



Birla Cellulose
Fibres from nature



ADITYA BIRLA GROUP



VISCOSE
VISCOSE - THE GREATER FIBRE

The linear economy of 'take-make-use-throw' has led us to a dead end. An increase in population and prosperity has led to increased consumption which in turn has placed severe stress on virgin natural resources and undermined the earth's ability to continue serving human needs.

A circular economy is the need of the hour. It will not only shift the demand from virgin resources to renewed materials, but will also reduce waste generation, ease the pressure on landfills and save energy.

As per one estimate¹, in the last 15 years, clothing production has doubled while clothing use has shrunk by more than a third. It is estimated that nearly 92 million tons worth of clothes are discarded with much of their utility value still intact. Circularity in the fashion and textile industry can have a tremendous global impact.

Birla Cellulose, as one of the world's leading producers of Viscose Staple Fibre, aims to play a key role in spearheading Circular Fashion.

Viscose is the Greater Fibre not just because of its inherent sustainable attributes, but also for its massive potential for circularity. Various types of cellulose-based waste can be recycled and processed to create man-made cellulosic fibres - a characteristic that we at Birla Cellulose have innovatively leveraged to create successful eco-enhanced products such as Liva Reviva.

Our ambition is to champion circularity in fashion by ramping up the production of circular fibres such as Liva Reviva to 100,000 tonnes per year by 2024.

This report includes details how we are incorporating various aspects of circularity in our business strategy and operations, by combining new business models with innovative design, technologies and materials.



¹ Ellen MacArthur Foundation

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Birla Cellulose's commitment towards a circular economy included consistent innovation as well as investment in textile waste recycling technology. Our R&D efforts have led to several innovations that have shown promising results and are in various stages of development. Some of the key highpoints of our transition to circularity include:

- Natural renewable raw material - Our nature-based fibres come from renewable wood sourced from sustainably managed forest. The fibres follow a biological cycle as they come from nature and go back to nature leaving a positive footprint on the environment.
- Development of technology for recycling industrial cotton waste and post-consumer cotton waste to supplement the fresh wood based pulp - Liva Reviva circular fibre contains the recycled cotton waste as feedstock.
- Closed-loop manufacturing process to recycle and conserve the raw materials - adapting closed-loop production at all its fibre sites meeting the most stringent EU BAT norms with an investment of \$170 million by 2022. With state-of-the-art technology, the solvent used in viscose process can be recovered and recycled back into the system to the extent of 90-95%.
- Ambitious goal of increasing the production of circular fibres such as Liva Reviva to 100,000 tons by 2024 - the most aggressive target by any MMCF producer in the industry.
- Valuable Partnerships - We believe that collaboration is instrumental for innovation and can bring out the best when we work together for a common objective - Birla Cellulose is participating in a major industry consortium launched under the platform of Fashion for Good to take a collaborative initiative with innovators and brands. We are also working on other alternative feedstock for MMCF such as agri-waste, microbial cellulose, etc.
- Establishing reverse logistics - On developing efficient reverse logistics, we are working with several companies, customers, downstream textile value chain, waste aggregators and garmenting industries for possible sourcing of pre- and post-consumer waste for making recycled pulp - many of them have been incorporated for making Liva Reviva viscose staple fibres.
- Transparency & Traceability - We understand the importance of traceability & transparency. Through our Blockchain based platform GreenTrack™, we along with our value chain partners track material flow in the supply chain from forest to retail - Through a simple scan of QR code, an end-to-end sustainability journey is visible to consumers and helps them make an informed purchase decision.

SUPERIOR FROM AN
environmental perspective

SUPERIOR FROM A
product attribute perspective

SUPERIOR FROM A
circularity perspective

SUPERIOR IN
versatility of applications

AFFORDABLE
fashion

SUPERIOR FROM AN
environmental perspective



Comes from Natural Resource

Sustainably managed forests not only continually regenerate the raw material, but also act as great sinks for the absorption of GHG emissions. MMCFs follow a biological cycle i.e. they come from nature and goes back to nature.



Biodiversity Impacts

There is a risk of wood coming from ancient and endangered forests contributing to deforestation and biodiversity impacts. Our wood is procured from certified sources and hence do not have any negative impacts on the biodiversity and avoids the risk of deforestation.



Lower Water Consumption

We have applied 4R principles in our processes which lead to very low water consumption during manufacturing of viscose fibre. Birla Cellulose is amongst the lowest consumer of water in viscose process.



Land Use

There will be an increased competition for land with an increasing population and subsequent food demand. MMCF use marginal land and have high yields whereas natural fibres entail arable land which is required for food crops.



Land and Water Pollution Due to Chemicals and Fertilizers

Fertilisers and chemicals used for growing natural fibres have the potential to run-off and cause significant pollution to land and groundwater. The raw material for MMCF, i.e. wood, does not require added fertilisers or pesticides and hence do not contribute to land and water pollution.



End of Life

Viscose is fully biodegradable and compostable so doesn't harm human and environment health including marine life. Synthetic garments do not biodegrade and are now recognised as causing marine pollution.



Single-Use Plastic Replacement

Recent single-use plastic (SUP) directive by EU has excluded viscose and lyocell fibres from plastics' definition. Single-use plastics are harmful for the environment and water bodies, and can be replaced for some of the applications with renewable wood-based MMCF which are biodegradable and compostable in nature.



Circularity

Newer technologies are utilising pre- and post-consumer waste as a feedstock for producing viscose fibre. Liva Reviva is a circular fibre made from pre-consumer waste and offers the opportunity to utilise waste generated in the textile value chain.



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performance highlights



Globally, ranked #1 in Canopy's Hot Button Report 2021 with 'dark green shirt' rating

Birla Cellulose retained the top position in Canopy's Hot Button Report for the 3rd consecutive year

Implementation of 'Supplier Assessment & Evaluation'



Responsible Manufacturing



Aim to be carbon neutral by 2040 and reduce GHG emissions intensity by 50% by 2030 from a baseline of 2019

Birla Cellulosic, Kharach has been bestowed with the CII-ITC Sustainability Award 2021 for Excellence in Environment Management

Third-party-verified Higg FEM 2020 score of 93% at seven fibre manufacturing sites

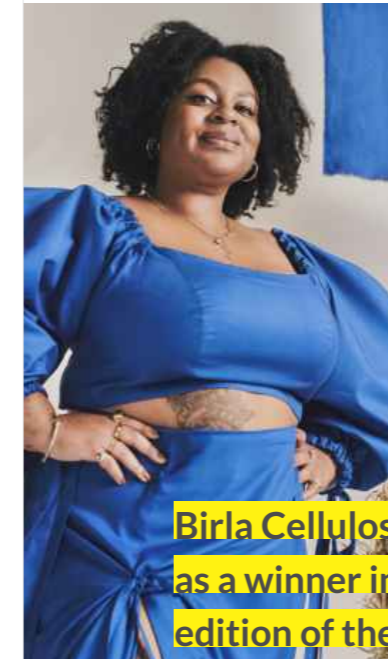
EU BAT compliance achieved at GCD, Vilayat (India) fibre manufacturing site

Zero Liquid Discharge (ZLD) plant commissioned at Nagda site in India



Achieved water reduction of 43% at all fibre sites

Reduction in sulphur-to-air emission by 37% by FY21 over FY15 baseline



Birla Cellulose emerged as a winner in the first edition of the 'National Innovative and Sustainable Supply Chain Awards' by UN Global Compact Network India for Liva Reviva fibre



Birla Cellulose targets to scale the production of Liva Reviva fibres to 100,000 ton by 2024

103 patent applications / patents in 16 countries belonging to 67 patent families

Sustainable Products



Valuable Partnerships



'Birla Cellulose Case' featured in the Harvard Case Study List

WBCSD included us as a good practice example for the Stakeholder Engagement indicator in their '2021 Reporting Matters' publication



Active participation and contribution towards the development of Circular Fashion through Circular Fashion Partnership, Sorting for Circularity India Project, etc.

Participated in the Circular Chic Campaign by Canopy to create awareness on NextGen Solutions

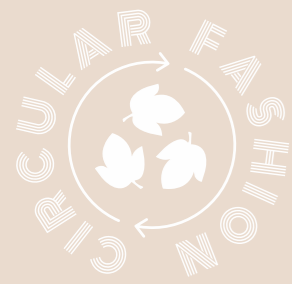
Foundation stone laid for Aditya Birla Public School at Pallipalayam (Tamil Nadu, India), a major spinning and weaving hub



CSR expenditure of about \$2.35 million as compared to \$1.98 million in FY20

89% reduction in LTIFR over FY15





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Chairman's Message

The last two years have seen the exigencies of the pandemic push the boundaries of innovation. Businesses today have a duty - and an opportunity - to reimagine and reconfigure their operations; to use science, sustainability, and the learnings of the past two years, to build a better future.

As a Group, we have learnt much from the virus that remains in our midst. We learnt that even local actions can have a global impact. We learnt that collective human endeavour can generate astonishing outcomes.

The Aditya Birla Group has resolved to make sustainability our shared passport to a better tomorrow for every citizen of the planet, and the decisive strides taken by Birla Cellulose towards sustainability are in keeping with this resolve. We saw some significant business milestones on this front being achieved this year.

The fibre unit at Vilayat attained compliance with the stringent EU BAT

As a leader in the global MMCF industry, Birla Cellulose has always

been on the cutting-edge of innovation and agility



norms by implementing closed-loop technology for viscose manufacturing. In doing so, it has significantly reduced emissions and set a high standard for sustainability in the production of Man-Made Cellulosic Fibres (MMCF). The Vilayat site also commissioned two large viscose production lines equipped with state-of-the-art resource-efficient technologies. Birla Cellulose's environmental stewardship was once again acknowledged on the global stage when it achieved the top position in the Canopy Hot Button Report 2021 for the third year running. The recognition is testimony to its work in sustainable forest management and the development of next-generation solutions.

We also saw Birla Cellulose's Nagda unit achieve the distinction of being the world's first viscose and lyocell manufacturing site to implement Zero Liquid Discharge (ZLD) technology successfully.

Eco-fashion isn't just a buzzword today; Birla Cellulose is leading the charge. The eco-enhanced Livaeco fibre and the circular product Liva Reviva, which is made using industrial cotton waste, represent impressive strides towards sustainable fashion.

This also applies to sustainable business practices, an area where it has constantly pushed the envelope.

And now, Birla Cellulose has unveiled two ambitious goals for itself.

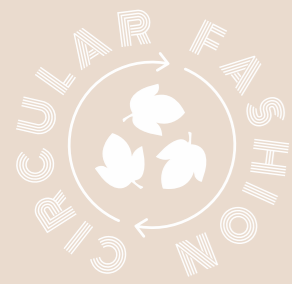
One, Birla Cellulose aims to be carbon-neutral by 2040 - possibly by 2035. It also aims to reduce its scope 1, 2 and 3 GHG emissions by 50% by 2030.

Two, Birla Cellulose will champion circularity in fashion by ramping up the production of circular fibres such as Liva Reviva to 100,000 tonnes per year by 2024.

By backing up its advocacy of sustainable business practices with its own far-reaching commitments, Birla Cellulose is driving the sustainability agenda in the MMCF industry and aligning itself with the larger vision of the Aditya Birla Group. These achievements would not have been possible without the energy and dedication of the team at Birla Cellulose. I would also like to thank our valued partners and stakeholders for helping us make a positive impact on people and the planet.

Our collective efforts can truly make a difference.

Kumar Mangalam Birla
Chairman, Aditya Birla Group



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From the Desk of Business Director

Dear Valuable Partners,

In a pandemic year marked by physical distancing and curfews, holding on to our relationships became the need of the hour. At Birla Cellulose, nurturing and strengthening these relationships with our key stakeholders - customers, communities, employees, partners, and the planet - helped us emerge more resilient and successful than ever.



I am proud of the way the Birla Cellulose team reached out to and supported all our stakeholders. Thanks to them, we ensured business continuity for our customers through uncertain times.

We also passionately helped local communities to fight COVID-19. And we constantly engaged with our employee teams to ensure their health and wellbeing, and to keep their motivation high throughout the year. Hence, at the outset, I want to thank the entire team for their immense sacrifices and support.

Despite a couple of tough years due to the pandemic, Birla Cellulose kept its eye on the ball as far as sustainability was concerned. In fact, we began seeing significant benefits by keeping sustainability at the center of our business

strategy. As a result, the scope of our sustainability efforts has not only grown, but become broader, with greater emphasis on the social responsibility aspect.

Social responsibility is one of the five pillars of our sustainability strategy. And by tapping into our strong CSR networks, we were able to provide relief to the sections of society that most needed our help. In the last two years, the Aditya Birla Group has spent over USD 100 million on COVID-19 relief measures.

As a business, our dedication to sustainable business is backed by strong policies and institutional

frameworks. Collectively, these help us set global benchmarks across industries and geographies in all our focus areas: responsible sourcing, responsible manufacturing, sustainable products, valuable partnerships, and social responsibility.

As I proceed to recap the sustainability-related highlights of the business and the Group over the past year, I am delighted to share with you that

- Birla Cellulose was ranked #1 amongst global MMCF producers in Canopy's Hot Button Report 2021 for the third consecutive year with 'dark green shirt' for its sustainable wood sourcing practices and next-generation fibre innovations.
- Our fibre manufacturing sites achieved the highest third-party verified Higg (3.0) FEM score, setting a new industry benchmark of 93% on average.
- Birla Cellulose successfully commissioned the world's first Zero Liquid Discharge (ZLD) technology in the viscose and lyocell process at its Nagda site.
- All fibre manufacturing sites are compliant with ZDHC wastewater guidelines.
- Our sites established new global benchmarks by having the lowest specific water consumption in viscose and lyocell fibres.
- The Aditya Birla Group's CSR initiatives touched nine million lives globally with their focus on health, education and sustainable livelihoods.
- The world's largest viscose manufacturing site at Vilayat commissioned the closed-loop technology and achieved the most stringent EU BAT standards.
- Our newly launched circular product Liva Reviva, made with pre-consumer waste, has caught the imagination of sustainability-focused brands and is growing rapidly.

- Birla Cellulose was featured in the Harvard Case Study List for its case study, 'Birla Cellulose: Spearheading Sustainable Fashion'.
- Birla Cellulose won the first edition of the National Innovative and Sustainable Supply Chain Awards organised by the UN Global Compact Network India.
- Grasim Industries was ranked seventh for its sustainability and CSR practices in India by The Economic Times and Futurescape Responsible Business Rankings 2021.

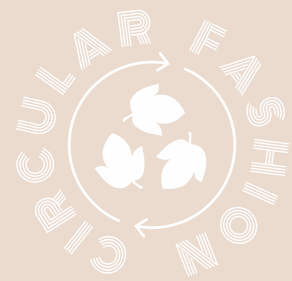
Good intentions aren't enough; to make real progress, you also need good allies. As an organisation, we owe our gratitude to the people and institutions who have stood by us in our sustainability journey: from fashion brands to customers, civil society, our employees, communities, our suppliers, innovators, and other stakeholders.

With your support, we will continue to accelerate our progress towards achieving the common goal of responsible and sustainable growth for people and the planet.

In furtherance of last year's journey, I am pleased to share our efforts in building a sustainable business, which are essayed here in our annual Sustainability Report.

Happy reading!

