incidents  
*are preventable*

Safety is *non-negotiable* and  
*a condition of employment*

*There should be value and respect* for  
safety system and work processes

Line management is  
*accountable for safety*



We have established the '6-E' philosophy to facilitate our Safety Management programme, which is focussing on 'Employee' participation in safety by 'Engagement', 'Education', 'Encouragement', by implementing 'Engineering' controls, 'Enforcement' of safety rules and standards and a structured 'Evaluation' process to manage safety in an effective manner.

EDUCATION



ENGAGEMENT



ENGINEERING



ENFORCEMENT



ENCOURAGEMENT



EVALUATION



**6-Es of EHS**

Continuous efforts are in progress for ensuring safety in the workplace and process operations, including business travel. Going a step beyond, we engage with our contracting partners and business associates in meeting organisational aspirations on set safety goals. We have established a strong management set-up to build internal standards, work processes to support implementation and review mechanism to meet the objective. Best practices based on international standards such as OSHAS 18001 and DuPont safety systems are also being applied.

# Safety: Line Function Involvement and Empowerment

Involvement of line function is the biggest challenge in any organisation and it was addressed through major changes in our approach to safety. It led to formation of several strategic subcommittees, each led by the site head and involving members from each site. These subcommittees are responsible for finalising strategies for improving critical elements of the safety management system and obtaining approval from the Board (Apex Safety Council) for business-wide implementation. The following safety subcommittees are formed that review the safety performance and provide strategic directions.

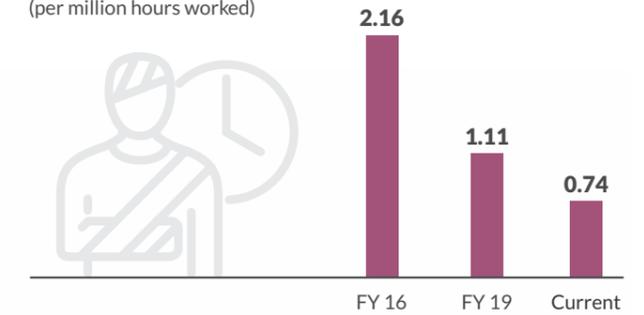


In 2018-19, an injury rate of 1.11 per million hours worked was reported.

All injury related incidents and near-miss incidents are tracked in alignment with our occupational health and safety management system (OHSMS).

## Safety Performance

LTI Frequency Rate  
(per million hours worked)



Similar structure is established at the site level to implement the initiatives as directed by the business level subcommittees. Empowerment of line function has been ensured through training, capability development, providing opportunity in leading committees, high risk teams, and nourishing leadership through participation and sponsoring the special efforts.



# Key Safety Improvement Initiatives

## EXAMINING NEAR-MISS INCIDENTS

Near-miss incidents are generally overlooked as minor accidents, since they do not result in an injury, loss of property or damage. However, we take these instances as crucial learnings to relook at and examine circumstances that might be leading to potential accidents.

For the same, we have established a system wherein it is not just mandatory to report such instances, but there is also a thorough investigation. **We take it one step ahead by sharing the learning from the incident with everyone through a 'Safety Alert Notice'.** This information is shared not just across sites but also with Safety Board members.

## SAFETY RELATED TRAINING AND CAPABILITY BUILDING

We have completed safety training in line with the organisational level safety training procedure which outlines training need identification (TNI) at each level of the organisation with respect to applicable business safety standards.

We are making efforts to better employees' understanding of safety standards by including animated movies in regional languages as a part of their training. **We have also implemented various programmes for improving skills of scaffolders and defensive driving for drivers.** Capability building initiatives have been undertaken for specific trades like certified scaffolders, lifting and rigging operations, material handling operations, etc.



## ACCOUNTABILITY ON SAFETY IMPROVEMENT

Area Grid Ownership concept is applied by fixing accountability and ownership to line function on safety processes. Line ownership for safety is built through assigning responsibility, building capability, hand holding by subject matter experts and integrating safety element in performance appraisal system.

The organisation has also released its policy on 'Life Saving Rule', 'Rewards and Recognition' and 'Progressive Consequence Management', which determines the extent of the management's seriousness in reinforcing positives and managing deviations.



## DIGITALISATION FOR SAFETY

Introduction and use of IT infrastructure for strengthening the performance and effectiveness of various safety processes viz. **Safety Observations, Incident Investigation, Contractor Safety Management, Permit to Work, Training, etc.,** have been incorporated. High level dashboards have been generated to monitor the progress of these processes.

## EFFECTIVE REVIEWS AND AUDITS

In addition to the legal compliance audits, we also ensure effective implementation and compliance of the released standards and procedures through periodic self-assessment and second party audits.

Auditing skill enhancement for inter-unit/second party audits is addressed by conducting internal auditor training and handholding programmes. Third party audits are conducted for critical areas of concern such as electrical, process, etc.

## SAFETY SCORECARD AND LINKAGE TO KRAs

In order to strengthen the line function ownership for safety processes, safety performance scorecard system was initiated based on identified safety leading and lagging indicators and behavioural safety attributes for all employees (up to section head). This scorecard is reviewed by respective supervisors/managers half yearly and is linked to the performance cycle of the employee (part of KRA).

## SAFETY COMMUNICATION

We have introduced different mechanisms for creating awareness, learning, sharing of incidents, safety processes and practices, namely:



**SAFETY ALERT NOTICE**  
For communication of incidents

**JOURNEY TO ZERO**  
To communicate good practices and safety awareness

**SAFETY PORTAL**  
To communicate safety initiatives, standards, policies, good practices, etc.

**SAFETY CAMPAIGN**  
For increasing safety awareness for identified critical aspects



## Results and Achievements

These initiatives have positively impacted the overall business performance and have resulted in **achieving Loss Time Injury Frequency Rate (LTIFR) of 1.11 in FY 2019, as compared to 2.16 in FY 2016, which has lowered by about 50%.** Further to this, a three-year Safety Excellence Roadmap was developed to achieve our goal of 'ZERO HARM.'



With continuous efforts in driving Safety Excellence Journey, Birla Cellulose has been successful in achieving:

- Line Ownership on Safety
- Implementation of Released Safety Standards and Procedures
- Standardisation of Safety Work Procedures – PTW, LOTOTO, MOC, JSA, Hot Work, etc.
- Capability Building in Line Function and Contract Partners
- Skill Development of Front Level Employees

# Water, Sanitation & Hygiene (WASH) Pledge as an Occupational Health Issue

The WASH Pledge at the workplace was launched in September 2013 to address the WBCSD's Action 2020 Water Must-Have of 'significantly accelerating the progressive realisation of the human right to water and sanitation', relative to the 2012 baseline. This is the societal must-have, linked to the WBCSD's Vision 2050 of 9 billion people living well within the boundaries of this planet.



**The Aditya Birla Group signed the WBCSD Pledge in January 2015, for access to safe Water, Sanitation and Hygiene (WASH) at the workplace.**

The pledge catapulted the Group's efforts that all their businesses provide access to safe drinking water, sanitation and hygiene to their workforce within the boundaries of their premises, across all operations and geographies.

To facilitate implementation of WASH across the Group, an information technology programme, Enablon, was used to map the WASH self-assessment questionnaire and track the progress across all sites.

**WASH Pledge journey in our business started in 2015 after Aditya Birla Group signed the pledge. In the last 4 years, we have conducted about 200 awareness campaigns/workshops and built about 125 urinals/toilets for male, female and physically challenged people. Along with this, existing facilities for sanitation & hygiene were improved, along with access to safe drinking water for all employees at the workplace.**

**An assessment of our business indicates that our sites score more than 90% on WASH by end of March 2019.**

Signing and implementing the WASH Pledge contributes directly to the Sustainable Development Goals 6.1 and 6.2.