H K Agarwal
Business Director, Pulp & Fibre Business



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Kalyan Ram Madabhushi
Chief Operations Officer



Rajnikant Sabnavis
Chief Marketing Officer



Dr. Aspi Patel
Chief Technology Officer



Mr. Mukul Agrawal
Chief Sustainability Officer

Q&A CSO with CXOs

CSO Mukul Agrawal talks to COO Kalyan Ram Madabhushi, CTO Dr Aspi Patel & CMO Rajnikant Sabnavis about the sustainability journey, climate change, supply chain, circularity, innovations, consumer preferences, customer voice and much more.

COO Q&A

Mukul Agrawal: Tell us about what inspires Birla Cellulose's industry-leading ambitious goals to achieve carbon neutrality by 2040 in scope 1, 2 & 3 with aspirations to reach it earlier by 2035?

Kalyan Ram: We believe climate change is to be dealt with utmost urgency as our duty to the next generations. We are investing in innovations, technology, and clean energy solutions. These would be the key enablers for us in achieving 50% GHG reductions by 2030. Plus, superior forestry management practices in our managed forests will enable us to increase carbon sequestration.

Mukul Agrawal: How do you measure Birla Cellulose's progress on investments in EU BAT technologies and meeting ZDHC MMCF guidelines for air and wastewater emissions?

Kalyan Ram: Despite the Covid-19-related restrictions and lockdowns during the last two years, the Vilayat site, which is our largest site, has commissioned the facility and achieved the EU BAT. The work is going on at other remaining facilities and we are targeting to complete it by end of 2022. Currently, 3 out of 7 sites already meet all the EU BAT parameters. With respect to ZDHC wastewater guidelines, all sites meet these guidelines and the sites are at Progressive and Aspirational Levels for more than 90% of the parameters.

Mukul Agrawal: Birla Cellulose has launched the Supplier Assessment. What is the driver for this initiative?

Kalyan Ram: We need to implement sustainability best practices not only in our operations but also in our supply chain. Sustainability risks related to supply chain must be identified and addressed properly to ensure a seamless value chain. We are already a global leader in sustainable wood sourcing practices, which is our key raw material, and are ranked #1 in the Canopy Hot Button Report. Our 'Supplier Code of Conduct' includes compliance to safety, health, environmental, social, ethical and regulatory standards. We wish to collaborate with our suppliers in improving their understanding of these requirements and increasing the adoption of global best practices in our supply chain.

Mukul Agrawal: Birla Cellulose has launched Human Rights Due Diligence (HRDD) programme at its sites. What is the objective for this initiative?

Kalyan Ram: Aditya Birla Group has policies for Human rights that are aligned to UN Charter of Human Rights, ILO conventions and standards such as SA 8000 and FSLM. Companies are increasingly being held accountable for the human rights performance in their operations, in their supply chains, surrounding communities and business relationships. We launched HRDD programme in our business to identify any gaps from our policy in each of these stakeholder groups and to strengthen the implementation of our policies in this area.

CMO Q&A

Mukul Agrawal: Where do you see textile industry in adapting Circular Business model in next 3-5 years?

Rajnikant Sabnavis: Circular business models in the fashion industry is poised to grow exponentially given the pressure the industry is facing due to enormous amount of waste going to landfill and incinerators. Synthetic materials like polyester are not biodegradable at the end of the life and their leakage to soil and aquatic bodies are creating problems of microplastics. Within the larger scope of circular business, recycling of fibres is also emerging as a promising area that can deliver the circularity of materials. We believe that in next 10 years, at least 30% of the market would be from recycled materials and there is a large untapped opportunity in this space.

Mukul Agrawal: How is the journey of Liva Reviva fibre and what are your future plans to upscale it?

Rajnikant Sabnavis: Liva Reviva has been a breakthrough innovation and has been accepted well in the market. Liva Reviva technology provides a channel to recycle cotton waste and produce fresh viscose fibres that many brands find helpful in introducing circularity in their garments. We have taken an aggressive target of increasing the production of circular fibres like Liva Reviva to 100,000 tons by 2024. We are moving the production of Liva Reviva from pilot line to larger lines with EU BAT compliant manufacturing facility by mid-2022 which will help us scaling the supplies.

Mukul Agrawal: How building on the partnership with brands, innovators and technology providers give fillip to circularity?

Rajnikant Sabnavis: We strongly believe that the development of Next Generation solutions and a Circular Business Model will require the like-minded organisations to work together while facilitating and supporting each other in this journey. Birla Cellulose is working on several collaborative projects to build a strong momentum for circularity including: Full Circle Textile Project & The Sorting for Circularity India Project with Fashion for Good, and a project in progress to use agri-waste to develop textile applications. We are working on Nanollose lyocell fibers, and involved with a large number of innovation partners such as Laudes Foundation, Adidas, Bestseller, Kering, Chanel, Levis, PVH, TESCO, and Zolando.

CTO Q&A

Mukul Agrawal: Please tell us about the Birla Cellulose and Nanollose joint patent for high tenacity lyocell fibre. When can we expect to commercialise this product?

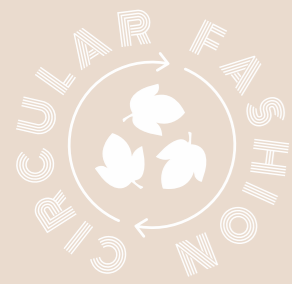
Dr. Aspi Patel: It is a path breaking innovation that can replace the current MMCF feedstock with microbial biomass developed from food waste. Birla Cellulose filed a joint patent application with Nanollose where we successfully converted a microbial biomass to a high tenacity lyocell fibre. This fibre is finer than silk and significantly stronger than conventional lyocell that is traditionally produced from wood pulp. We are progressing towards larger-scale testing with this pulp for lyocell fibres currently. Further, the plan is to complete pilot fibre spin to produce the first amounts of Nanollose's revolutionary fibre, yarns and fabrics for supply to selected partners.

Mukul Agrawal: Birla Cellulose is pioneering several environmental control technologies that go beyond the EU BAT norms, can you please elaborate on what is our strategy and goals in development of environmental technology?

Dr. Aspi Patel: The strategy involves development of innovative solutions to increase circularity, increase resource efficiency and mitigate environmental impacts. For example, our work on chemicals recovery from waste streams has resulted in new membrane distillation process that reduced the energy consumption of current process by as much as 50%, a huge benefit in reducing GHG emissions. There is also a new process in development for recovering low concentration zinc from waste stream and recycling back to process. Due to recycling of chemicals we could reduce our chemical consumptions by 5% to 10% in last five years.

Mukul Agrawal: Birla Cellulose is the 1st MMCF producer to have achieved ZLD in viscose and lyocell process. Please share some key learnings from this ambitious project.

Dr. Aspi Patel: MMCF manufacturing is a water intensive process. Over the years, by adopting 4R philosophy, our business has become global benchmark in terms of lowest water consumer. The ZLD project implemented could help achieve overall water recovery of 94-95%. Earlier, there was no established ZLD technology available to treat viscose and lyocell effluent along with high organic, inorganic content, dissolved solids and hardness in the effluent. The majority of salt extracted from ZLD plant is designed in such a way that it is high purity and is used for industrial applications.



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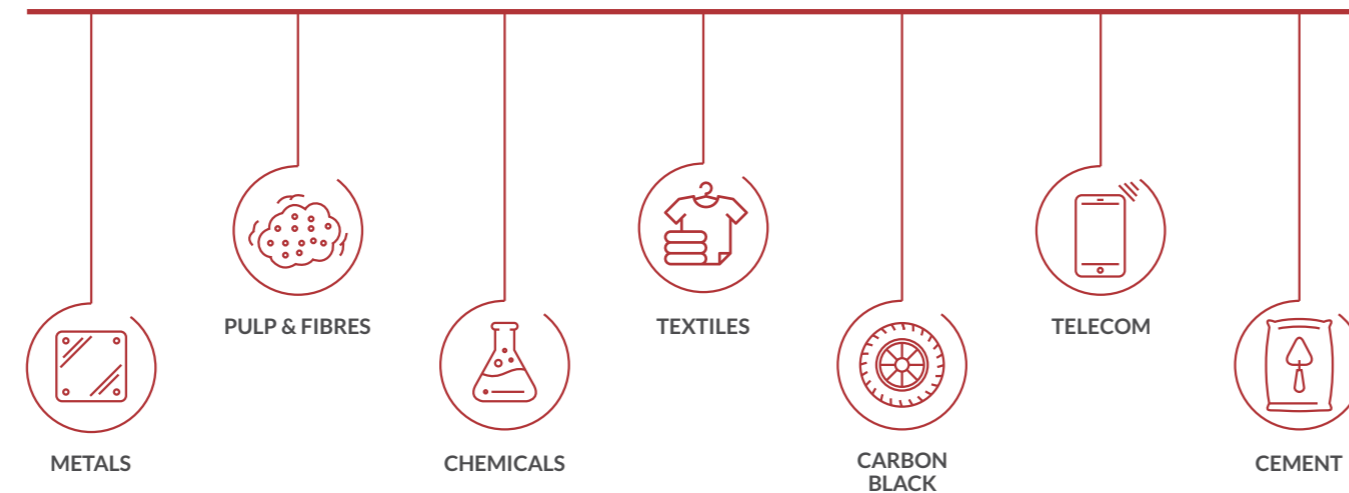
ORGANISATION PROFILE

Aditya Birla Group

A global conglomerate, the Aditya Birla Group, is in the League of Fortune 500. Anchored by an extraordinary force of over 140,000 employees belonging to 100 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, pulp & fibre, chemicals, textiles, carbon black, telecom and cement.

Today, over 50% of Group revenues flow from overseas operations that span 36 countries across 6 continents.

For more details about Aditya Birla Group and presence across different businesses, please [click here](#).

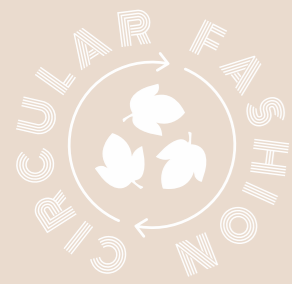


Globally, Aditya Birla Group is among
THE TOP THREE PLAYERS IN



In India, Aditya Birla Group is among
THE TOP THREE PLAYERS IN





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Birla Cellulose

Birla Cellulose, the Pulp & Fibre Business, is part of 'Aditya Birla Group', India's first truly multinational corporation with global presence. The Group is governed by its strong set of values and has a vision of creating value for its multiple stakeholders through its leadership in sustainable business practices.

The business Grasim Industries Ltd. was incorporated on 25th August 1947, 10 days after India's independence. Fibre manufacturing, that commenced its operations in 1954, is one of the oldest businesses of Aditya Birla Group. Present at 6 locations across the globe, today, Birla Cellulose produces dissolving grade pulp in India, Canada and Sweden, and a complete range of man-made cellulosic fibres (MMCF) spanning all the three generations of fibres viz. viscose, modal & lyocell in India, Indonesia, Thailand and China. Sodium Sulphate, co-product from viscose manufacturing, is used in various industries such as detergents, glass etc. From the very onset, global standards were marked both in terms of commitment to quality and setting up of world-class facilities and processes.

Birla Cellulose is the umbrella brand for Aditya Birla Group's Man-made Cellulosic Fibres (MMCF) offerings. Wood is the most important raw material for MMCF production and is sourced from forests following international forestry standards like FSC® (Forest Stewardship Council®) (FSC® C118017), SFI® (Sustainable Forestry Initiative) and PEFC™ (Programme for the Endorsement of Forest Certification).

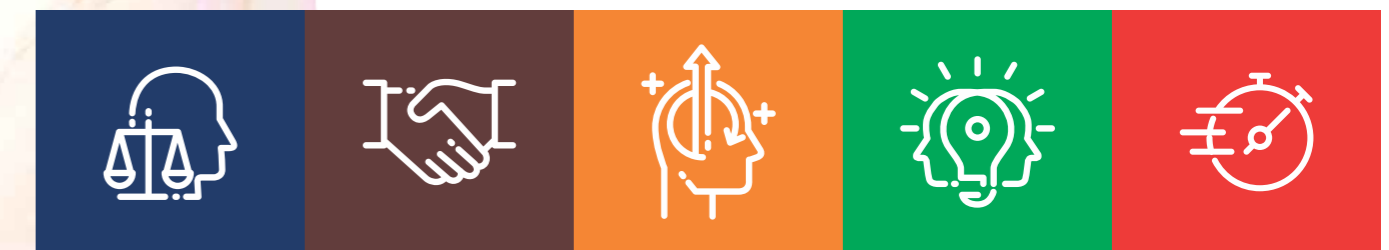


To be the global leader in the Man-made Cellulosic Fibres industry

Birla Cellulose collaborates actively with its upstream and downstream partners to enhance the sustainability performance of the value chain. It also collaborates actively with sustainability focussed multi-stakeholder organisations and other global institutions and apply their best practices in its value chain.

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 value means what it is and when combined together, they shape the culture of our organisation and its identity.



INTEGRITY

Acting and taking decisions in a manner that is fair and honest. Following the highest standards of professionalism and being recognised for doing so. Integrity for us means not only financial and intellectual integrity, but encompasses all other forms as are generally understood.

COMMITMENT

On the foundation of integrity, doing all that is needed to deliver value to all stakeholders. In the process, being accountable for our own actions and decisions, those of our team and those on the part of the organisation for which we are responsible.

PASSION

An energetic, intuitive zeal that arises from emotional engagement with the organisation that makes work joyful and inspires each one to give his or her best. 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. Leveraging diverse competencies and perspectives to garner the benefits of synergy while promoting organisational unity through sharing and collaborative efforts.

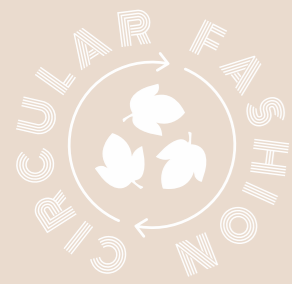
SPEED

Responding to internal and external customers with a sense of urgency. Continuously striving to finish before deadlines and choosing the best rhythm to optimise organisational efficiencies.



We aim to create superior and sustainable value for all our stakeholders, maintaining the majority of market share in the man-made cellulosic fibre industry globally, through:

- Innovation in product and process
- Excellence in quality, service and people development
- Focus on sustainability across the value chain



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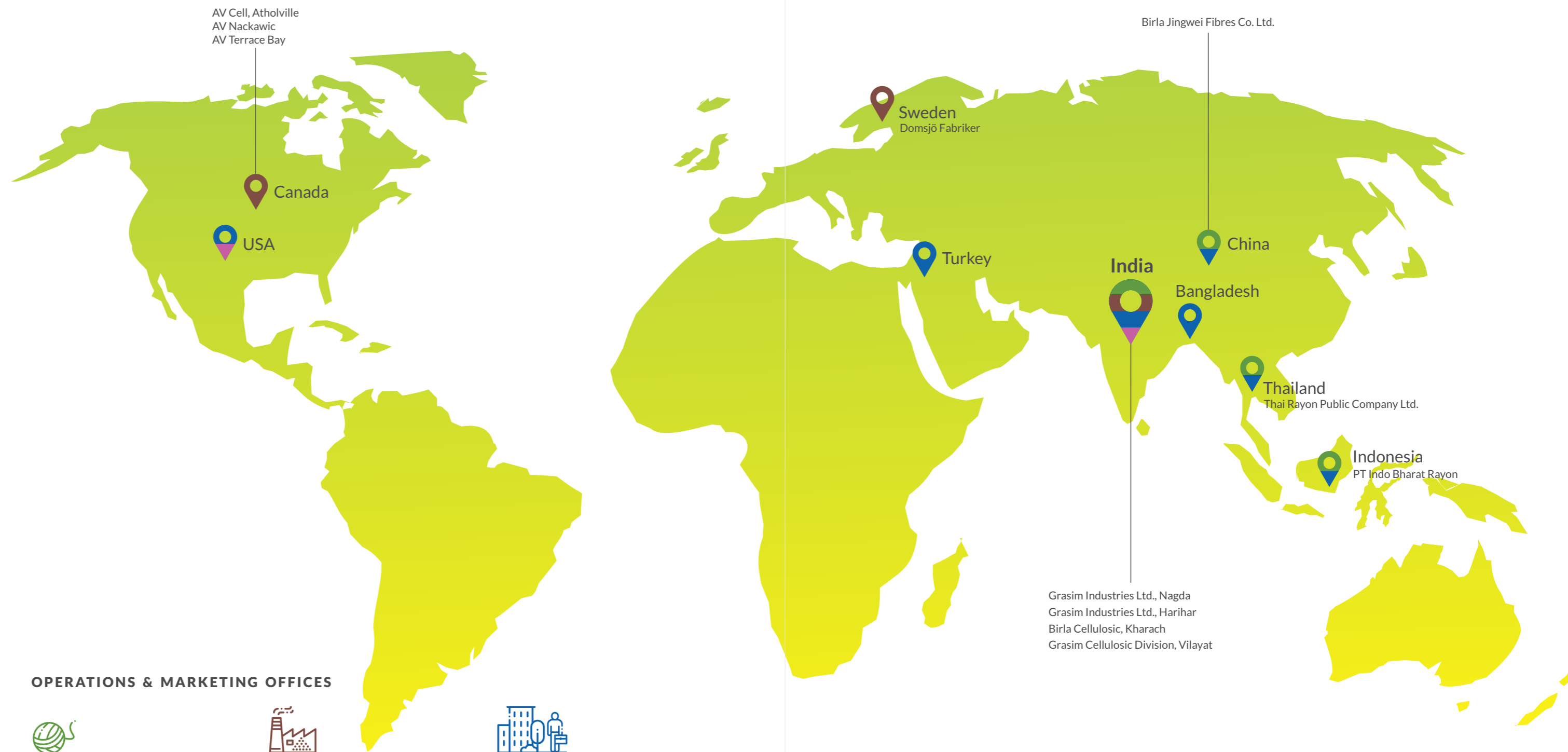
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Global Footprint

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



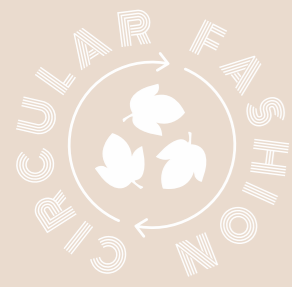
CORPORATE AND MARKETING OFFICES

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



LAPF DESIGN STUDIOS

India (3), Indonesia (1) and USA (1)



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Innovation Centres at Birla Cellulose

Sustainability and innovation work in tandem at Birla Cellulose. Our in-house research and development centres are the hubs which contribute to bring versatility in our products and their applications through technology.

Our process innovation centres are working to improve processes and make them more sustainable by focussing on areas like closed-loop or low carbon technologies, sustainable and alternate raw materials and elimination of hazardous chemicals. Our products are the result of carefully listening to our customers, taking their feedback seriously, and delivering sustainable solutions as per their needs.

ADITYA BIRLA SCIENCE & TECHNOLOGY COMPANY PRIVATE LIMITED (ABSTCPL)

ABSTCPL is the corporate research and development centre for the Aditya Birla Group and supports the broad diversity of the Group's businesses through multi-disciplinary teams of expert scientists and engineers who lead fundamental and applied research projects. The centre aims to deliver innovative solutions, continuously improve core competencies and execute it effectively.



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, India.



TEXTILE RESEARCH AND APPLICATION DEVELOPMENT CENTRE (TRADC), KHARACH, INDIA

The Textile Research and Application Development Centre (TRADC) was established in 2004 as the key technology-market interface and enables the business to be a leader in cellulosic fibres by creating product-offering innovations and effectively commercialising them across the value chain.

NEXT GENERATION FIBRE RESEARCH CENTRE, NAGDA, INDIA

The Next Generation Fibre Research Centre (NGFRC) focusses on development of environment-friendly solvent spinning technology for making lyocell fibre (Birla Excel). It houses a pilot plant facility focussing on development of sustainable and energy efficient processes, new product development and technology transfer to the commercial plant.

FIBRE RESEARCH CENTRE, KHARACH, INDIA

Fibre Research Centre (FRC) strengthens the R&D work on the fibre manufacturing process by facilitating innovation, quality upgradation, efficiency improvement, recipe formulation and technology transfer to the commercial plant for all the Viscose Staple Fibre (VSF) units of Birla Cellulose.



PULP AND FIBRE INNOVATION CENTRE (PFIC), TALOJA, INDIA

Among the latest and most advanced R&D centre, Pulp and Fibre Innovation Centre (PFIC) focusses on technology projects in areas of product development and enhancement, sustainable processes, quality improvement, along with reduction in energy footprint.

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.



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Value Chain & Us

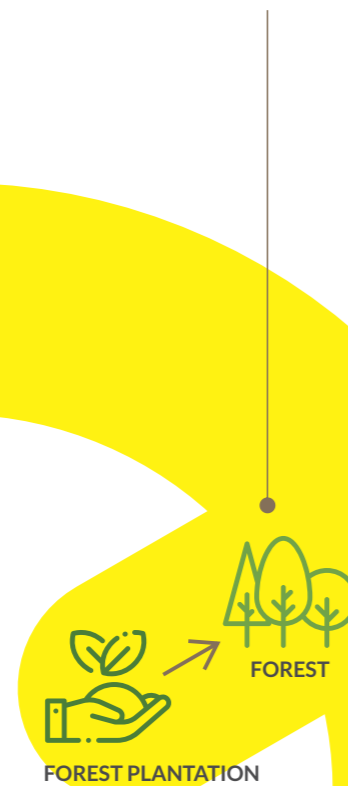
MMCF is a basic raw material for the textile value chain and is the material which gives the natural feel and unparalleled comfort to the end consumer. Hence, the onus is on us to not only be the most sustainable raw material provider to the textile value chain, but also collaborate to drive sustainability improvements across the value chain.

Birla Cellulose actively collaborates with all the stakeholders throughout the entire viscose value chain - from plantation of forests to manufacturing of pulp and fibre and up to the fashion in the hand of end consumers.

At every stage of the textile value chain, Birla Cellulose is deeply engaged with the value chain partners by working together to improve the sustainability of our products in order to create value for all our stakeholders and a positive social impact.

RAW MATERIAL SOURCING

Wood and chemicals are the most important raw material for MMCF production. Birla Cellulose has implemented a strict 'Wood Sourcing Policy' and sources wood from sustainably managed forests following internationally renowned forestry standards. Also, in place is a 'Supplier Code of Conduct' for all the suppliers.



FOREST PLANTATION

PULP MANUFACTURING

Dissolving wood pulp produced at our manufacturing plants in India, Canada and Sweden and sourced from the market is used in the fibre manufacturing process.



WOOD

PULP MANUFACTURING

VISCOSE VALUE CHAIN

FIBRE MANUFACTURING



YARN



TEXTILE VALUE CHAIN

CLOTH

GARMENT

RETAILERS

END CONSUMER

NONWOVEN VALUE CHAIN



NONWOVEN ROLLS



CONVERTERS



PRODUCTS



RETAILERS



END CONSUMER

BIODEGRADES

END OF LIFE

Viscose fibres made by Birla Cellulose are compostable in home and industrial conditions and biodegradable in water, soil and marine environment. The compostability and biodegradability of the final product made by our value chain partners, however, depends on the material composition used to make it.



UPSCALING OF INDUSTRIAL AND POST-CONSUMER WASTE

The new developments in this area are focussed on recycling of cellulosic pre- and post-consumer waste as a raw material for making viscose fibres and reducing reliance on fresh raw material through collaborative efforts with upstream as well as downstream value chain. In this waste is collected and reprocessed as feedstock for the viscose fibre manufacturing.



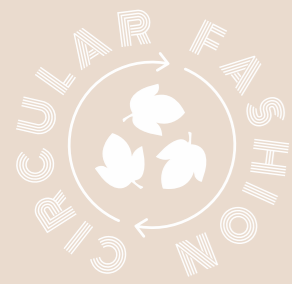
TEXTILE / NONWOVEN MANUFACTURING & USE

In 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 in the hands of the customers.

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

FIBRE PRODUCTION

The dissolving wood pulp sheets shipped to our fibre manufacturing plants in various geographies are converted to most common cellulosic fibres such as Viscose, Modal and Lyocell. During viscose / modal production, co-product, sodium sulphate is generated and used in downstream industries such as glass, detergents, etc.



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About the Report

Reporting Principles

The Sustainability Report seeks to communicate our ESG (environmental, social and governance) performance to our stakeholders. The report highlights our management approach to sustainability, which is deeply integrated into our business strategy. It is our continuous endeavour to minimise environmental impact using our sustainability framework which not only looks at the sustainability aspects of MMCF manufacturing, but is equally focussed on working closely with our value chain partners to improve the sustainability of the entire MMCF value chain. These aspects are scoped and incorporated in the five pillars of our sustainability strategy - **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 location within the report. We are determined to publish our sustainability report on a regular basis. The performance disclosures contained in this report pertain to the period between April 01, 2020 and March 31, 2021.

For your valuable feedback and suggestions, please write to

Mr. Mukul K Agrawal on mukul.k.agrawal@adityabirla.com



Boundary and Scope

This report's boundary and scope include the corporate and marketing offices across locations, four dissolving wood pulp and seven MMCF manufacturing units. The report also covers an array of topics, which have been defined as material to our business and operations. 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.

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.

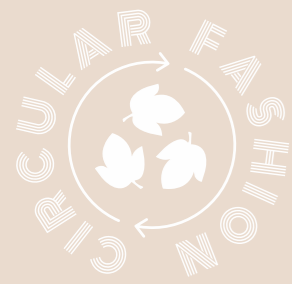
Management's Approach to Sustainability

At Birla Cellulose, sustainability is at the core of the business strategy and deeply inculcated in the culture of the organisation.

We have a long-term 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, upstream and downstream value chain - more sustainable and collaborate and partner with all the stakeholders to create a bigger and broader positive impact.

Every process is designed to enhance the sustainability attributes of the product so that the richness of the natural cellulose sourced from sustainable forests is transformed efficiently into fibre that gives unparalleled comfort and a natural feel to the consumers. We are committed to the mission of problem solving for our stakeholders through technological innovations that maximise sustainability impact while creating value for all the stakeholders and well-being of the people and the planet.

The materiality issues identified with internal & external stakeholders, the risk assessment, UN SDGs and the ABG Sustainability Framework constituted the framework of Birla Cellulose's Business Sustainability Strategy.



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Materiality

In order to create a transparent and robust approach in sync with the needs of the industry and shaping our sustainability strategy, a complete materiality assessment was done in the year 2019 and the key materiality issues were identified. We are taking feedback on a continuous basis from both internal and external stakeholders, and the materiality issues are updated accordingly. A questionnaire was prepared and shared with internal and external stakeholders. The stakeholders covered in the survey included multi-stakeholders, customers, brands & retailers, not-for-profit organisations, community representatives, investors and representatives of regulatory bodies. Further, responses received from various stakeholders were collated and based on the responses, issues that were of high relevance to both internal and external stakeholders were culled out and plotted to prepare a materiality matrix.

Please [click here](#) to refer the detailed materiality analysis which is available on our website.

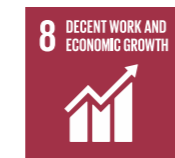
Material Issues

RESPONSIBLE SOURCING

WOOD SOURCING & BIODIVERSITY



SUSTAINABLE SUPPLY CHAIN



VALUABLE PARTNERSHIPS

CIRCULAR ECONOMY



PARTNERSHIP FOR GOALS



REDUCE INEQUALITY



RESPONSIBLE MANUFACTURING

CLOSED-LOOP



WATER



GHG



CLIMATE ACTION



CHEMICAL



WASTE



SUSTAINABLE PRODUCTS & CIRCULAR ECONOMY

TRANSPARENCY AND TRACEABILITY

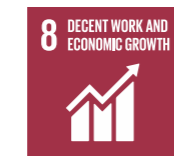


SUSTAINABLE PRODUCTS & CIRCULAR ECONOMY



SOCIAL RESPONSIBILITY

OHS & TALENT MANAGEMENT



GENDER EQUALITY



REDUCE INEQUALITY



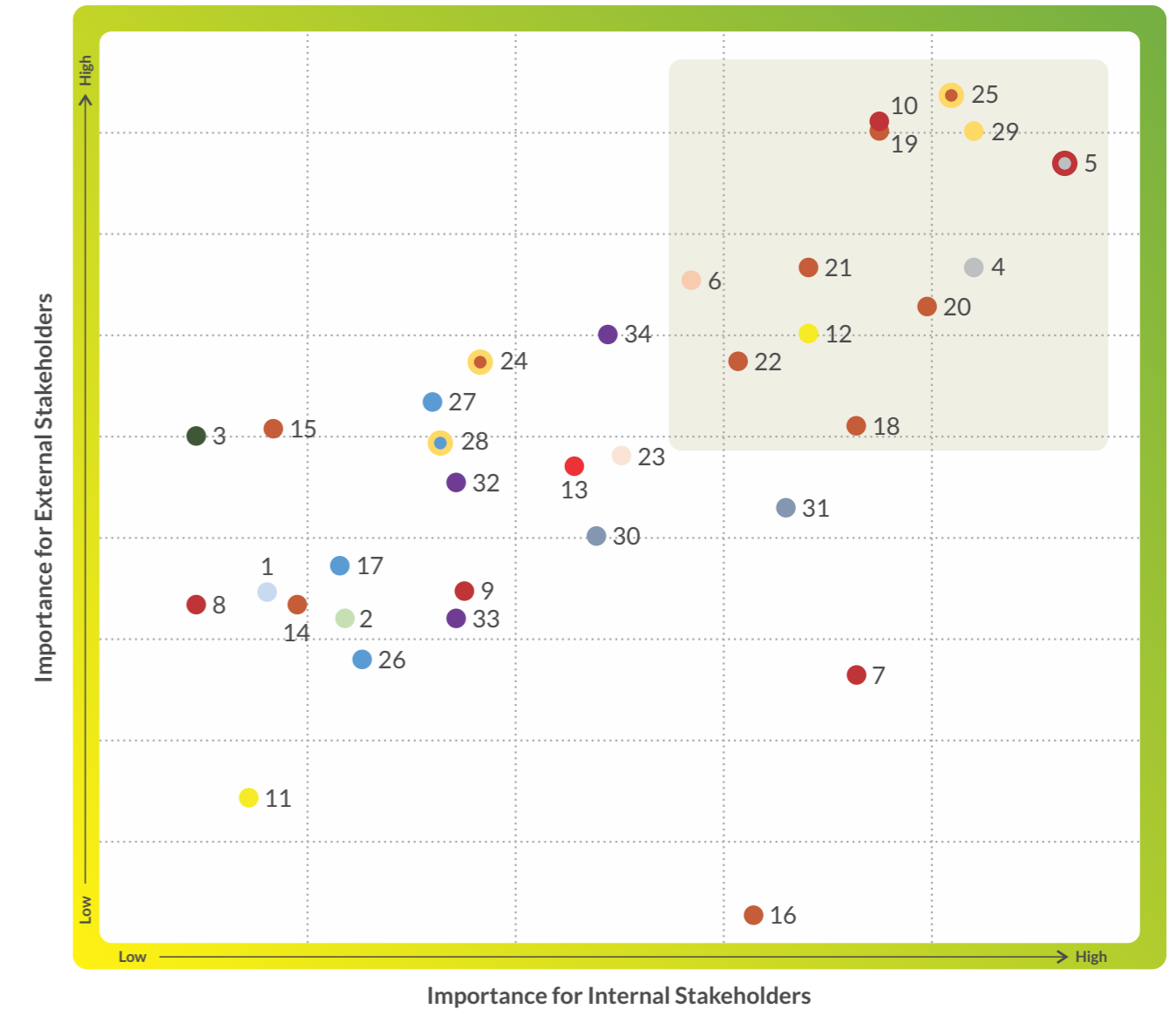
POVERTY



GOOD HEALTH & WELL-BEING



Materiality Matrix



Most important material issues

No.	Issue
4	Water Footprint
5	Occupational Health & Safety
6	GHG Reduction in Manufacturing
10	Fair Labour Practices in Supply Chain
12	R&D for Technology Upgradation
18	Customer Satisfaction
19	Sustainable Procurement
20	Waste Management
21	Best Available Techniques (BAT) for Production
22	Closed-loop Manufacturing
25	Chemical Management
29	Responsible Wood Sourcing