- Achieve universal and equitable access to safe and affordable drinking water for all (SDG 6.1), by 2030
- Achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations (SDG 6.2), by 2030

The WASH Pledge has been implemented at all our sites across the business. A comprehensive review of water, sanitation and hygiene infrastructure at all the workplaces was audited and an improvement plan was developed. The global benchmark score of 1.8 out of 2.0 was fixed as aspiration target for all the sites in 2016.

**In the last three years, all the sites have moved beyond this target and have achieved a score of more than 1.83.**

## Human Rights

The policies on zero discrimination, sexual harassment and code of conduct for ethical behaviour are strictly implemented. The policies include the requirements for respecting labour rights and complying with all the regulatory requirements for the workers at the locations.

## Grievance Management

Grievance management policies are implemented at all the sites and the grievances received from community and other external stakeholders are recorded and responded to, in a swift and timely manner and is monitored by the senior management team at all the sites. Complaints from nearby communities are treated with utmost seriousness and dealt with a sense of urgency.

The Whistle Blower Policy allows employees to report any deviations from our policies anonymously through dedicated external helplines. The company also has a Code Red Helpline to report any situation and seek help. The POSH helpline is available to report cases of sexual harassment and any unacceptable behaviour against women.

## Developing Our People

Our talent pool is the biggest asset that we have. It is by virtue of our talent management and learning and development initiatives, that we have been able to become one of the most sought-after employers within the industry. Our development process begins with identification of business-wide areas for improvement, mapping them as per individual requirements and then arranging for skill enhancement programmes to the benefit of both the employees and the company.

We have broadly categorised this material aspect for ensuring that our employees learn and grow as our business flourishes and adapt to the current dynamics with greater ease.



# Talent Management

**Our talent management vision is to identify, build and nurture talent to deliver superior business results while addressing individual career aspirations. We align our employees with the organisational goals and set clear expectations from them. We also provide them with opportunities to grow professionally.**

All eligible candidates are identified on the basis of their consistent performance and other pre-defined criteria.

The managers of such eligible employees assess their respective team members on behavioural competencies which is further reviewed by the skip-level manager. The potential rating along with the rationale for recommendation based on the potential and performance grid, is forwarded for validation and ratification to the Talent Council – a team comprising senior management. Employees selected by the Talent Council are put through the DAC (Development and Assessment Centre) and subsequently an MDP (My Development Plan) is created for every selected employee.

This MDP is reviewed on an ongoing basis by the Talent Council to monitor the progress and identify career development opportunities. The successors are marked for critical positions. These successors are additionally groomed to take on higher roles. Following are some of the initiatives taken in this direction.

## FOCUS 50 PROGRAMME



Focus 50 is an intensive and planned development initiative conceptualised in the year 2014 to build capability and preparedness of handpicked employees across the business, for next level roles.

It is a 15-month programme, which helps individuals build technical competence and leadership skills. A participant who is a part of Focus 50 undergoes learning through multiple methods like classroom training, immersions, study tours, e-learning, shadowing, cross function projects and mentoring.

**Focus 50 2.0** This intervention is designed to prepare a pipeline of leaders in technical function, ready to take on higher responsibilities in the next 3-5 year horizon. It will impart hands-on learning experiences through on-the-job and social learning methods.

Under this intervention, we have launched a cross departmental job shadowing programme. It is a year-long programme wherein the High Potential (HiPo) technical leaders will spend 7 weeks shadowing the adjacent departments.

## INTERNAL RECRUITMENT SYSTEM

Our employees are encouraged to pursue career moves that are mutually beneficial to them and the organisation. True to our 'Employee First' philosophy, internal talent is provided the first right to apply for any open position over external candidates, and vacancies across locations are first posted on the internal portal. During the last three years, there has been a significant number of inter-business and intra-business movement of employees across levels.

## GENDER DIVERSITY

In general, female employees are conventionally low in the manufacturing industry and represent a small percentage of the total workforce. In order to change this perception and make our workforce more gender diverse, we have developed several women friendly initiatives. Springboard is one such initiative, an 18-month programme with emphasis on training, mentorship and gender diversity, focussed on high calibre women leaders.

## YOUNG TALENT DEVELOPMENT

Since we hire young talent from various campuses annually, we run several programmes for effective assimilation and development of campus hires.

We run GET (Graduate Engineer Trainee) programmes for engineering campuses, HRLP (HR Leadership Programme) for young HR leaders and Lead/Leap programme for Post-Graduates in Management from premier B-schools. Programmes like these enable young talent to get a fair sense of the corporate world and its expectations, as well as offer them cross-functional exposure through planned stints in various business disciplines.

## BRIGHT SPARKS

As a part of our initiative to identify and develop high potential talent across managerial levels within the organisation, we have launched Bright Sparks for junior level employees. This programme was launched with the intent of identifying and developing promising employees.

## UNIT LEADERSHIP PROGRAMME

This unique programme is designed in partnership with pulp & fibre, cement and chemicals business truly demonstrating the spirit of OneABG. The programme is designed for unit and function heads of the plant for developing new-age leadership competencies such as innovation, embracing risk and agility.



# Learning & Development

Learning is a lifelong process and no matter at what age or designation our employees are at, we encourage them to be open to learning new skills. At regular intervals, managers have development discussions with employees on their learning needs to ace the current job and prepare for future ones. These identified needs are analysed at the organisation level and addressed through an annual learning calendar. The learning offerings are based on an employee's career stage, that is, manage self, manage others and manage managers.

**For a new employee, learning begins right from the time he/she joins the organisation and goes through a structured onboarding programme to understand the business, key stakeholders and the job expectations which expedite one's acclimatisation.**

Here are some of our vital initiatives for our employees to excel in their fields through different interventions, designed keeping in mind the needs of the business:

## GURUKUL

A unique programme for hiring Graduate Engineering Trainees and also Employee Branding at engineering colleges. We initiated the programme in Feb 2019 and approached 5 colleges across India for interns.

50 interns joined the units, post selection, through the online aptitude test. They went through a 2 month project stint at 3 Indian units. Their projects were reviewed by the function and unit head and names were recommended for PPO (Pre-placement offer).

## TECHX PROGRAMME

TechX aims to strengthen technical-depth in the business through 46 cutting-edge technical programmes intended to build the core and fundamental technical skills in the fibre manufacturing process.

TechX facilitates a collaborative and seamless culture of learning, in partnership with Technical Experts, to build existing and future skills across various technical streams. The Academy offers:

- **Technical training to Engineers, Section & Department Heads to build their technical proficiency**
- **Facilitates an interactive forum for learning, as FLO's can freely interact with their seniors**
- **Enables cross unit synergies as employees from different units participate in these programmes**
- **Caters to technical training needs in India, Indonesia, Thailand and China**

## TECHX 2.0 - TECHNICAL MENTORING PROGRAMME

The programme focusses on transfer of cross department technical knowledge and skills from Retiring or Retired Managers to the Young Engineers. **So far 7 mentors have trained 17 mentees in the Business across unit locations.**



## PROJECT SAMARTHYA

A global training and capability building programme for employees working in sales, marketing, business development, category management, customer technical services and production planning functions, across the globe.

The programme spanning over a period of 12 months and beyond, will encompass important topics like consultative selling skills, effective negotiation techniques, improving commercial acumen, effective key account management and project management.

This will enable our teams to meet and exceed sales and business development targets in the changing global market scenario. It will also facilitate in building long lasting customer relationships to gain a competitive edge.

## FLEX - FOCUSED LEARNING EDUCATION & EXPERIENCES

A customised learning academy for R&D professionals, named FLEX - Focussed Learning Education & Experiences - was launched in July 2019.