Other key material issues

No.	Issue	No.	Issue
1	Welfare of Local Communities	17	Responsible Supply Chain Management
2	Capacity Building in Value Chain	23	GHG Reduction in Supply Chain
3	Gender Equality	24	Biodiversity & Resources Management
7	Talent Development	26	Sustainable Product Development
8	Collaborating for Human Rights	27	Marine Pollution from Microfibres
9	Economic Performance	28	Sustainable Product
11	Collaborating for Enhancing Local Supplies	30	Transparency in Sustainability Disclosures
13	Equal Opportunity Employer	31	Transparency in Governance System
14	Global Certifications for Products & Process	32	Collaboration for Value Chain Sustainability
15	Circular & Recycled Products	33	Partnership with Multi-stakeholder Organisations
16	Partnership for Sustainable Viscose Promotion	34	Transparency & Traceability



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Risk Management

Sustainable business requires that the risks are managed proactively and promptly before they start impacting the performance of the company. 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.

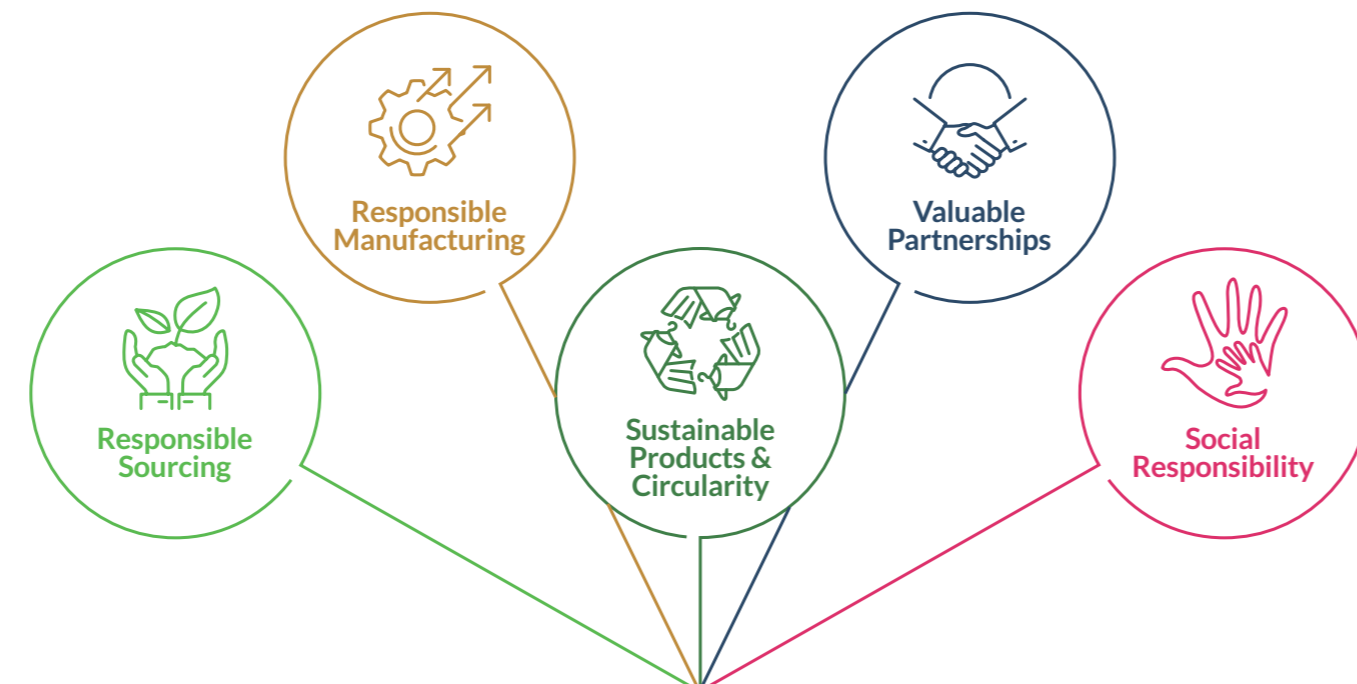
Birla Cellulose has done an extensive study of the risks associated with the business across and especially in the field associated with sustainability and regulatory compliances. Risk assessment at Birla Cellulose has three main steps, i.e. risk identification, risk evaluation/assessment, risk communication, and risk management & control based on risk level. Birla Cellulose determines priorities concerning risks and opportunities based on the assessment.

Please [click here](#) to refer to the detailed risk assessment process and various risks identified for the business available on our website.

Sustainable Business Strategy

Birla Cellulose, over the last several decades, 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 stakeholders.

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 a 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

BIRLA CELLULOSE'S SUSTAINABILITY VISION | To be the Global Leader of Sustainable Business Practices in the MMCF Industry

Please [click here](#) to learn more about our sustainable business strategy.

Corporate Governance

Aditya Birla Group Corporate Principles and Code of Conduct are the ideologies we follow for ensuring good corporate governance in our organisations. 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.

Please [click here](#) to learn more about our Corporate Governance.



Policies and Standards

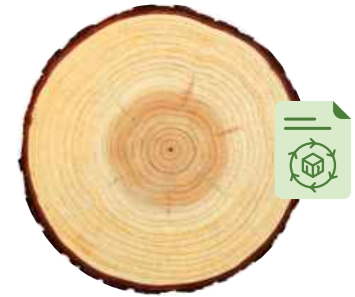
We have developed policies for our Business taking into account our Group Policies & Values.

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.

For a deeper understanding of our policies visit- <https://www.birlacellulose.com/reports-policies.php>



Sustainability Policy



Wood Sourcing Policy



Water Stewardship Policy



Environment Policy



Energy & Carbon Policy



Health Policy



Safety Policy



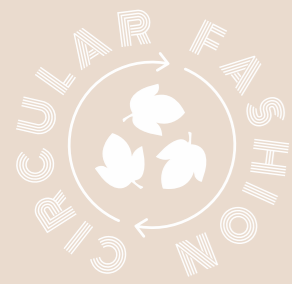
Global Best Practices Policy



Human Rights Policy



Supplier Code of Conduct



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From Conservation to Rejuvenation

Our efforts on sourcing are directed towards rejuvenating the environment and not just conserving it.

FOCUS

- To source wood from controlled and certified sources only with complete traceability
- Assessment of key and critical suppliers for a sustainable supply chain
- Localising supply of goods and services to develop local communities

From Good Practices to Global Benchmarks

It is our continuous endeavour to move towards global benchmarks and implement good practices in the operations.

FOCUS

- Continually reduce water footprint and establish new benchmarks
- Application of EU BAT Standards for closed-loop production and resource efficiency
- Decarbonisation and improving energy efficiency of our processes
- Developing applications for waste going to landfill thereby reducing waste generation

From Product Focus to Consumer Solutions

Increasing the portfolio of low-carbon products and create value for downstream partners, consumers as a supplier of sustainable products.

FOCUS

- Increasing the share of sustainability-enhanced products in our product basket
- Increasing the use of alternate feedstock such as pre- & post-consumer in our products
- Collaborations and co-branding initiatives with leading brands

From Transactional to Transformative Partnerships

Through collaborative partnerships, Birla Cellulose shall implement scientific & technological advances based on its partnership with multi-stakeholder organisations, think tanks, technology providers, experts.

FOCUS

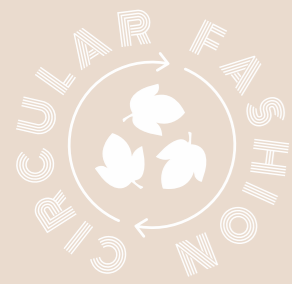
- Ensure sustainable forestry and biodiversity practices by actively collaborating with organisations and non-profits like Canopy
- Continue working with multi-stakeholder organisations to communicate our programme and seek feedback for improvements
- Improving the sustainability practices through capacity building across the value chain
- Implementing 'state-of-the-art' technologies via collaboration with research institutions, technology and equipment suppliers, experts and consultants

From Need Alleviation to Systemic Transformation

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 Lost Time Injuries (LTI) by applying the world class safety practices
- Talent management at all levels to build an exceptional workforce
- Working towards women empowerment in the geographies we operate and to make programmes to train them to be financially independent
- Need-based community engagement programmes for socio-economic development



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Sustainability Goals & Targets

Birla Cellulose will drive to a leadership position in the sustainability space and the most sustainable MMCF manufacturer with the implementation of its sustainability strategy. Our aspiration is to stay ahead of the curve in critical areas of wood sourcing, closed-loop process, sustainable products.

GOAL 1



Net Zero Emissions by 2040

Birla Cellulose aims 'Net Zero Carbon emissions across all its operations by 2040' with an aspiration to reach the target earlier by 2035 and to achieve 50% reduction in its greenhouse gas (GHG) emissions intensity by 2030.

GOAL 2



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 for sulphur-to-air release by end of the year 2022 thereby achieving a 70% reduction from baseline of FY15.

We have reduced sulphur to air emission by 37% over the years and shall meet EU BAT norms by end of the year 2022. Progress of this goal is detailed in the Responsible Manufacturing section.

GOAL 3



Reduce specific water consumption by 50% in VSF manufacturing by 2025 over baseline of FY15

We are applying innovative technologies to reduce water consumption, including 'state-of-the-art' membrane based technologies. Currently, we have set global benchmarks for water intensity at about 20 m³ per ton of fibre which is much lower than even the stringent EU BAT norms for water consumption (35-70 m³/TF).

Water consumption has reduced by 43% over the years and operating well below the limit prescribed by EU BAT norms. Progress of this goal is detailed in Responsible Manufacturing section.

GOAL 4



Reduce the Lost Time Injury Frequency Rate (LTIFR) below 90% over a baseline of FY15

We have the highest priority for safety for all including employees, suppliers and communities where we operate. LTIFR has reduced over the time due to strong focus on safety. From FY15 to FY21, we have reduced our LTIFR by 85% and expect to meet the target ahead of our timelines. Progress of this goal is detailed in the Social Responsibility section.

GOAL 5



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 adopt these best practices.

We have started the supplier assessment for key suppliers and implemented the Supplier Sustainability Programme. Progress of this goal is detailed in the Responsible Sourcing section.

GOAL 6



Increase the use of alternative feedstock such as 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. We have taken an **ambitious target of scaling up Liva Reviva fibre to 100,000 tons** by the year 2024. More progress on this goal is detailed in Sustainable Products section.

GOAL 7



Development of alternative applications to reduce the solid waste by 25% by 2030 over FY15

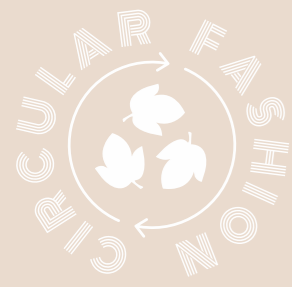
The solid waste generated out of the viscose process is already partly recycled or reused. However, there are opportunities to further reduce waste and these are being evaluated for alternative applications in the infrastructure industry in close collaboration with other industries. We have achieved a 41% reduction in the waste going to landfill & incineration over FY19. Progress of this goal is detailed in the Responsible Manufacturing section.

GOAL 8



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 countries where we operate. We target to empower 50,000 women by capacity building and making them financially independent by 2030. We have supported nearly 24,000 women for livelihood activities during FY15 to FY21.



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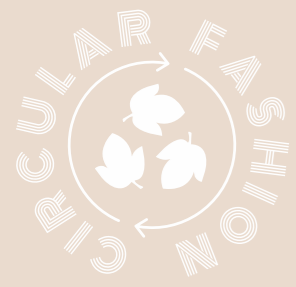
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MATERIALITY PERFORMANCE AND TARGETS

Sustainability Pillar & Strategic Message	Material Topic	Linkage with SDGs	Key Performance Indicators	Target	Baseline	Progress
Responsible Sourcing	Responsible Wood Sourcing		Percentage of sustainably sourced wood	100% controlled wood sourcing	93% in FY18	100% controlled wood sourcing achieved
	Biodiversity		Conservation/protection of Ancient & Endangered forests	Conservation work in Boreal forests	-	Conservation of Boreal Forests in collaboration with Canopy in progress
	Sustainable Supply Chain		Assess the sustainability performance of key suppliers	100% evaluation of critical suppliers by 2025	-	Supplier Assessment Framework established Supplier Code of Conduct circulated and sign off started
Responsible Manufacturing	Climate Change Risks		50% GHG intensity reduction by 2030 and Carbon Neutrality by 2040 in scope 1, 2 & 3 (identified scope 3) and sequestration in managed forests	Develop site-wise roadmap by end of 2022 and initiate GHG reduction actions.	FY19	Multiple actions in progress to reduce GHG emissions and adaption of energy efficient technologies
	Closed-loop Manufacturing		Adaption of EU BAT technology for VSF manufacturing	Reduce Sulphur-to-air emissions by 70% by year 2022	FY15 = 100%	Achieved 37% reduction over the baseline
	Water Footprint		Reduction in water intensity in VSF manufacturing process	Reduce water intensity by 50% by 2025	FY15 = 100%	Achieved 43% reduction over the baseline
				Reduce pollution load in effluent by 2022	Reduction in COD to meet EU BAT compliance	FY18 = 100%
	Waste Management		Reduction in waste to landfill and incineration	Reduction in zinc to meet EU BAT compliance	FY19 = 100%	52% reduction over the baseline achieved by end of FY21
				Reduction by 25% by 2030	FY19	41% reduction in the waste going to landfill & incineration over FY19 achieved
Sustainable Products & Circular Economy	Sustainable Products & Circular Economy		Scaling of circular products utilising textile waste	Increase waste used and recycled content	-	Liva Reviva manufacturing being extended to Vilayat site in H1 2022
			Growth of eco-enhanced products	No. of products and scaling-up	FY19	Launched Livaeco (Modal) and Purocel NW fibre. Significant growth achieved in Livaeco VSF and Liva Reviva
	Traceability		GreenTrack™ Blockchain Technology	Visibility from forest-to-fashion by 2021	FY18	100% visibility from forest-to-retail. > 40 global brands onboarded.
	Transparency Risk		3rd party audits at all sites by 2023	Higg 3.0 FEM, ZDHC, CanopyStyle Audit, ISO Standards, EU BAT	FY18 = 84%	Avg 3rd party Higg (3.0) FEM verified score of 93%, highest in industry
Valuable Partnerships	Valuable Partnerships		Major collaborative efforts across industry	Participation in major multi-stakeholder initiatives	-	Joined 8 multi-stakeholder organisations
Social Responsibility	Talent Management		Percentage of employees receiving regular performance and career development reviews	100% coverage	-	100% Coverage
	Occupational Health & Safety		Reduce Lost Time Injury Frequency Rate (LTIFR)	Reduce LTIFR below 90% over FY15 baseline	FY15	89% reduction in LTIFR achieved over baseline
	Gender Equality & Reduce Inequality		Women Empowerment	To empower 50,000 women to be financially independent by 2030	FY15	Total cumulative 23,840 Nos.
	Community Engagement		Total no. of beneficiaries	Community Engagement in Health & Education	FY15	Total cumulative beneficiaries (Nos) 22,34,227



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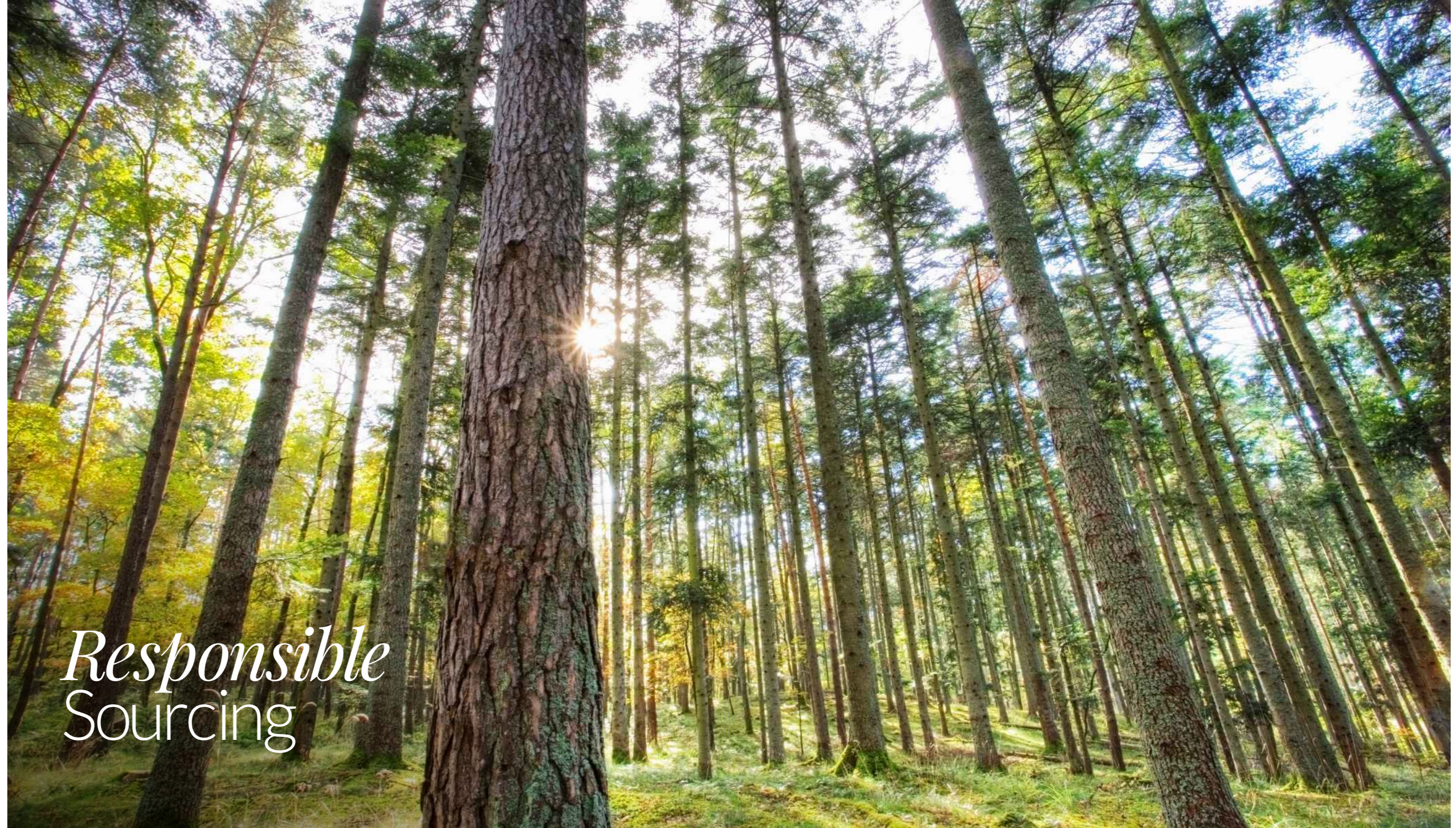
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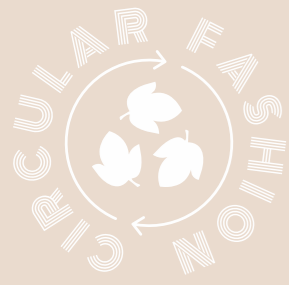
Responsible Sourcing

- Globally, ranked #1 in Canopy's Hot Button Report 2021 with 'dark green shirt' rating
- Leaders in Hot Button Ranking for 3 years consecutively

- 100% wood is procured from sustainable and controlled sources
- Implementation of Supplier Assessment & Evaluation thereby addressing SDG 8

Key Challenges 2021

- Supply chain disruption due to Covid-19 particularly pulp
- Limited availability of certified wood
- Inefficient reverse logistics for pre-consumer cotton waste



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Responsible sourcing or sustainable sourcing has become a strategic priority for any business, especially after Covid-19 induced supply chain disruptions. As a result of globalisation, supply chains have become complex, opaque and distributed.

At Birla Cellulose, sustainable sourcing is a critical part of our business strategy in order to ensure that procured goods and services meet our sustainability requirements. We believe this is an important lever to create a positive impact and by working with our suppliers and buyers, we can advance ethical business practices, human rights, climate resilience and environmental protection.




Dissolving pulp made out of wood and various chemicals required for making both pulp and MMCF fibre are our key materials. Wood has the highest priority as there are many risks associated with its sourcing such as sourcing from controversial sources, deforestation etc. Forests support biodiversity of flora and fauna by sequestering Carbon Dioxide (CO₂) from the climate, which is responsible for direct impact on global weather patterns.


Birla Cellulose has a very stringent 'Wood Sourcing Policy' that ensures forestry conservation and protection of ancient & endangered (A&E) forests. At the same time, we have also worked upon developing alternate raw materials for MMCF that would ease the burden on forest wood.


We engage with our suppliers through long-term supply agreements and include Environmental, Social and Governance (ESG) criteria along with economic criteria for their evaluation and their selection. A 'Supplier Code of Conduct' issued by our procurement department has to be followed diligently by all the suppliers. We have instituted a 'supplier assessment process' wherein critical suppliers are assessed for their sustainability performance.


Responsible Sourcing at Birla Cellulose


Birla Cellulose aims to have collaborative efforts with its suppliers for creating a positive impact on sustainability by applying globally accepted frameworks and best practices:

 **Environment:** Protection of the environment and biodiversity, reduce resource consumption by improving efficiency, and act on climate change goals and circular business models.

 **Social, Health and Safety Aspects:** Respect Human Rights and create better and healthier working conditions for workers and communities.

 **Ethics:** Follow ethical and fair business practices, fair wages, labour laws, etc.

 **Multiplier Impact:** Suppliers should work with their suppliers to replicate similar requirements for creating a broader and bigger impact.

 **Transparency:** Transparency of sustainability performance- both positive aspects and challenges faced. Maintain complete traceability of sources of materials/services.

Supplier Sustainability Assessment

Supplier Code of Conduct

Our Supplier Code of Conduct is aimed at creating a positive impact across the value chain and implement sustainable business practices. Compliance to this Code by our suppliers is a key criterion for vendor selection and further business partnerships. All suppliers of Birla Cellulose are expected to understand the requirements of our Supplier Code of Conduct and apply it within their operations and in all their transactions with Birla Cellulose.

The Supplier Code of Conduct covers following key aspects:



HUMAN RIGHTS



ENVIRONMENT, HEALTH AND SAFETY (EHS)



APPLICABLE LAWS & REGULATIONS



BUSINESS ETHICS



NON-COMPLIANCE TO THE CODE



SUPPLIER AUDIT

The purpose of the Supplier Code of Conduct is to procure all goods and services from the sustainable sources adhering to stringent EHS standards and ensure all transactions are done in ethical ways following the regulatory requirements. Human Rights 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. The Supplier Code of Conduct can be accessed [here](#)

We have also started supplier assessment for key suppliers based on the criticality of suppliers. Critical suppliers are those whose materials or services have a huge impact on the business operations, competitive advantage, market performance, etc.

The Supplier Assessment Process covers the following:



100% SIGNOFF ON SUPPLIER CODE OF CONDUCT



PERFORMANCE MONITORING AND BUILDING CAPABILITY



ANNUAL REVIEW



CONTINUOUS FEEDBACK AND COLLABORATION



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Responsible Wood and Dissolving Pulp Sourcing

Responsible wood sourcing has the utmost priority in our sourcing practices. Wood sourced from sustainably managed forests is the main raw material for dissolving pulp which in turn is the key raw material for manufacturing of MMCF.

Wood Sourcing Policy

We engage with all our pulp suppliers to ensure that the wood used by them is sourced from sustainably managed forests and plantations.



We are committed

to procure wood only from sustainable sources.

Our 'Wood Sourcing Policy' has laid out that we will not procure wood which is

Illegally harvested

Harvested in violation of traditional and civil rights

Derived from uncertified High Conservation Value Forest

Harvested from plantations established after 1994 through conversion of natural forests or converted to non-forest use

Harvested in ancient and endangered forests, or endangered species habitat

From forests in which genetically modified trees are planted

Sustainable Forestry & Climate Change

Our wood sourcing policy can be accessed [here](#)

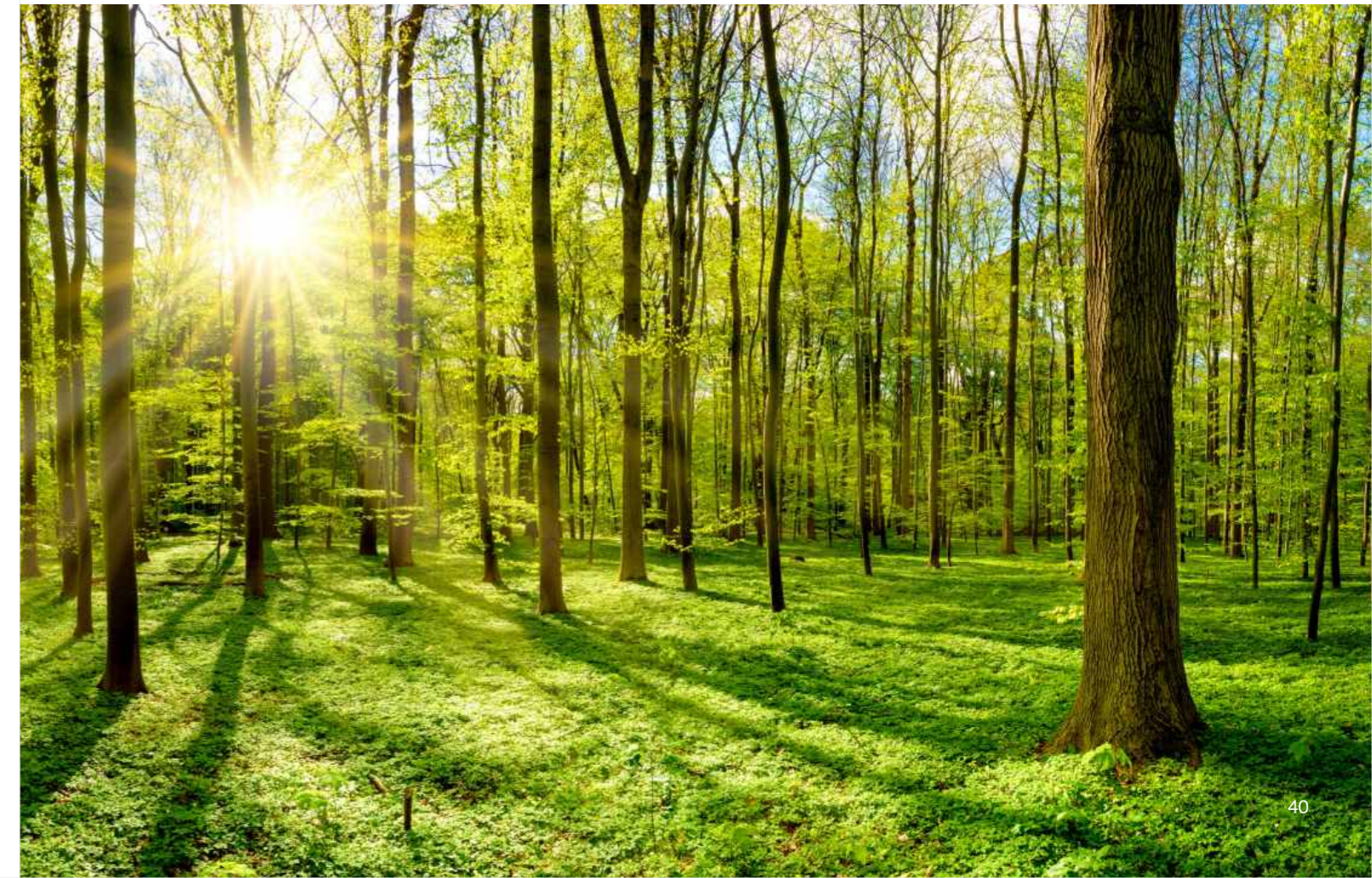
We continue to implement strict controls on the wood sourcing to ensure our sustainability practices start right from the very first stage of procurement. Apart from ensuring certifications of harvested wood from leading organisations working towards forest management, we keep a check on the source of the wood procured, valid across all our operations and our pulp suppliers.

All the pulp and fibre manufacturing sites of Birla Cellulose are FSC® (FSC® C118017) CoC certified.

Forests are one of the vital ecosystems and are considered to be the lungs of our planet. Another striking feature of forests is the ability to store carbon, sequestering carbon out of the atmosphere in their vegetation, soils, and roots. So forests are critical to achieve climate change goals as outlined in SDG 13 and Paris Agreement. It is estimated that currently, forests absorb nearly 40% of total GHG emissions.

As per GHG protocol, greenhouse gas inventories include not only emissions from source categories, but also removals by carbon sinks. These removals are typically referred to as carbon sequestration.

Birla Cellulose ensures positive growth of forests managed by it, directly resulting in sequestering of CO₂ and contributing in reducing the global warming impact. Our carbon sequestering was 3.44 million tCO₂e in 2019 due to directly managed forests, significantly offsetting our GHG emissions.





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CASE STUDY

Birla Cellulose is ranked #1 in Canopy's Hot Button Report 2021



Birla Cellulose has once again emerged no. 1 globally in Canopy's Industry leading Hot Button Report 2021. The ranking is the result of our continuous efforts on the conservation of Ancient and Endangered Forests and robust initiatives to scale circular business models in the fashion industry.