The intent of FLEX is to strengthen the technical and functional capability of R&D professionals, enabling them to be more effective and informative in their area of work, be it current or future.



## E-LEARNING

The world over, e-learning is fast changing the training methodology. Anyone can access content anywhere, anytime, thus, reducing learner mobility to the minimum. To be a part of this revolution, Aditya Birla Group launched Gyanodaya Virtual Campus (GVC), our e-learning platform, few years back. Today, a large number of interactive courses are made available to employees with this e-learning platform, no matter wherever you are around the globe.

The curriculum covers over 500 courses such as sustainability, finance, safety, operations and general management from leading content providers such as Harvard, etc.

GVC has leveraged newer technology to create products for just-in-time learning for employees across the globe. GVC extensively uses virtual class, gaming, videos, podcasts, simulations and mobile-enabled technologies, besides many other formats to suit the fast changing learning needs of the business.

## CORE MANAGERIAL SKILLS PROGRAMME

The Core Managerial Skills programme is designed exclusively for the department heads. The intent of the programme is to enable department heads to be more effective in their existing role by offering requisite managerial skill sets and perspectives. Key modules of the programme are:

- **Perspective building in leadership style through Situation Leadership and Managerial Grid**
- **Building executive presence through presentation skills, confidence building, personal presence**
- **Commercial acumen for manufacturing roles**
- **Skill building for people and team management**

## FIBRE TO FASHION PROGRAMME

This programme was designed to strengthen the technical capability (Process & Textile) to effectively manage the technical issues at customer end.

The faculty for this intervention are internal subject matter experts (including retired managers), technical institutes, and research bodies. The topics covered in this course are rayon manufacturing process, yarn manufacturing technology and advanced spinning systems, productivity and quality control in spinning, wet processing and fabric engineering in textiles.

## GLOBALNXT - GLOBAL MBA PROGRAMME

Our employees have the opportunity to upgrade their skills on the job. Several of our management cadre employees have seized the opportunity and completed their online MBA course from U21, Singapore.

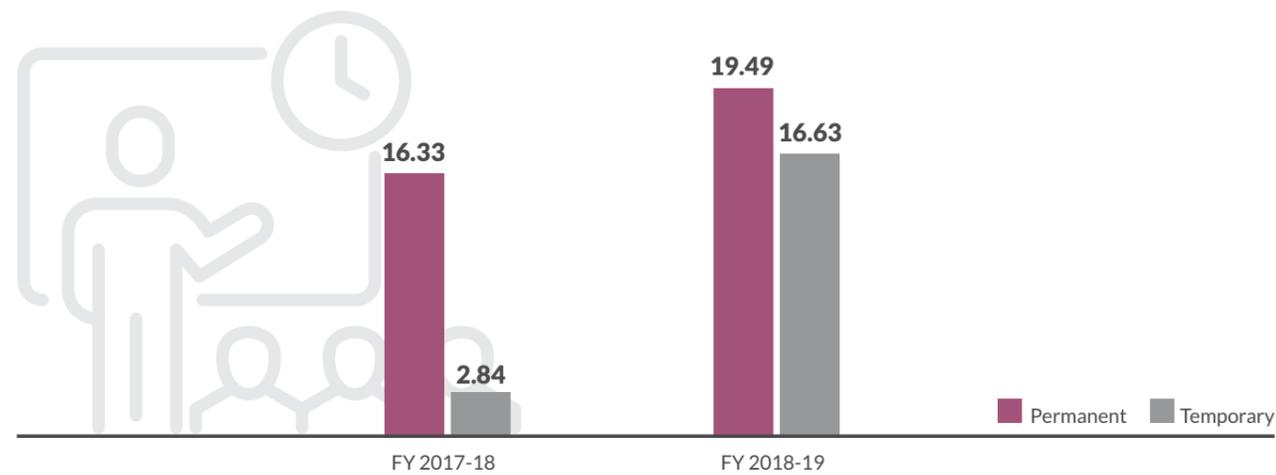
## CONTINUOUS EDUCATION POLICY

The programme offers mid-career education to employees to upgrade their knowledge and skills in their professional arena. It also augments the functional know-how of management cadre employees and helps employees perform effectively in their current and prospective future roles. **We encourage our employees to enroll for this programme. We are also supporting few of our Research Associates to acquire Ph. D degree under CEP.**



### Average Hours of Training per Employee

(Hrs.)

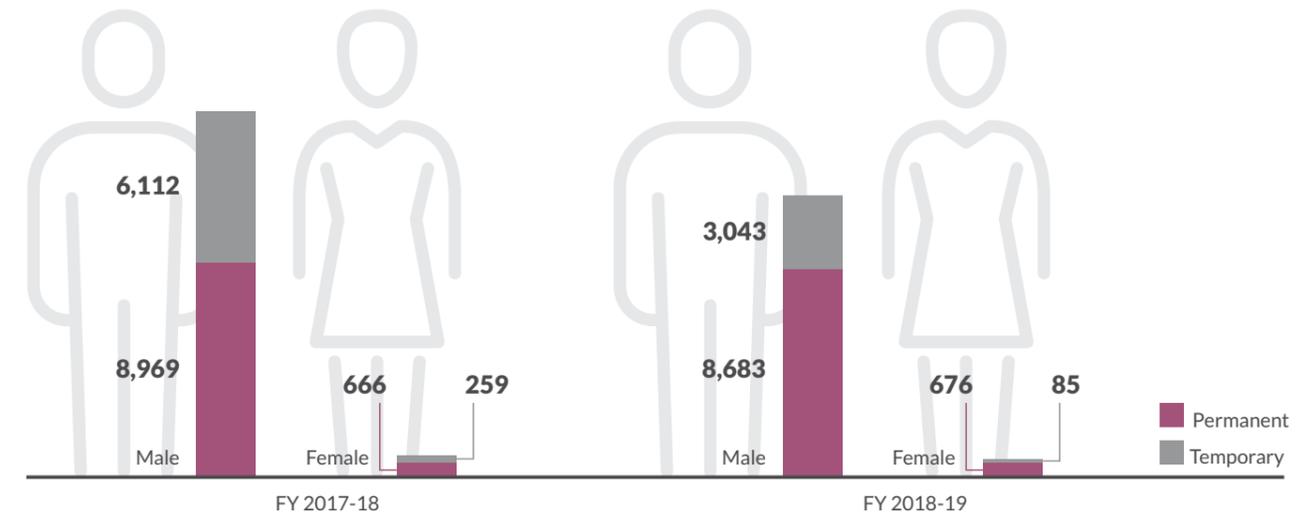


We have increased our focus on development of contractors and service providers.

Our aim is to have sufficient employee diversity, both by gender and by age in the pulp and fibre business, across all units. The employee count of pulp and fibre units for the reporting year has been summarised below.

### Employees by Gender

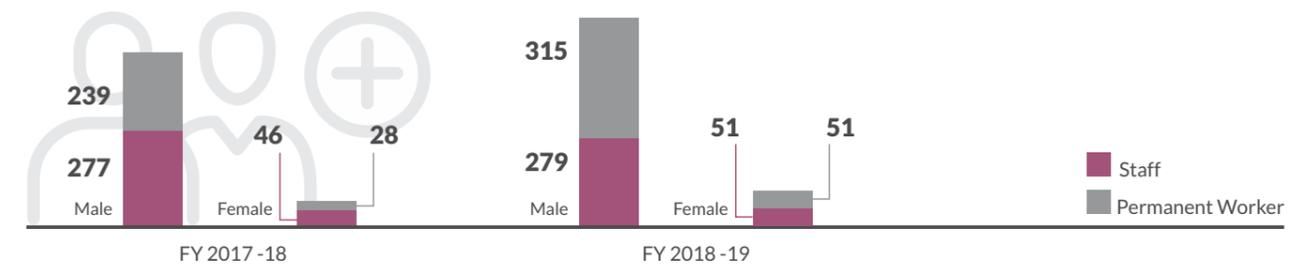
(Nos.)