The top ranking in the environmental report reflects our relentless effort to improve sustainable wood sourcing practices, conservation of forests, innovations, next-generation fibre solutions and transparency across the value chain.

Coming in hot, on a three-year streak of topping the charts, Birla Cellulose has yet again been accorded a 'dark green shirt', signifying our commitment to continually improve our own benchmarks.

Canopy's Hot Button Report ranks the world's top MMCF producers on their progress on:

1. Eliminating Ancient and Endangered Forests and other controversial sources from their supply chains
2. Contribution to conservation of Ancient and Endangered Forests
3. Development of 'Next Generation Solutions' from alternative feedstock
4. Establishing transparency and traceability

The Hot Button Report is the first tool of its kind that enables fashion brands and retailers to robustly assess MMCF suppliers' forest management practices as well as their leadership in forging solutions to eliminate Ancient and Endangered Forest fiber from the rayon and viscose supply chain.

A deeper shade of green ranking affirms better performance of Birla Cellulose in implementing our CanopyStyle commitments, with progress on Next Generation fibre solutions and the advancement of conservation in critical landscapes.

The importance of environmentally friendly business practices in the textile industry has indeed gained a significant amount of traction. In the last 18 months alone, over 200 new brands and retailers have been inducted into the CanopyStyle initiative, taking the total number of signatories to 471.

The signatory brands wish to source exclusively from MMCF producers who have achieved the ranking of 'green shirt'. The brands in question have combined annual revenues of over \$791 billion, so this high demand can be seen as a huge step in the right direction.

Biodiversity Management



We recognise that our business can have an effect on the local ecology of the areas in which we operate and that we have an important role to play in protecting the fragile ecosystems around us. All of our activities from wood procurement to manufacturing of pulp & fibre, and disposal of the product after its useful life can have an impact on biodiversity if not managed in a responsible manner.

Conserving Ancient and Endangered Forests

Forests take hundreds of years to evolve. Some Ancient and Endangered Forests have trees that are thousands of years old. These Ancient and Endangered Forests are key to steadying our climate as they are home to many threatened animals and birds. These forests are vital ecosystems considered to be the lungs on our planet. These forests are also carbon storing powerhouses, sequestering carbon out of the atmosphere by holding it in their vegetation, soils, and root systems through a process called photosynthesis. When forests are felled, the stored carbon is released into the atmosphere resulting in global warming.

Birla Cellulose continued to hold space for solutions in critical Ancient and Endangered Forests in their non-dissolving pulp mill's sourcing region, setting the stage for conserving more than 70% of a 1.1-million-hectare area of largely intact boreal forest. In addition we have supported calls for conservation in Indonesia's Leuser Ecosystem, the last place on earth where orangutan, rhino, elephants and tigers still live in lush rainforests.

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





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Chemicals Sourcing & Effective Management

We acknowledge the impact of the chemicals we use and have implemented a robust chemical management system that indicates our overarching strategies and intentions. Chemicals are integral to the process as they are used at various stages of viscose fibre production – from making pulp from wood chips, to making fibre from pulp and some of the chemicals such as caustic soda, sulphur, zinc, finishing agents are procured from suppliers with long-term agreements.

We have asked our suppliers to follow ZDHC Manufacturing Restricted Substance List (MRSL) in their process.

As much as possible, we procure majority of chemicals locally. Some of our sites have caustic production co-located and most of our sites are backward integrated where we produce sulphuric acid and carbon disulphide in order to avoid transportation of hazardous chemicals over long distances. This helps to minimise our carbon footprint as well. We are committed to minimising the impact of chemicals and related risks associated with them on the surroundings.



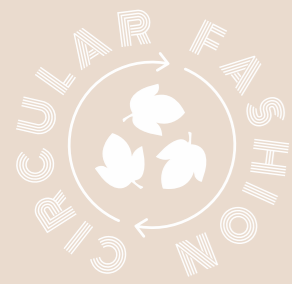
Efficiently using these chemicals help in reducing the impact on our operations and environment. Along with this, we are working on closed-loop recycling of chemicals to reduce the impact of our operations.



Effective Chemical Management Programme

We have a Chemical Management Programme for safety and storage of chemicals in our facilities. The chemicals are segregated based on an interaction matrix and have a containment dyke to prevent any uncontrolled spillage, in case of leaks. Special attention is paid to labelling requirements and storage of these chemicals at the site.

The safety documents such as Material Safety Data Sheet (MSDS), the risk assessment, compatibility study etc. are ensured before the material is purchased at site. Specific training is provided to the workers who receive and store these materials for the safe handling and storage practices and it is ensured that proper Personal Protective Equipment (PPE) are provided to handle the chemicals safely.



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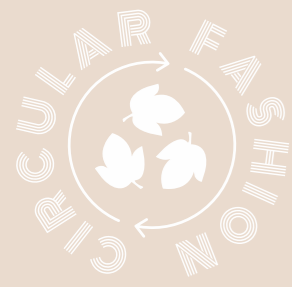


- *Grasim Nagda became first site globally to implement ZLD in viscose & lyocell processes*
- *Maintained global leadership in 3rd party verified Higg (3.0) FEM with average score of 93% across the fiber sites*

- *Reduction in sulphur-to-air emission by 37% over FY15 baseline*
- *GCD Vilayat site, India achieved compliance to EU BAT*
- *Water reduction by 43% in VSF process over the baseline of FY15*

Key Challenges FY22

- *Impact of COVID-19 on operations*
- *Ensuring safety of the workforce under the new normal*
- *Projects delayed due to COVID-19, now catching up with the lost time*



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Man-made Cellulosic Fibres (MMCFs) due to their unmatched credentials from an environmental perspective and product attributes have an immense potential to drive sustainability in the global textile and fashion industry.

Birla Cellulose strives to remain at the forefront of sustainability and innovation in the MMCF industry. We have continually improved our MMCF manufacturing process and established global benchmarks especially in raw material consumption such as caustic soda, water, etc.

In 2018, we embarked upon a journey to implement closed-loop technologies at all our MMCF manufacturing facilities by investing USD 170 million to achieve most stringent global standards such as EU BAT Norms and ZDHC MMCF Wastewater Guidelines. Currently, 3 out of 7 MMCF manufacturing sites are EU BAT compliant.



Birla Cellulose leads the implementation of Higg (3.0) FEM globally among MMCF producers and have also extended it to our pulp manufacturing sites. We are leading scorers in Higg (3.0) FEM in the MMCF industry and our scores are verified by 3rd party assessors.

Management Approach

Birla Cellulose has a holistic approach towards sustainable MMCF manufacturing by applying the right blend of **best-in-class processes and technology, global benchmark management practices along with a highly skilled and trained team to deliver the fibre of the highest quality in an environment-friendly and safe manner.**

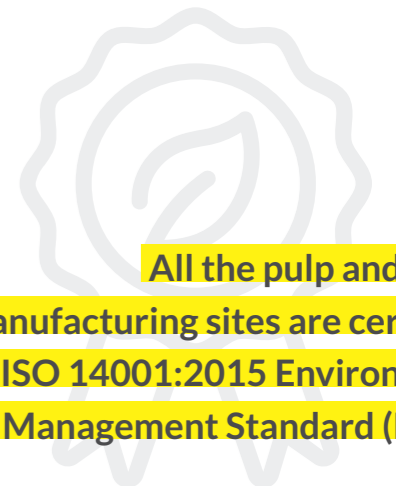
Both pulp and fibre manufacturing sites have reduced consumption of raw materials, energy & steam, water usage and waste generation year on year by continually innovating and redesigning the process. This not only makes our plants more efficient but also helps the economics of the process, making our products more competitive.

Projects of high efficiency have been implemented in the past and new initiatives are under implementation for reducing water consumption. The process water consumption at many of our fibre plants is 30% to 40% lower than that of the EU BAT lower limit.

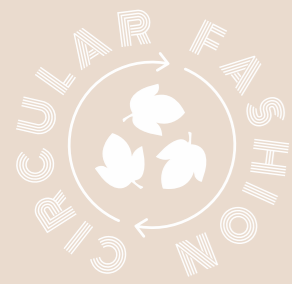


Continuous focus on improving the energy efficiency, minimising air emissions (sulphur-to-air) and wastewater across business is underway to the best extent possible based on the latest technologies. The focus is abatement at the source to reduce the impact of our operations on the environment and move towards tighter closed-loop manufacturing.

We have implemented Zero Liquid Discharge (ZLD) at our Nagda site in India demonstrating our commitment towards responsible stewardship. All fibre manufacturing sites of Birla Cellulose are verified for Higg (3.0) FEM and leads in the MMCF industry and has started Higg FSLM too.



All the pulp and fibre manufacturing sites are certified with ISO 14001:2015 Environment Management Standard (EMS).



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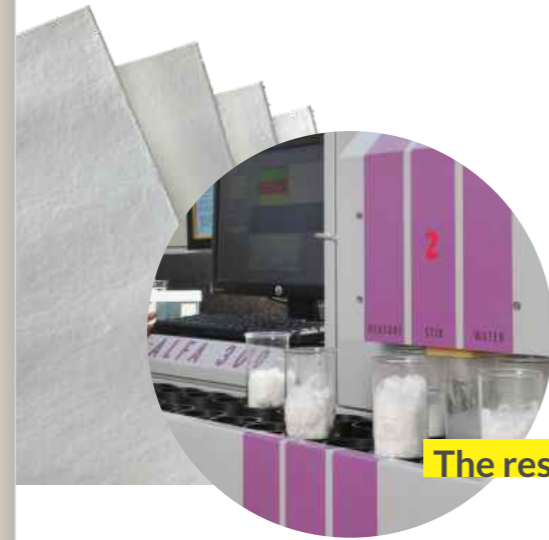
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Sustainable Pulp & Fibre Manufacturing



Sustainably sourced wood is a natural and renewable raw material for dissolving wood pulp manufacturing, which in turn is converted to MMCF that has multiple applications in textile and nonwovens. In the entire manufacturing process of pulp and viscose/modal/lyocell, the molecular structure of cellulose in the fibres remains the same as in the original structure of cellulose in its natural form (wood).

The resultant fibres, therefore, are nearly 99.9% pure cellulose.

Both pulp and fibre manufacturing processes are available on our website.

Birla Cellulose manufactures MMCF using the classic viscose process and also manufactures Modal and Dope dyed fibres. We also produce Lyocell fibre through the solvent spinning process which is entirely different than viscose/modal process. Lyocell technology is a closed-loop technology with an exceptional recovery rate of the solvent more than 99.7%. The dissolving wood pulp is the main raw material for both viscose and lyocell manufacturing processes. More details on this are available in our Sustainability Report FY20.



Closing the Loop in Viscose/Modal Fibre Manufacturing

During the manufacturing process of viscose/modal fibre carbon disulphide (CS₂) is used as a catalyst and is a major concern due to its hazardous nature. To minimise the risks due to the use of CS₂, a closed-loop process is implemented. The main objective of the closed-loop process is to maximise the recovery of CS₂ released through exhaust gases in viscose production process and reuse it back in the process. This not only reduces harmful sulphur-to-air emissions but also improves working ambience along with a reduction in raw material consumption with a positive impact on process economics.



Birla Viscose™

With closed-loop production, the released CS₂ during fibre regeneration is recovered by condensation and adsorption method. Also, the hydrogen sulphide (H₂S) formed during the process is converted to elemental sulphur, which is again reused in a sulphuric acid plant to produce Sulphuric Acid (H₂SO₄). This H₂SO₄ is again re-used to prepare spin bath solution.

Some of the recovery systems that are used to close the loop (in CS₂) in the viscose/modal process are:

- Condensation System**
- Carbon Disulphide Adsorption Plant (CAP)**
- Redox Process for H₂S Recovery**
- Wet Sulphuric Acid (WSA)**

With these recovery systems, it is possible to recover and reuse up to 95% of CS₂ and reduce reliance on fresh CS₂ which in turn reduces the raw material required for making CS₂ while contributing to effective chemical management and circular economy principles.

CURRENT STATUS

Currently, our 3 sites i.e. 1 site in India (out of 4 sites), China and Thailand are meeting the stringent EU BAT norms including sulphur-to-air emission (20 kg per ton of fibre), COD & zinc emission limits.

WAY FORWARD

We endeavour to implement closed-loop technologies at the remaining 4 fibre sites by end of the year 2022 to achieve the EU BAT norms and we are implementing a capex of USD 170 million for this.

For Birla Cellulosic, Kharach (India) erection work is in progress while in PT Indo Bharat Rayon, Indonesia civil work is in progress. Grasim Harihar & Nagda sites in India engineering work is in progress.

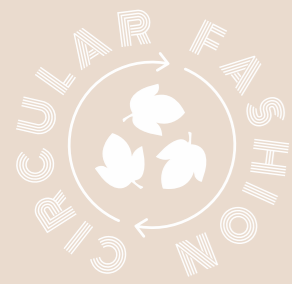
Setting New Benchmark in Environmental Performance

Reducing our ecological footprint in our value chain through resource conservation is a priority for Birla Cellulose. We strive to set an example in the MMCF industry and have been taking several initiatives to reduce our impact on the environment.

Due to our expanding business there will be more requirement of raw materials and it becomes inevitable to conserve the naturally occurring resources. Hence, our emphasis is on 'abatement at source' to reduce the consumption of resources.

In past years, our efforts have been to strengthen the closed-loop process 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.





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Water Management

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 to water stewardship.

Water is becoming increasingly scarce because of climate change and the increased exploitation of existing reserves. Considering higher level of agricultural and industrial activities needed to support the growing population, it is critical to focus on efficient management of water sources.

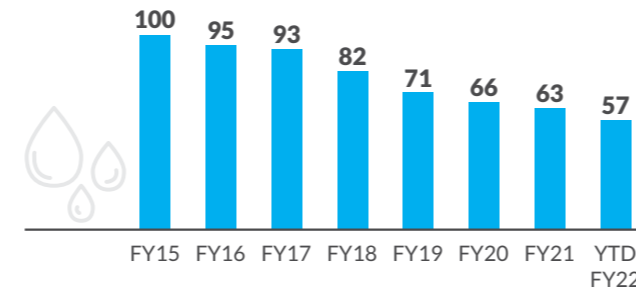
The success of our operations is acutely tied with accessibility to water since it impacts the lifecycle of our business. We use water responsibly with equitable sharing by end users, respecting the diversity of needs.

We are continuously monitoring, reviewing and optimising our water consumption through process modifications and adoption of new technologies.

Birla Cellulose has applied the 4R Principles (reduce, reuse, recycle and regenerate) in operations for closing the loop on water, resulting in several technological breakthroughs resulting in reduction of water consumption significantly.

Water Intensity (m³/TF)

Index FY15 = 100



Birla Cellulose's sites spearheaded innovation in closed-loop technologies for water, and these were widely adopted by all our MMCF manufacturing sites.

Reduce

by using better technologies that require lesser water. Low water technologies were developed and deployed in core viscose processes.

Recycle

water with innovations in wastewater recycling technologies and advanced membrane-based technologies.

Reuse

water in the process or other applications multiple times. Circular technologies have enabled water to be used several times in finishing and recovery processes.

Regenerate

water through harvesting (by building dams and reservoirs) to store water in the rainy season that can be used later.



The main sources of water for our operations are nearby surface bodies like rivers or water utilities. We do not use ground water for our operations.



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SUSTAINABILITY GOAL

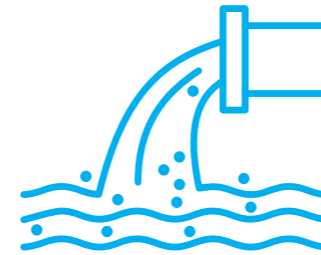
Birla Cellulose aims to reduce process water consumption in VSF manufacturing by 50% by the year 2025. Till FY21, we have reduced process water consumption by 37% over the baseline of FY15.

Aligning with UN SDG 6 and SDG 12, Birla Cellulose is committed to reduce water consumption and thereby improve the water availability for the people at large and the planet.



Adopting Most Stringent Wastewater Norms

Untreated wastewater discharge impacts both human and environment. Birla Cellulose strives to ensure that wastewater is discharged by applying most stringent global norms and going beyond the regulatory requirements. Birla Cellulose has adopted EU BAT BREFs and ZDHC MMCF Wastewater Guidelines at all our fibre manufacturing sites. We have put up state-of-the-art Effluent Treatment Plants (ETP) with the latest technology at each of our manufacturing sites.



CASE STUDY

Nagda – the first Zero Liquid Discharge (ZLD) viscose & lyocell site in the world



Birla Cellulose has achieved a path-breaking innovation by successfully commissioning the first ZLD plant in the MMCF industry in the world. This sets a new benchmark in the closed-loop process and increases the water recovery to the extent of 95% from the viscose process and at the same time, reduces the liquid effluents to zero.

The MMCF wastewater is very challenging to treat and not friendly to existing membrane technologies that are typically used for wastewater treatment.

CHALLENGES

- No established ZLD technology available to treat Viscose and lyocell effluent
- High inorganic and dissolved solids and hardness in the effluent
- High organic content leads to bio-fouling of membranes
- The solids are required to be recovered in usable form

INNOVATIONS

- World's leading water technology companies invited to bid for technology
- Birla Cellulose team worked closely with technology providers to design process
- ZLD project started in 2019 and commissioned and stabilized by Sep 2021

OUTCOME

- Fresh water withdrawal from nearby river is reduced, as 95% of recovered water from treated effluent and ZLD plant is now being recycled back to the process
- Positive impact on the society at large
- Recovery of sodium sulphate is possible in usable form beyond 85%
- New benchmark in closed-loop production – zero effluents discharge from the site and zero pollution load due to wastewater
- Improved water security that addresses the water scarcity due to climate change - climate change resilience plan



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CASE STUDY

Breakthrough Innovation



Birla Cellulose plans to pilot and evaluate the state-of-the-art technologies from Memsift to recover more than 95% of water and chemical recovery from the waste streams coupled with lower carbon footprint of up to 80% compared to the conventional methods.

CHALLENGES

- The available technology for chemical recovery is Multistage Flash Evaporators (MSFE) which is energy intensive rendering the process of chemical recovery at the cost of increased GHG emission due to high steam requirement
- Limitations in current membrane technology to increase concentration to required range

- The proposed technology is combination of MVR & membrane process which gives maximum water recovery and concentrated chemical streams with minimum energy consumption
- Currently, working on developing pilot scale unit based on successful lab scale trials and this will be followed by plant scale up

INTENDED OUTCOMES

- More than 90% water and chemical recovery
- Lesser energy consumption / lower GHG footprint
- Establish new global benchmarks in closed-loop technology for MMCF process
- Significantly reduce emission to environment

Waste Management

In any industry, effective waste management and minimisation should be a priority ensuring that the wastes generated from operations pose no adverse impact on human and environmental health.

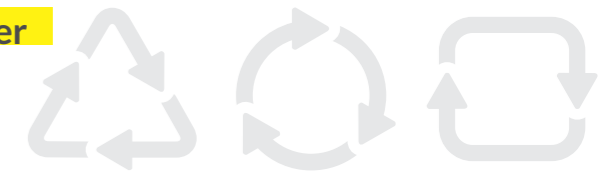
We aim to reduce the amount of waste we generate. Our sites comply with all applicable health, safety and environmental requirements, and we ensure waste materials are sent for disposal in the most sustainable manner.

Our waste management approach continues to evolve as we improve identification and accounting of our waste. At Birla Cellulose, we follow waste management hierarchy which represents the most preferred options for dealing with the waste to limit the disposal as far as possible.

All the sites follow the local waste management rules for disposal and classification as applicable in their country of operations. In waste management, we follow circular economy principles i.e. using the waste for another process or another industry.



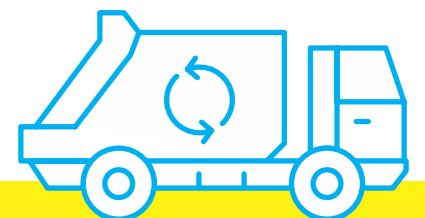
Most of the waste generated at our sites is either recycled / reused / recovered and hence least amount of waste goes to landfill.



The hazardous waste generated at our units is either supplied to authorised recyclers, disposed through Treatment Storage and Disposal Facilities (TSD), or supplied to other industries as raw material.

We are exploring solutions to waste disposal and utilisation with our ABG peers. Fly ash, a by-product from coal-fired power stations, is sent to our Group's cement sites which is used there in clinker replacement. As a result, fly ash, which is a waste for viscose business, is used as a raw material in cement plants and reduces the amount of natural resources required, as well as GHG emissions and is a very apt example of circular economy.

Waste is used in several applications, for example, gypsum sludge is used as a raw material for cement and organic sludge is used as a fuel for energy generation.





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Energy & GHG

The management of energy consumption and carbon emissions are important issues affecting our operations. Both are interrelated because generation and usage of energy from fossil fuel sources is a major source of greenhouse gas emissions.

Viscose fibre production is an energy intensive process. Currently, we utilise both the types of energies - renewable as well as non-renewable in our operations and non-renewable sources of energy contribute to CO₂ emissions leading to climate change.

We currently monitor Scope 1 and Scope 2 GHG emissions. Scope 1 GHG emissions includes emissions due to usage of primary fuels and Scope 2 GHG emissions are mainly from the purchased electricity. The carbon sequestered by the forests managed directly by Birla Cellulose (3.44 million tons) is more than the entire Scope 1 & 2 emissions of all pulp and fibre manufacturing sites (3.22 million tons) resulting in a net negative GHG emissions (-0.22 million tons) as per the evaluation done in FY19.

Scope 3 GHG emissions (due to various activities beyond the boundaries of our control) and carbon sequestration from our own managed forests data for period of FY19 has been mapped for all our DWP & VSF sites.

Birla Cellulose is committed to work to continually reduce carbon footprint within our operations and across our supply chain. We are implementing multiple strategies to reduce our carbon footprint:



Reduction in energy intensity



Increase in the use of renewable energy



Net positive growth of forests to sequester carbon emissions



Use of non-fossil fuel based sources and biogas as energy source at all the fibre sites

Our pulp sites are self-sufficient as they generate energy from black or red liquor that is generated during pulp cooking process, to the extent of 80-90% of their requirements.

Decarbonisation Plan

Today, climate change and its impact is unquestionably evident. We are no exception to this global phenomenon. Birla Cellulose understands the potential damage climate change can bring to our businesses with respect to natural resources. We believe that global emission of Greenhouse Gases (GHG) is the major contributor for climate change. Our customers have also started to inquire about the GHG emissions for the products and the emissions along the value chain.



Birla Cellulose is continuously improving operational excellence from various energy savings initiatives. We keep monitoring any changes in global regional and national level policies and regulations on climate change and its mitigation, which may result in financial implications with respect to energy and other resources relevant to our business.

Birla Cellulose has set an ambitious target to become carbon neutral by 2040 with an aspiration of reaching it earlier by 2035 including the scope 1, scope 2, identified scope 3 emissions and carbon sequestration in its managed forests. Birla Cellulose also aims to reduce its Greenhouse gas (GHG) emissions intensity by 50% by 2030 from a baseline of 2019 including scope 1, scope 2 and scope 3 emissions using the science based methodology.

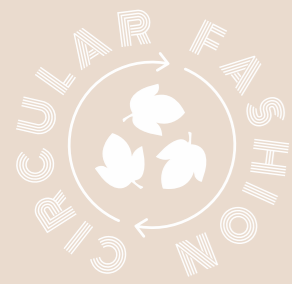
Current GHG emission mapping and contributors to GHG emissions:

- Scope 1 & 2 in the manufacturing of pulp and fibre contributes to 62% of the total emission
- Scope 3 contributes to 38% of total emissions, out of which nearly 40% is due to upstream goods purchased and about 20% is due to downstream product transportation

Identified handles to abate GHG emissions are:

- Energy efficiency improvements in process and power plant by adopting new technologies like membrane distillation in place of conventional evaporation
- Use of alternate fuel in boilers to replace coal
- Adoption of biofuel fired boiler for future expansion
- Adaptation of renewable energy to the extent possible
- Reduction in consumption ratios for all materials, increasing the recovery of CS₂ and other chemicals
- Select suppliers with lower GHG intensity for major raw materials

We are working on site-wise roadmaps which will include assessing carbon abatement technologies, cost implications and prioritising the investments required. A three-level governance structure is in place with a review mechanism for progress monitoring.



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CASE STUDY

Progress on Adoption of EU BAT Roadmap at Birla Cellulose

Business sustainability in current scenario has become a mainstream activity and is being perceived as an important growth driver for the business. Civil society organisations / NGOs on the other hand are setting new rules for sustainability much beyond regulatory standards which are fast becoming 'right to operate'. Consumers are much more aware now on environmental issues and demand products with lower footprint.

Looking to this, Birla Cellulose has committed to upgrading to cutting-edge technology for the closed-loop production processes and implement the most stringent environment standards, going beyond the regulatory norms applicable in the countries it operates.

CHALLENGES

- During the regeneration of cellulose in viscose process, liberated CS₂ is recovered through condensing system and part of it gets converted to H₂S in diluted form. This H₂S is exhausted through the chimney - the challenge was to restrict this emission by improving recovery.
- Commitment to achieve stringent EU BAT standards and ZDHC MMCF Guidelines
- To meet load based EU BAT Standards and go beyond regulatory compliance

ACTIONS

- Installed the closed-loop technologies in the CS₂ and H₂S emission routes and developed a state-of-the-art technology at our unit at Thailand, Thai Rayon Public Co. Ltd. (TRC) to remove the H₂S from the exhaust gases by oxidation process that produces elemental sulphur, which is later recycled in the viscose manufacturing process after converting it to H₂SO₄.

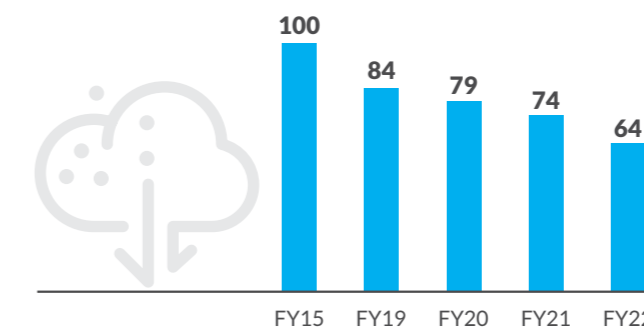


- Set up a sulphur and CS₂ recovery project at GCD Vilayat in India
- On-going expansion at Vilayat site to comply with EU BAT requirements

- Implemented Carbon Adsorption Process (CAP) in addition to condensing system for recovering CS₂ from the exhaust gas. The recovered CS₂ is recycled and reused in the process thereby bringing the CS₂ consumption below the EU BAT limits.
- Set up a sulphur and CS₂ recovery project based on the TRC experience at BJFCL-China Unit in July 2019
- Installed Wet Sulphuric Acid (WSA) technology at PT Indo Bharat Rayon, Indonesia

Sulphur Emission, kg/TF

FY15 = 100



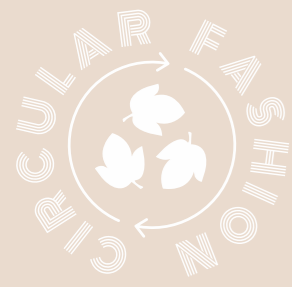
OUTCOME

- A considerable amount of reduction in the emission of H₂S and CS₂ is observed which will help to meet the sulphur-to-air emission norms at the sites in future
- TRC, BJFCL & GCD Vilayat sites are operating the plant below consumption level of CS₂ specified in the EU BAT norms and meeting sulphur-to-air emission norms and other indicators
- The CS₂ recovery will be in the range of 90-95% compared to conventional systems where the recovery is 45-50%
- In wastewater parameters, few sites have achieved EU BAT level of performance with overall reduction in COD by nearly 25% in last 3 years & zinc by 40% in last 2 years. Remaining sites to achieve COD & zinc norms by 2022



WAY FORWARD

Project work is in progress at BC Kharach, Grasim Nagda & PT IBR Indonesia sites whereas Harihar is completing the engineering work.



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Minimising Emissions to Air

Birla Cellulose recognises that air pollution has a direct impact on the environment and the surrounding community. Curbing air pollution is one of the key priorities and several necessary mitigation measures have been adopted:

- Engineering controls like filters, scrubbers and cyclones are used for air pollution control
- Installing auto controls for maintaining critical process parameters
- Preventive maintenance schedules for all environmental critical equipment
- Online monitoring system to check performance against local regulations
- Periodic regulatory approved third-party monitoring and analysis

We have continuous online monitoring system (CEMS) at most of the sites for emissions monitoring which are connected to pollution control board servers. Real time emission data of important parameters are displayed at the factory gate of fibre manufacturing sites to improve the transparency of environmental performance for surrounding communities and public domain.

The fibre sites have various technologies to collect and treat process emissions such as CS₂ and H₂S emissions. These include condensation of CS₂, wet sulfuric acid processes, carbon disulphide adsorption (CAP) technology, redox process and scrubbers etc.

Birla Cellulose is committed to keeping emission within permissible limits, as well as finding innovative solutions to reduce them and adapt global best practices and benchmarks.



Awards

Birla Cellulose emerged as a winner in the first edition of the 'National Innovative and Sustainable Supply Chain Awards' by UN Global Compact Network India.



Our site Birla Cellulosic, Kharach, India has been bestowed with the CII-ITC Sustainability Award 2021 for Excellence in Environment Management The award recognises companies that have employed innovative approaches, including policy and practice to reduce their environmental impact and achieve exemplary results.



Grasim ranked 7th in the most sustainable companies in India ET Futurescape Sustainability Index Report-2021. The report lists corporates based on the efforts and initiatives taken by each of them around three major themes – governance, environmental and social and disclosures made around SDGs proactively.



Grasim Industries Ltd.'s Nagda SFD plant has been awarded 'The Economic Times Promising Plants 2021'



NASSCOM CoE Smart Manufacturing Excellence Awards – Best Industry 4.0 Use Case implemented by Manufacturing Enterprise awarded to Grasim Industries Ltd., Aditya Birla Group for 'Blockchain based GreenTrack platform for forest to fashion traceability and sustainability'.

Adapting Globally Recognised Standards and Systems

Birla Cellulose has adopted standards & systems accepted and recognised globally. EU BAT, ZDHC, Higg (3.0) FEM, Higg FSLM, EMS, etc. are some of the examples of such systems to make our process more environmentally friendly and reporting transparently.



EU BAT (BEST AVAILABLE TECHNIQUES)

'Reference Document on Best Available Techniques in the Production of Polymers' has provided the BAT for the production of viscose fibres.