### Employee Turnover

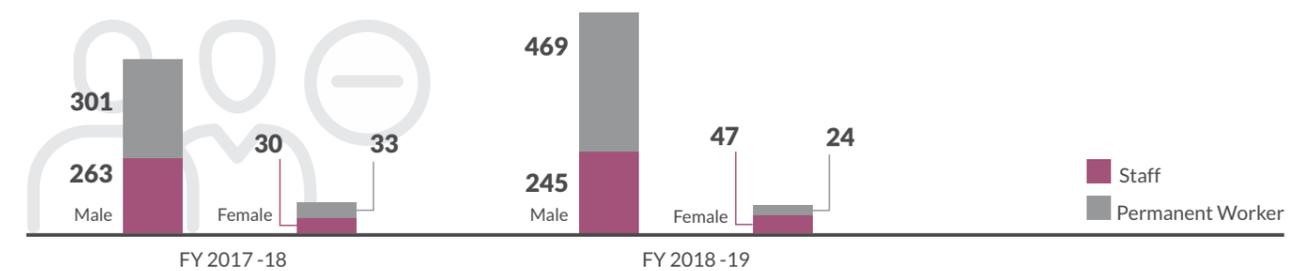
#### Employees Hired

(Nos.)



#### Employees Separated

(Nos.)



## Management Approach

Growth for us is not just limited to financial returns but it also includes the positive impact that we have on the communities surrounding our operations.

### Our CSR Vision

**To actively contribute to the social and economic development of the communities in which we operate.**

***In doing so, build a better, sustainable way of life for the weaker sections of society and raise the country's human development index.***

To achieve the same, we proactively engage with the community around us to understand their expectations and contribute to enhance socioeconomic development in these regions. This includes reviewing health, sanitation, hygiene, and supporting infrastructure such as education and medical facilities, in these villages.

To accomplish the same, we have a dedicated budget for CSR, a defined CSR policy and a CSR committee which oversees and approves all our CSR related activities and expenditure. **The work is carried-out under the aegis of "The Aditya Birla Centre for Community Initiatives and Rural Development", with Mrs. Rajashree Birla as the Chairperson.** The Centre provides the strategic direction and the thrust areas for our work, ensuring performance management as well.

Our focus is on the all-round development of the communities around our plants. Our partners in development are government bodies, district authorities, village panchayats and the end beneficiaries - the villagers.

### Focus Areas



SUSTAINABLE LIVELIHOOD



HEALTHCARE



EDUCATION



INFRASTRUCTURE DEVELOPMENT



SOCIAL CHANGE

Community Investments

**\$1.84 mn**

No. of Villages Covered

**Over 100**

### CSR at Aditya Birla Group:

- Our team comprises of 150 qualified professionals and an on-ground force of 1,000 field workers
- Our investments globally in CSR exceeds ₹ 500 crore (~\$ 70 mn)
- Over a million patients treated at 5,000 medical camps and our 20 hospitals annually
- We have helped immunise 70 million children against polio over the last 7 years
- Our project 'Village Social Entrepreneurs' in healthcare, covers around 3,00,000 people at 100 locations in 4 Indian states
- Our commitment to defecation-free villages, has led us to help set up over 22,000 toilets, partly leveraging government schemes for the social sector



# Sustainable Livelihood

One of the prime focus of our CSR activities is providing sustainable livelihoods to the local communities in order to uplift their living standards. This is achieved by enabling them to generate additional income via skill development and trainings, or supporting projects with grants and associations.

**Our programmes aim at providing livelihood in a locally appropriate and environmentally sustainable manner through watershed development, formation of Self Help Groups for women empowerment, partnership with Industrial Training Institutes, vocational training through Aditya Birla Rural Technology Parks, Agriculture development and better farmer focus.**

We have undertaken several initiatives under the following heads to bring economic prosperity in the lives of local communities:

## Agriculture

At Nagda, we aimed at helping farmers increase their land's productivity with the objective of increasing their income.

**A total of 865 farmers were covered under on-field demonstration of crop varieties, training and exposure visits and sessions to explain how they can avail the benefits from Government schemes.**

In Harihar, small and marginalised farmers were identified in 12 villages and linked with government schemes like crop insurance, crop loan etc.

**Total 365 farmers benefitted under crop insurance and 252 farmers benefitted under seed improvement programme.**

**In Vilayat, 267 farmers benefitted from the workshop on how to increase agricultural productivity, field exposure visit, training etc.**



# Additional Income Sources via Animal Husbandry

For rural communities, Animal husbandry provides an alternative source of livelihood after agriculture, and villagers extensively depend on it for a steady income. To avoid difficulties that farmers face while practicing animal husbandry, we identified some common, recurring problems and undertook the following activities:



- The Company coordinates and associates with the Local Veterinary Hospital and NGOs for organised veterinary camps in villages. In all, 24 villages were covered and 5,719 animals were treated and vaccinated near our Nagda unit.
- An integrated livestock development project has been started in collaboration with BAIF (Bharatiya Agro Industries Foundation). The indigenous and non-descript cow and buffalo are genetically modified to increase their productivity through crossbreeding using artificial insemination technology.
- 3 livestock development centres have been established, each covering around 10 to 12 villages surrounding our unit. The main activities organised at these centres are extension programmes for farmer, green fodder demonstration, preventive measures through vaccination, dry fodder enrichment programme and artificial insemination services at beneficiaries' doorsteps.
- More than 1,825 Artificial Inseminations were done in 24 villages and 5,200 beneficiaries covered in other programmes and activities. 665 new calves were born during the period.

## Vocational Skill Development Programmes



**We focus on vocational training of local communities and especially women of nearby villages through our skill development programmes, to help them gain economic independence and enable them to contribute to the family income.**

To achieve this, we organised various training courses for women in tailoring, beautician skills and handicrafts. More than 300 women benefitted from this initiative undertaken by our Vilayat unit. We also distributed 275 sewing machines, beautician kits and handicraft kits to women belonging to BPL families. Apart from this, our Thai Rayon unit supports the training of the local community for producing natural dish washing liquid and herbal compress in Posa.

In Nagda, training on sewing was provided for 3 months and the trainer teaches them to sew all types of clothes that are prominent in villages. The training is certified

## Self Help Groups (SHGs)

We encouraged and promoted Self Help Groups, as a result of which 31 women SHGs were formed. During the year, these SHGs saved ₹ 4.83 lakh in their group accounts and leveraged a loan amount of ₹ 10 lakh from nationalised banks. With these loans, the Self Help Group members are engaged in income generation activities like petty shop, agarbatti making, bag making, dairy farming and more.

by a renowned sewing machine supplier. This year the training was provided to 148 girls after which they are able to sew clothes. 78 new machines have been distributed to beneficiaries. 2 skill training centres were established in 2 downstream villages in Harihar, which provide training to local female youth on tailoring, embroidering and painting. 35 females were trained in the 1st batch. Motor driving training for economically backward males from nearby 7 villages was undertaken. A nominal contribution from the trainees was taken and rest of the expenses were borne through CSR. 35 males received 4 wheeler driving training and were given light motor vehicle licenses.

## Education

Education is not just fundamental for personal, economic and social development of an individual, but imparting quality education also has a significant positive impact on the holistic growth of a nation. We, at Birla Cellulose, recognise this and have been focussing on empowering communities by spreading awareness about the importance of education and implementing various initiatives right from computer literacy programmes and knowledge-based trainings, to educational tours and infrastructural development of schools.

**Our endeavour is to spark the desire for learning and knowledge at every stage through formal schools, Balwadis for elementary education, quality primary education, Aditya Bal Vidya Mandirs, girl child education and adult education programmes.**

## Promoting Girl Child Education

In order to promote girl child education, we have launched a girls' scholarship programme to support their career. On several occasions, our CSR teams indulge in counselling the parents to create awareness on the importance of educating the girl child. Scholarships were provided to girls (beneficiaries 179) attending 9th & 10th standards at any high school located away from their own village in Vilayat area.

In Kharach, with the objective to support girl's education, girl's scholarship programme is initiated for our target villages. In this programme we provide scholarships to the girls who secured 1st, 2nd and 3rd positions in Classes 7 to 12, in their respective schools.

In the reporting year, scholarships of ₹ 4.52 lakh were given to 135 eligible girls identified from 17 nearby villages.

## Nurturing Sportsmanship

We believe that sports play a major role in the overall development of children. We provide sports equipment to various schools and Anganwadi centres to promote sports activities and organise sports competitions like 'National Level Handball Tournament' in the campus, to foster sportsmanship and unity among children. Students are also encouraged to participate in the celebrations organised in the schools like School Enrolment Day Celebration, 'Bal Pravetsotsav', Children's Day etc. to ensure their holistic development.



## Digitisation & Promotion of Computer Literacy

Our CSR team at our Harihar unit distributed computers to Shri Muppinarya Residential High School at Airani Holmutt, to initiate Computer Literacy Classes for students last year. In Harihar, a project was undertaken in the reporting year to improve the quality of education in government schools. Under this project a government school was identified and digital class was started. **A total of 196 students studying in the schools benefitted from this.** Similar projects have been identified for the coming year in other Government schools.

At Kharach, we installed a projector, screen, mount kit and speakers at Sahol Primary School, to provide digital literacy and improve the infrastructure. Interactive board for transforming the educational system was initiated, and **the first phase of the project covered 3 primary schools in 3 villages in Vilayat with 650 beneficiaries.**

## Upgradation of School Infrastructure

In Harihar, school infrastructure development projects are taken up. The school urinals and toilets were constructed at Government High School of Hirebidari village. The cultural stage was constructed at Nadiharalahalli village Government Higher Primary School. The solar water heater was installed at Kittur Rani Chennamma residential school of Hirebidari village. All these projects have helped children in general, and girl children in particular, to get a safe and quality education environment. **A total of 1,164 students benefitted through these projects.**

Our unit at Vilayat installed green boards and fans in classrooms for the students and carried out similar kinds of upgradation work at Anganwadi centres as well. **More than 1,190 students have benefitted through these initiatives.**

In Kharach, stage construction at Balota Primary School, RO Plant installed at Bhaktinagar Primary School to meet safe and hygienic drinking water needs of the students and 2 classrooms renovated at Prerana Vidya Mandir, a government high school.

**In Nagda, 8 middle and primary schools were provided 150 furniture sets (tables and benches), ensuring seating arrangement for 450 students.** This will help in creating a better education environment and improve their learning and development.



## Knowledge Programmes & Health Check-Ups

At Vilayat, we launched a Knowledge Programme wherein colourful stickers carrying messages on saving water, personal hygiene etc. were distributed amongst the children to spread awareness about these issues. **This was accompanied by organising group activities, mathematics and science exhibitions, which benefitted over 6,500+ students covering 25 primary schools and 32 anganwadi centres.**



To provide comprehensive health care services to all the students studying in primary schools, we have started School Health Camps in Kharach. In this programme, detailed diagnosis of each of the primary students is done by doctors of the Company operated hospital and appropriate medication is provided to the students.

**A total of 34 school health camps were organised under this programme in the reporting year and health checkups of 1,792 students of 25 primary schools and 1 Ashramshala were conducted by the doctors of Jan Kalyan Hospital.**

Furthermore, menstrual hygiene kits were donated to adolescent girls, along with imparting awareness on the use of sanitary napkins.

### SUCCESS STORY

#### Promoting Access to Education

Hetal Arjunbhai Rathod, a 15-year old girl from a nearby village in Kharach had to drop out of school in Class 9 and that cut short her dream of becoming a nurse. Her parents, daily wage labourers, could not provide for her education due to their weak financial condition.

On learning about this, the CSR team of Birla Cellulose intervened and encouraged the girl to continue her education. They convinced her parents to let her continue studies and supported her with education material and uniform.

The team got her enrolled in Prerana Vidhya Mandir, a secondary school in Kharach Village in Class 9 to pursue her education further and help her realise her goals.

**She cleared Class 9 with 62.59%. She has taken her Class 10 exams and joined 'Ansuaya Centre' during vacations to get trained in tailoring. We will continue to support her in pursuing her dream of becoming a nurse.**

## Contributions & Scholarships

We granted scholarships to four schools around the factory and to other students in Ang Thong. We extended our contribution to KMUNB's robotic team and have also announced a TRC scholarship for professional education on selection basis. We have provided uniforms to students in Wat Pho Tool School apart from providing water cooler for its child care centre. Our contribution extends to teaching English in Wat Sansuk School and organising English day camps at various places.

# Healthcare

**Our goal is to render quality healthcare facilities to people living in villages and elsewhere, through our hospitals, primary healthcare centres, Mother and Child care projects, immunisation programmes, with a thrust on polio eradication, healthcare for visually impaired, physically challenged and preventive health through awareness programmes.**

Birla Cellulose makes constant efforts to ensure that communities are healthy and disease-free by organising knowledge campaigns and immunisation programmes at regular intervals. The following initiatives were taken up during the year.

## Immunisation Programmes & Preventive Healthcare

Immunisation camps are conducted in collaboration with government programmes with an intent to support the drives for eradication of Polio, Hepatitis B, Diphtheria and Tetanus. **A total of 21,000+ children were immunised in Nagda, Harihar, Kharach and Vilayat, for the same.**

At Harihar, alcohol de-addiction camps were conducted in collaboration with Sri Kshetra Dharmastala Rural Development projects in 2 locations. This camp has helped 85 alcoholic individuals to leave their bad habit and lead a healthy life. Our unit in Canada, supports many local initiatives via the donation committee.



## Rural Medical & Artificial Limb Fitment Camps

Eye Operation Camp was conducted with Kelgar Medical Centre that undertook 89 operations in the previous year. Our TRC unit supported the health Check-up Project in Jampalor, apart from drug prevention programmes and contribution to sub-district hospital for mosquito repellent sprayers. **Vilayat organised 500+ eye check-up camps and 118 cataract operations were done in these camps.**

In the 5 community areas around the site in TRC, the majority of the population is elderly and often have dental and eye health problems. But with the high costs it makes it difficult for them to access health services. Thai Rayon therefore, cooperated with the Sub District Administrative Organisation in each area, to survey the names of those who need help and arranged an eye examination service unit to provide services.



Harihar organised 'Artificial Limb Fitment Camp' in association with Karnataka Marwari Youth Federation, Bangalore, **where 284 disabled people were given walkers, sticks and crutches to help them lead an independent life.**

For basic dental services, we tied up with standard clinic services in the area and arranged a shuttle bus to travel to use dental services. This initiative had received the admiration of the community due to increased access to basic healthcare facilities.

## Mobile Health Services

At Nagda, 290 mobile health camps were organised during the year, which protected 12,791 people in 17 villages against seasonal diseases.



Nagda being an industrial town has the potential risk of HIV/AIDS. Thus, a comprehensive awareness campaign was started in collaboration with NGO SATHI. Equipped with a testing facility and experienced team, the programme was organised to spread awareness on HIV/AIDS, on-spot testing, promote safe sex and reduce discrimination against AIDS victims, especially those in rural areas. 423 on-spot testings were done, including truck drivers and migratory population. More than 1,347 people benefitted through awareness generation programmes. Vilayat also conducted about 85 HIV AIDS awareness programmes.

## Curative Healthcare

With an objective of providing quality medical services in nearby villages, the company promoted Jan Seva Trust that has been running a fully-fledged 150 bedded hospital, called Indubhai Parekh Memorial, equipped with the latest medical facilities. Another 80 bedded (G. D. Memorial) fully equipped hospital is being run at Ujjain for catering to the needs of the community. Around 1.4 lakh people have availed benefits from these hospitals.

We also ran a co-project with the public health office and Ang Thong Hospital to carry out health check-ups in four villages around the factory. To treat the ill health in 12 villages, a mobile health clinic has been in operation on a daily basis, which has helped in treating 26,377 people at Harihar and 5,000+ people at Kharach.

TRC unit has an ongoing project, wherein the CSR team, in coordination with local media, takes care of bedridden and elderly people in nearby 8 villages. Understanding the needs of these people and distributing necessary items is done once per week. This has benefitted around 80 people. TRC has provided medical equipment to 4 District Health Promotion Centres around the factory by facilitating the purchase of necessary equipment and tools, as these centres do not have adequate arrangements as compared to large hospitals. This will benefit 3,000 people in the nearby communities and provide better access to services.



## Reproductive & Child Health

At Nagda, we have adopted 16 villages for mother and child health care awareness programme that aims to reduce anaemia in pregnant women and to provide antenatal care, child nutrition, timely vaccination and institutional delivery. A total of 1,958 beneficiaries were covered under various programmes like adolescent girl awareness programme, vaccination camp, anaemia check-up camps etc., in both urban and rural areas.

Harihar CSR team, in cooperation with government health machinery, organised mother and child health care programme. Activities like Beti bachao, Beti padhao, healthy baby show, promotion of nutrition supplement etc. were supported. A total of 254 mothers and children benefitted.

## Infrastructure Development

Infrastructure, especially in rural areas, is directly related to holistic growth of communities, since good infrastructural facilities result in human development and economic growth, which in turn has a positive effect on eradication of poverty.

To achieve the same, we have been investing in infrastructural development in rural areas to ensure that communities have clean drinking water, sanitation facilities and proper roads, among other facilities.

### Access to Water

Grasim, over the years, has constructed four dams on river Chambal to limit the adverse situation of water scarcity. Around 35% of the water stored in these reservoirs is used for company operation, while over 15% is used by Nagda, Mandi, Khachrod Township and the Railways. Around 45% of total water storage is used by agricultural farmers and civic communities covering more than one lakh fifty thousand population.

Also, support for drinking water facilities has been provided in 7 villages. At Harihar, infrastructure development, like supply of portable drinking water in 5 villages, has benefitted 7,528 people. Supported safe drinking water supply system under Swajaldhara, provided doorstep water facilities at Derol and Dayadara villages in Vilayat covering 8,000+ beneficiaries. At Kharach, to meet the safe and hygienic drinking water needs of the villagers and provide potable drinking water at their doorstep, Reverse Osmosis (RO) plants were installed at 2 nearby villages.



Our TRC unit also provided electric water cooling set for Child Care Centre, Huapai. In BJFC, we are supplying drinking water to 3 villages from last many years and this is benefitting about 1,000 people living in these villages.

### Sanitation Facilities

Sanitation and sanitation facilities are hardly ever seen as a priority in rural areas and hence, one of our first aims was to change the attitude of people towards sanitation, health and hygiene. In the region around Nagda, 28 programmes were organised in collaboration with Panchayat and 1,532 people benefitted from it.



At Harihar, to support the national campaign of Swachh Bharat Mission, 83 families of 5 Gram Panchayat areas were motivated to construct individual, low cost toilets with the financial support of their Gram Panchayat. 5 Gram Panchayats were awarded and announced to be open defecation free. Out of our 12 villages, 10 are open defecation free villages.

In the mosque in Purwakarta, Indonesia we built ablution places and toilets as there were none before. It will benefit the community that comes there to offer prayers.



## Renovation & Refurbishment

We carried out the renovation of classrooms in schools and Anganwadis in order to upgrade the infrastructure of the buildings, which benefitted 297 students. We also provided the material support to Makanur village to construct a community hall.

Various projects in Harihar were taken up for the improvement of basic infrastructure in the rural areas. A community hall was constructed at Airani village for the benefit of the public. Village bus stand was constructed at Hirebidari village. Based on the requirements of the Gram Panchayat, street lights have been distributed to 3 Gram Panchayats. **All these initiatives benefitted 13,700 people.** Around Kharach, Gram Panchyat Compound wall was constructed at Koba village, **30 street lights were installed at Asarma village**, along with door and window fixing with grilles at the community hall of Amod Village.

Wat Chaimongkon High School, Moug District, suffered damages caused by storms. The damages were mainly to the ceiling and roof, including educational equipment. TRC provided the support in repairs of the building and this initiative has been acknowledged by local government.



**Mr Parag Paranjpe**  
Chief Human Resource Officer

### What are the key initiatives you are taking to keep your employees motivated and build a talented workforce?

To build a talented workforce, we have a rigorous Talent Management Process that includes Potential Assessment programme, including participation in DACs and creation of IDPs for all Talent Pool employees and mapping of career paths leading to potential successor roles.

For employees in leadership roles, we have formed ExCom as a forum for Top Leadership. Every year we organise a Leadership Offsite of 30 senior leaders in the business to deliberate on the focus areas and challenges before the business. We proactively participate in the Project Zoom initiative of the Group, in which leaders are given the opportunity to undergo short-term courses at world renowned Universities of their choice. Apart from this, we have many programmes to build technical, behavioural, innovation capabilities in the workforce.

### What is the main focus of Corporate Social Responsibility Programmes?

All Corporate Social Responsibility programmes are run in collaboration with nearby communities and all our Units work closely with local community to create a conducive environment for the business.

At each site, we have a grievance handling mechanism as a part of which we receive feedback, grievances and suggestions from the community around us. Any community feedback received is addressed promptly to resolve the issue. In addition to this, we regularly and proactively connect with all community stakeholders to build productive and harmonious employee relations.

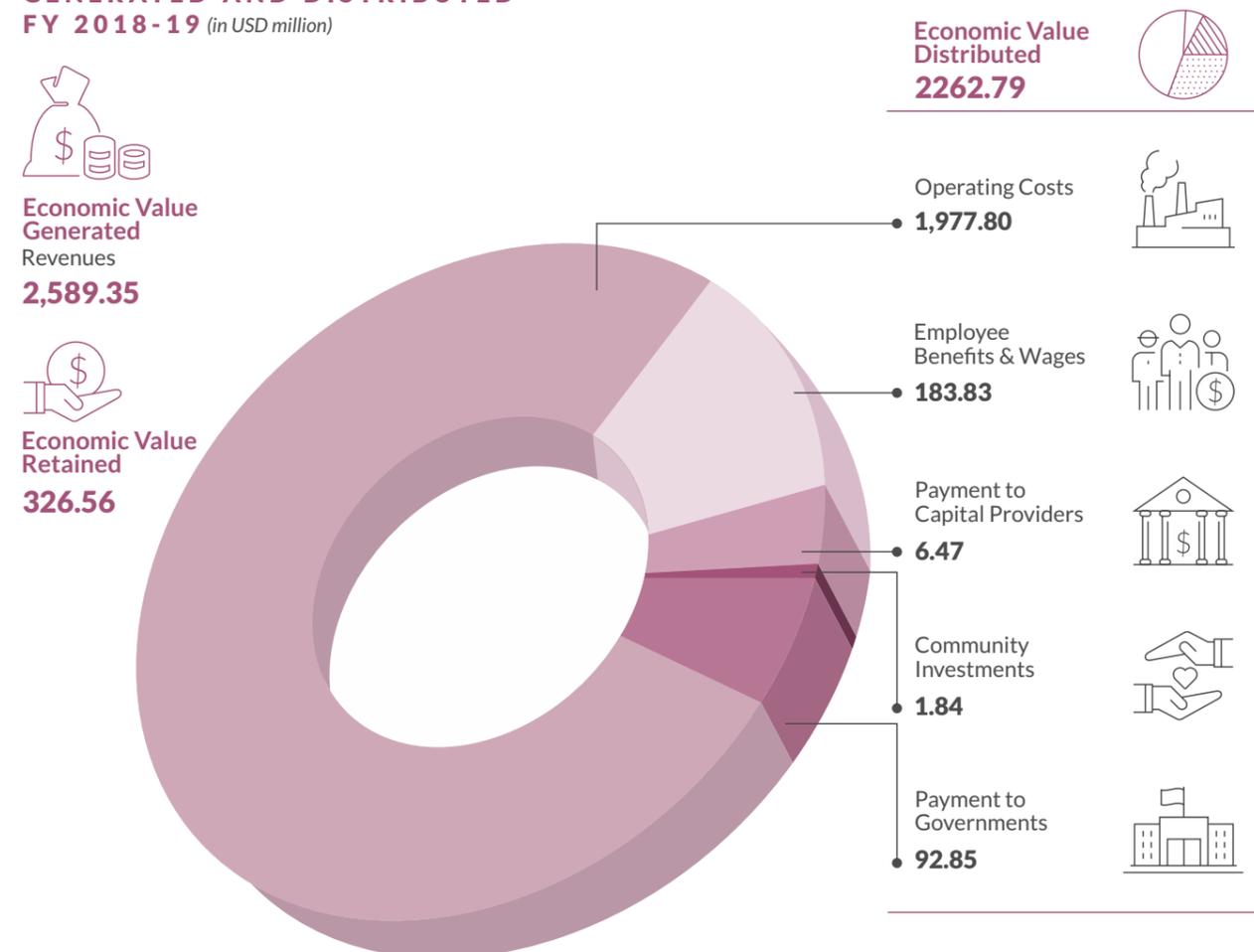
## Socio-economic Development

The reporting year 2018-19 marked another successful year for us. We continued to generate economic value for our stakeholders and tirelessly worked towards achieving our financial targets. We proactively adapted to prevailing market conditions, anticipated risks (including environmental risks) and invested in pioneering initiatives. These efforts made our economic performance stronger, which is one of the pillars of business sustainability.

**Our activities have an indirect economic impact on the people and society, so we contributed towards socio-economic development through initiatives in the field of education, health, livelihood and infrastructure.**

We contributed a sizable sum to develop potable water infrastructure and organise activities like health camps, plantation drives, and education and awareness campaigns for local communities at regular intervals across various units. All the parameters for the economic value generated, distributed and retained by Birla Cellulose have been tabulated herein.

### TOTAL ECONOMIC VALUE GENERATED AND DISTRIBUTED FY 2018-19 (in USD million)



# Honours & Awards

**Our Pulp & Fibre Business strives to significantly reduce our environmental impact and works towards environment preservation and social development through various activities.**



The proof of the pudding lies in the prestigious honours and awards that we've received to commemorate our hard work. Here are some of them.

- Birla Cellulose has achieved a leading 'green shirt' in the latest Hot Button Report 2018, published by environmental non-profit Canopy based in Canada, which proves low risk sourcing of wood from ancient and endangered forests
- Golden Peacock Award for Sustainability 2018 for Harihar Polyfibers
- Harihar Polyfibers has been awarded 4-STAR RATING for commitment to EHS Practices in the CII-SR EHS Excellence Awards 2018
- Thai Rayon Public Co. Ltd. was awarded in 2018 for Best Public Company of the year in Consumer Product Sector by Money & Banking Magazine
- Grasim Cellulosic Division, Vilayat bagged the CSR Impact Award for significant contribution to rural development from NGOBox in 2018



**Domsjö Fabriker was awarded The Gender Equality Company of 2018**

- 2015-18: Zero Accident award by Thailand Institute of Occupational Safety & Health for 4th consecutive year to Thai Rayon Public Co. Ltd. (TRC)
- 2013-17: Corporate Social Responsibility Excellence Recognition Certificate for 5th consecutive year by American Chamber of Commerce to TRC
- Staple Fibre Division, Nagda bagged the Federation of Madhya Pradesh Chambers of Commerce & Industry (FMPCCI) Award for outstanding achievement in CSR in 2018
- Birla Cellulosic, Kharach won Manufacturing Today's CSR Award in 2018
- AV Group awarded as the winners of the 'Atlantic Canada's Top Employers' of recent graduates
- AV Group got a mention in 'The Career Directory 2019', which highlights key benefits and HR programmes for students and recent graduates
- Birla Cellulosic, Kharach bagged Frost & Sullivan's Green Manufacturing Excellence Challengers Award for Large Business



**Harihar Unit was awarded Frost & Sullivan's Sustainability 4.0 Award in Challengers Category - Large Business**

- AV Nackawic (AVN) received 'Personnel Safety Performance Recognition' at the Bronze level (based on man-hours/year) for achieving Zero Recordable Injuries in 2017
- AVN was awarded with 'Process Safety Performance Recognition' at the Bronze level for Achieving Zero Reportable Quantity (RQ) and/or Risk Management Programme Incidents in 2017
- 5th FICCI Safety Systems Excellence Award for Manufacturing 2015 has been conferred on Grasim, Harihar
- Stockholm Industry Water Award won by Grasim, Nagda in 2004, exhibits Birla Cellulose's alignment to sustainability as a responsible organisation

**The Management and Board of Directors  
Grasim Industries Limited  
A-3, Aditya Birla Centre  
S. K. Ahire Marg  
Worli, Mumbai 400 030**

## INDEPENDENT ASSURANCE STATEMENT

Ernst & Young Associates LLP (EY) was engaged by Grasim Industries Limited (the 'Company') to provide independent assurance of Sustainability Report (the 'Report') for the pulp & fibre business of the Aditya Birla Group (Birla Cellulose), for the reporting periods 1<sup>st</sup> April 2018 to 31<sup>st</sup> March 2019 and 1<sup>st</sup> April 2017 to 31<sup>st</sup> March 2018. This statement applies to the sustainability disclosures of Birla Cellulose, which includes five pulp plants (three in Canada, one each in Sweden and India) and seven fiber plants (four in India, one each in Indonesia, Thailand and China).

The development of the Report is based on the Global Reporting Initiative (GRI) Standard. The Company's management is responsible for the content of the Report, identification of the key aspects, engagement with stakeholders and its presentation. EY's responsibility, in accordance with the company's management's instructions, is to carry out a limited assurance engagement on the Report and to include specific observations from this engagement. The assurance statement should not be taken as a basis for interpreting the Company's performance across the scope of aspects covered in the Report.

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.

### Assurance criteria

Our assurance is in accordance with International Federation of Accountants' International Standard for Assurance Engagements Other than Audits or Reviews of Historical Financial Information (ISAE 3000), and our conclusions are for 'limited' assurance as set out in ISAE 3000. Our evidence-gathering procedures were designed to obtain a 'limited' level of assurance (as set out in ISAE 3000) on reporting principles, as well as conformance to standard disclosures as per GRI Standards.

### Scope of assurance

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

- Data and information related to the Company's sustainability performance for the period 1st April 2017 to 31st March 2019 on following indicators - Energy consumption, GHG emissions, Air emissions, Water withdrawal, Water discharge by volume and quality, Waste disposal by type, Employee count, Employee turnover, Employee training and Lost Time Injury Frequency Rate (LTFIR).
- Review of process and approach to stakeholder engagement and materiality analysis
- Review of the sustainability report for detecting, on a test basis, any major anomalies between the information reported in the sustainability report and relevant source data / information
- Review the level of adherence to GRI Standards Guidelines

### What we did to form our conclusions

In order to form our conclusions, we undertook:

- On-site verification including interview with management representatives and execution of an audit trail of claims and data streams, on a selective test basis, to determine the level of accuracy in collection, transcription and aggregation processes followed for reporting of sustainability disclosures, at the following locations:
  - Grasim Harihar (Karnataka) for the period 2017-18 and 2018-19
  - Staple Fibre Division, Nagda (Madhya Pradesh) for the period 2017-18 and 2018-19
  - P.T. Indo Bharat Rayon (Indonesia) for the period 2017-18 and 2018-19

- Thai Rayon Public Company Limited (Thailand) for the period 2017-18 and 2018-19
- Birla Cellulosic, Kharach (Gujarat) for the period 2017-18
- Grasim Cellulosic Division, Vilayat (Gujarat) for the period 2017-18
- Desktop review of data for other pulp & fibre manufacturing locations; on a selective basis, through consultations with the Company's management

### Limitations of our review

The assurance scope excludes:

- Data and information outside the period 1st April 2017 to 31st March 2019;
- Aspects of the Report and data/information (qualitative or quantitative) other than those mentioned in our scope of assurance;
- Data and information on financial performance of the Company;
- The Company's statements that describe expression of opinion, belief, inference, aspiration, expectation, aim or future intention;
- Review of the Company's compliance with regulations, acts, guidelines with respect to various regulatory agencies and other legal matters.

### Our assurance team and independence

Our assurance team, comprising of multidisciplinary professionals, was drawn from our Climate Change and Sustainability network, and undertakes similar engagements with various companies. 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.

### Observations and opportunities for improvement

During the review process, we observed that:

- The Company has engaged with stakeholders to identify key material topics with respect to sustainability and it is in process of developing data management systems and processes to enhance depth of reporting related to some of the material topics in the next reporting cycle(s).
- There is scope to standardize data management systems and processes for increased transparency and alignment with GRI standards for disclosures on Air emissions, Effluent discharge quality, Waste disposal and Occupational, Health & Safety.

### Conclusion

On the basis of our review scope and methodology, nothing has come to our attention that would cause us not to believe that the Report presents the Company's sustainability performance data fairly, in material respects, in line with the GRI Standards reporting principles and criteria.

### For Ernst & Young Associates LLP



**Chaitanya Kalia**  
Partner  
Dated: 31 December 2019  
Place: Mumbai, India

GRI Standard	Disclosures	Page number and / or URL	Omissions
<b>GRI 101: Foundation</b>			
<b>GENERAL DISCLOSURES</b>			
<b>GRI 102: General Disclosures</b>	<b>Organisational Profile</b>		
	102-1 Name of the organisation	13	
	102-2 Activities, brands, products, and services	13	
	102-3 Location of headquarters	15	
	102-4 Location of operations	15-20	
	102-5 Ownership and legal form	25	
	102-6 Markets served	13, 15 & 20	
	102-7 Scale of the organisation	13	
	102-8 Information on employees and other workers	150	
	102-9 Supply chain	23-24	
	102-10 Significant changes to the organisation and its supply chain		Not Applicable
	102-11 Precautionary principle or approach	31 & 32	
	102-12 External initiatives	13 & 85	
	102-13 Membership of associations	131-132	
	<b>Strategy</b>		
	102-14 Statement from senior decision-maker	9-12	
	<b>Ethics and Integrity</b>		
	102-16 Values, principles, standards, and norms of behaviour	14 & 37	
	<b>Governance</b>		
	102-18 Governance structure	37-38	
	<b>Stakeholder Engagement</b>		
	102-40 List of stakeholder groups	114	
	102-41 Collective bargaining agreements	130	
	102-42 Identifying and selecting stakeholders	113 & 114	
102-43 Approach to stakeholder engagement	28, 113 & 115-120		
102-44 Key topics and concerns raised	115-120		
<b>Reporting Practice</b>			
102-45 Entities included in the consolidated financial statements	25		
102-46 Defining report content and topic boundaries	25		
102-47 List of material topics	29-30		
102-48 Restatements of information		Not Applicable	

GRI Standard	Disclosures	Page number and / or URL	Omissions
<b>GRI 102: General Disclosures</b>	102-49 Changes in reporting		Not Applicable
	102-50 Reporting period	25	
	102-51 Date of most recent report		Not Applicable
	102-52 Reporting cycle	25	
	102-53 Contact point for questions regarding the report	25	
	102-54 Claims of reporting in accordance with the GRI Standards	25	
	102-55 GRI content index	169-171	
102-56 External assurance	167		

**MATERIAL TOPICS**

**ECONOMIC PERFORMANCE**

<b>GRI 103: Management Approach</b>		164	
<b>GRI 201: Economic Performance</b>	201-1 Direct economic value generated and distributed	164	

**WATER FOOTPRINT**

<b>GRI 103: Management Approach</b>		71	
<b>GRI 303: Water</b>	303-1 Water withdrawal by source	71	

**GHG REDUCTION**

<b>GRI 103: Management Approach</b>		80	
<b>GRI 305: Emissions</b>	305-1 Direct (Scope 1) GHG emissions	80	
	305-2 Energy indirect (Scope 2) GHG emissions	80	
<b>GRI 302: Energy</b>	302-1 Energy consumption within the organisation	78	

**WASTE MANAGEMENT**

<b>GRI 103: Management Approach</b>		77	
<b>GRI 306: Effluents and Waste</b>	306-2 Waste by type and disposal method	77	

**TALENT MANAGEMENT**

<b>GRI 103: Management Approach</b>		145	
<b>GRI 401: Employment</b>	401-1 New employee hires and employee turnover	150	
<b>GRI 404: Training and Education</b>	404-1 Average hours of training per year per employee	149	

GRI Standard	Disclosures	Page number and / or URL	Omissions
<b>OCCUPATIONAL HEALTH AND SAFETY</b>			
GRI 103: Management Approach		137-139	
GRI 403: Occupational Health and Safety	403-2: Rate of injury	140	
<b>RESPONSIBLE WOOD SOURCING</b>			
GRI 103: Management Approach		34, 43 & 52	
<b>CLOSED-LOOP MANUFACTURING</b>			
GRI 103: Management Approach		62 & 66	
<b>CHEMICAL MANAGEMENT</b>			
GRI 103: Management Approach		57	
GRI 306: Effluents and Waste	306-1 Water discharge by quality	75	
<b>SUSTAINABLE PRODUCTS &amp; CIRCULAR ECONOMY</b>			
GRI 103: Management Approach		35	
<b>TRANSPARENCY &amp; TRACEABILITY</b>			
GRI 103: Management Approach		56	
<b>GENDER EQUALITY AND REDUCE INEQUALITY</b>			
GRI 103: Management Approach		135	
<b>SUSTAINABLE SUPPLY CHAIN</b>			
GRI 103: Management Approach		49-58	
<b>VALUABLE PARTNERSHIPS</b>			
GRI 103: Management Approach		44 & 111	
GRI 413: Local Communities	413-1 Operations with local community engagement, impact assessments, and development programs	152-163	
<b>BIODIVERSITY</b>			
GRI 103: Management Approach		51	

\*Note 1: Though we are reporting on most of these key topics however, we are currently in the process of developing data management system for disclosures related to some of our material issues - Sustainable procurement, Closed-loop manufacturing, Sustainable products and circular economy, Transparency and traceability, Gender equality and Reduce inequality and Biodiversity. While we are already taking initiatives in these areas, we will be introducing indicators related to these material issues in the next reporting cycle.



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Fibres from nature

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