We have adopted EU BAT for our fibre manufacturing facilities and an aim to comply with it by the year 2022 for all the sites.

As mentioned earlier, our sites in China, Thailand and India (1 out of 4 sites) already comply with these norms.



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HIGG FEM

Higg FEM evaluates a facility's environmental impact and has become an important sustainability assessment tool and a common language to communicate performance to various stakeholders such as global brands/retailers and customers.

Birla Cellulose started the self-assessment journey several years back and has verified benchmarked scores in Higg (3.0) FEM for 2020. To achieve higher scores than previous years, the sites need to demonstrate year-on-year improvement in the performance in the areas of **environment management, energy & GHG, water use, wastewater, emissions to air, waste management, and chemical management.**

Birla Cellulose maintains global leadership in achieving the highest level of implementation of Higg (3.0) FEM in MMCF industry. The highest scores reflect the maturity achieved in the use of these standards across our sites and continuous improvement in environmental performance.



HIGG FSLM

The Facility Social & Labor Module (FSLM) measures the social impact of manufacturing across areas such as wages, working hours, health and safety, and employee treatment. The FSLM is built on the converged framework of the Social & Labor Convergence Program (SLCP). The FSLM measures overall social labour practices in facilities. It tracks management systems, operational controls, oversight, and worker and stakeholder engagement.

Facilities can use the Higg assessment to understand performance hotspots and reduce audit fatigue. Birla Cellulose has started the adoption of FSLM and is being implemented at our fibre manufacturing sites.



ZDHC MMCF GUIDELINES

Birla Cellulose has seven fibre manufacturing sites, four in India, and one each in Thailand, Indonesia, and China. One of the major challenges was to align the sites and operations teams to understand the new standards and focus on meeting the same goals. An investment of USD 170 million across all the seven fibre manufacturing sites is already in progress to upgrade the technologies to meet the emissions level mentioned in the EU BAT references for the viscose process and the ZDHC MMCF standards.

To achieve the stringent limits in these standards, the sites performed gap assessments to understand the requirements in terms of technology and operations to develop a roadmap.

Close monitoring was done on monthly basis and a monthly dashboard capturing the progress was developed, targeting ZDHC progressive limit values. This was followed by brainstorming between individual site teams and central teams to develop a time-bound action plan to meet the new targets.

The Action Plan was divided into the following parts:

Emission to wastewater

- Maximising recoveries of chemicals like Na₂SO₄, ZnSO₄ by closed-loop recycling, thus, eliminating/reducing pollution load at the source
- Wastewater segregation, based on characteristics and treatment at source wherever possible
- Investments in the latest technologies and automation, as needed
- Improving efficiencies of individual ETP equipment by operating closer to design and providing additional training as required

- Inter unit benchmarking on ETP performance, identifying the best practices followed, and ensuring replication across all sites

Emission to Air

- Investing in closed-loop technologies of USD 170 million is in progress to upgrade the technologies at all sites. The implementation of these technologies has already been completed at 3 sites and they are now meeting the emission to air requirements. The work at the remaining sites is in progress and is expected to be completed by end of the year 2022
- State-of-the-art technologies enable all sites to recover and recycle up to 95% of sulphur and achieve the limits of less than 20 kg emission to air per ton of fibre

ZDHC
CONTRIBUTOR

- Calculating sulphur-to-air emission based on material balance to align with ZDHC guidelines
- Monitoring site-wise performance and deviations from ZDHC target limit values
- Maximising sulphur recovery by improving the collection system and design system to retrofit control technologies on old spinning lines
- Inter unit benchmarking, identifying the best practices followed, and ensuring replication across all sites

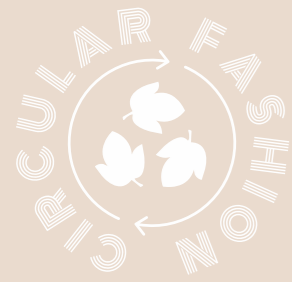
Results Achieved

With concentrated efforts, all sites exceeded the Suppliers to Zero Progressive and Aspirational Level for more than 90% of the parameters. This exceeded the foundational limits for the remaining parameters for the ZDHC MMCF wastewater standards, which are already being implemented by ZDHC. The data from all sites are available in the ZDHC Gateway. While all sites already meet the ZDHC MMCF wastewater standard and all the parameters specified on consumption norms in the ZDHC Responsible MMCF standards, many of the sites are already meeting the ZDHC MMCF air emission standard, while other sites continue to work towards it.

Achievement of progressive / aspirational levels reflect the best in class performance in the industry and the maturity in the use of these standards across our sites and continuous improvement in environmental performance.



Birla Cellulose is committed to apply ZDHC MMCF Guidelines at all the fibre manufacturing sites. All these sites will achieve the EU BAT level of performance by the end of 2022. MMCF producers are required to meet foundational wastewater target by 2021 & air emission target by 2022.



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GOING BEYOND LEGAL COMPLIANCE

We believe good compliance practices drive sustainable business and hence we have implemented a compliance programme via an 'IT-enabled legal compliance management tool' (e.g. Enhesa legal questionnaires hosted on Enablon).

Our compliance and assurance programme is designed to ensure that we meet the requirements of local laws and regulations.

During the process when a high level of compliance and conformance is reported by the site validators, the Group's Assurance Experts visit that site to provide an 'integrity check' in line with our Group's values. Any concerns during the assessment are dealt on priority in consultation with Subject Matter Experts (SMEs).

The manufacturing sites are classified based on the scores obtained through the assessment questionnaires and are required to maintain full legal compliance all the time. This is tracked and monitored through Enhesa system on a monthly basis and the compliance reports are shared with top management and governance team of Birla Cellulose.

Any new legal requirement gets introduced, the same gets added into the Enhesa system and the system sends the message to the person responsible and the site validator.



SELF-ASSESSMENT QUESTIONNAIRE (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 and going beyond the regulatory norms.

To assist with this process, ABG has developed scoring methodology and heat map score system to gauge and monitor site performance against the Standards and an action plan is developed to ensure improvements.

The self-assessment mechanism places responsibility on site managers to engage with our standards and to drive the changes required to place the operations on a sustainable path.

By adopting an evidence-based approach, we are ensuring rigour and consistency in our processes. Sites have to provide evidence in the form of reports, photographs, documents and registers etc. Those sites that fall under Tier 1 & 2 (more than 80%) are reviewed off-site and the highest performers are verified by onsite visit.



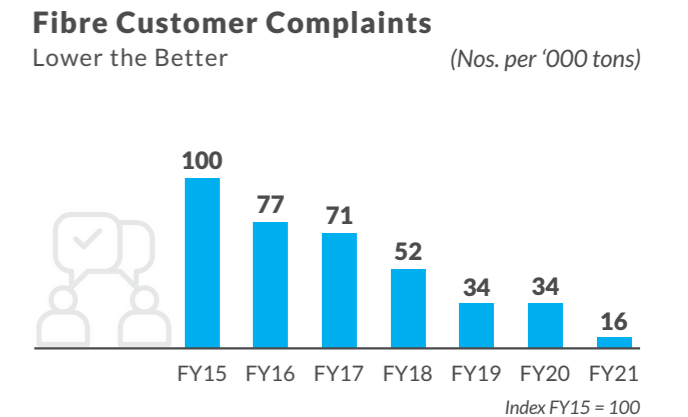
Today, all the sites are operating at >95% conformance in Birla Cellulose, reflecting the high importance given to the implementation of global best practices as well as meeting the applicable local and international regulations.

Quality Management

Quality of our products and processes is a collective responsibility owned by employees at Birla Cellulose and this starts right from procurement of high quality raw material to manufacturing a sustainable product.

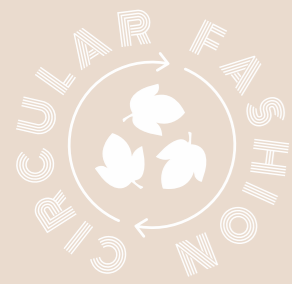
It is our continuous zeal to supply the highest quality fibres across our range of products.

Our 'Product-by-Process' system ensures that the product that is produced is validated on the real time basis and based on the critical operational parameters of which the finished product quality can be assured. This intelligent system (First Pass Yield) acts as a preventive and predictive operator tool which can guide the site team to take corrective action for any deviations. This is in addition to the conventional quality assurance systems of physical testing of raw materials and products that ensures right quality at every stage.



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 & 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 production of the off-grade material at all the units have reduced significantly.





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GRI Indicators

Water Withdrawal & Effluent Discharge

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

million m³

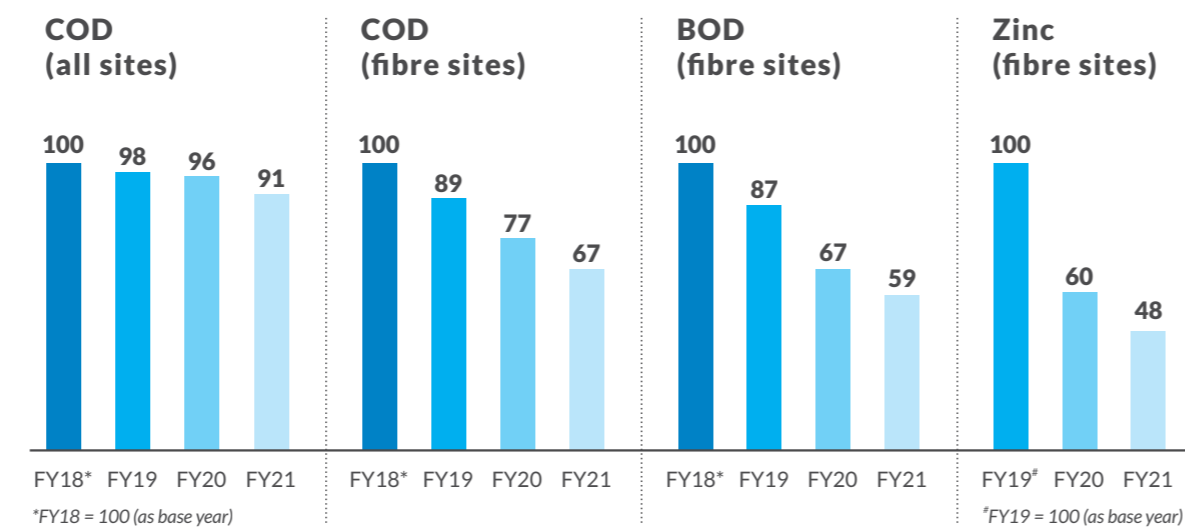
Plant Water Withdrawal	FY20	FY21
Surface Water	128.52	117.18
Ground Water	0.00	0.00
Waste Water from Other Organisations	0.25	0.24
Water from Municipality / Water Utility	9.30	9.04
Total Water Withdrawn	138.07	126.45
Treated Wastewater Discharge	119.84	106.77
Quantity of Effluent Recycled/Reused	12.97	14.01

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



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

We have undertaken a progressive initiative of reducing COD & Zinc in the wastewater discharge.



Waste Disposal

The details of the waste (in MT) generated by type and disposal method is summarised in the table below for the reporting year.

MT

Disposal Methods	Hazardous Waste		Non-hazardous Waste	
	FY20	FY21	FY20	FY21
Recovery	25,216	20,992	161,690	59,355
Reuse	12,615	7,714	222,092	128,933
Recycling	6,469	1,715	6,685	69,154
Incineration	43,681	42,572	2,372	536
Landfill	10,110	10,947	28,434	17,171
Composting	0	0	46,500	8,468
Total	98,090	83,939	467,772	283,616

Energy Consumption

The breakup of the energy type used in our operations is given below:

million GJ

	FY20	FY21
Non-renewable Energy	36.02	30.52
Renewable Energy	21.11	20.52
Total	57.13	51.04

GHG Emission

million MT

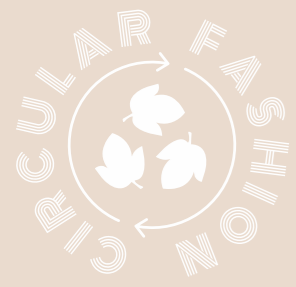
	FY20	FY21
Scope I Emission (direct emissions)	3.07	2.60
Scope II Emission (indirect emissions)	0.17	0.15
Total GHG Emissions (CO₂e)	3.24	2.75

Air Emissions

Significant air emissions during the reporting year are as follows:

kg/ton

	FY20	FY21
SO ₂ emissions	100	99



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Sustainable Products

- Livaeco fibre volumes increased by 2X over last year
- The capacity of circular fibres such as 'Liva Reviva', made from textile waste is to be increased to 100,000 MT by 2024

- 103 patent applications/patents in 16 countries belonging to 67 patent families
- EU Commission excludes viscose from Single-use Plastics Directive

Key Challenges FY22

- Limited traceability in fashion value chain a barrier to transparent communication to end consumers
- Scaling-up challenges for NextGen alternate feedstock due to economics
- Nascent stage of technology for segregation of cellulose from blended waste



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Environmentally-conscious buyers are looking for sustainable and responsible products that are circular, climate friendly or low-carbon and do not pollute/harm the environment.

Sustainable products are made in an environmentally and socially responsible process using natural & sustainably sourced renewable raw material, and adopting a closed-loop process minimising environmental impact. At the end of life, the product does not harm the environment and is biodegradable/recyclable. Also, the entire value chain is transparent and traceable.

Birla Cellulose operates at the beginning of the long wood-pulp-fibre-fabric-fashion chain and supplies the fibre which is the basic constituent for the textile/nonwovens industry. Birla Cellulose applies the sustainable best practices across the value chain including responsibly sourced wood, closed-loop manufacturing process, recycling and reusing raw materials and natural resources and using circular business model.

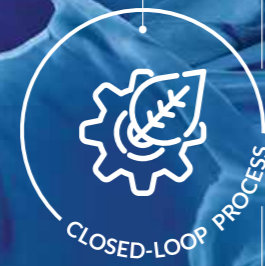
MMCFs such as viscose, modal and lyocell are used predominantly by the textile/nonwoven industry to make a range of products for diverse applications such as



fashion, home, medical and hygiene.

Responsibly produced MMCFs fulfill these requirements and are considered as one of the most sustainable fibres and are preferred as they offer outstanding benefits while choosing a fibre based on sustainable credentials and natural comfort.

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. More information on the product offerings by Birla Cellulose are available [here](#).



Sustainable Products Profile



Birla Viscose™

Birla Viscose is the 1st generation regenerated cellulosic fibre made from wood pulp from sustainably managed forests. Birla Viscose™ is not only biodegradable and eco-friendly, it is also one of the most purified form of cellulose. **It 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.



Birla Spunshades™

Birla Spunshades™ are coloured man-made cellulosic fibres where pigments are injected into the viscose dope before the fibre is spun & cut. Birla Spunshades fibres with unique Colour-Lock™ technology make fabric fade-resistant and ensures best-in-class colour consistency. **The spundyed fibre eliminates the process in downstream value chain such as dyeing step at the fabric stage, saving large amount of water and chemicals, and generating no wastewater.**



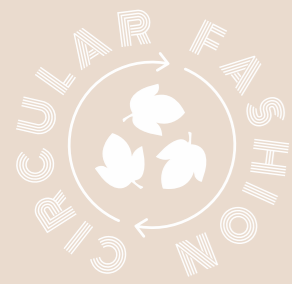
Birla Modal™

Birla Modal is the 2nd generation man-made cellulosic fibres that combines aesthetics and elegance with performance, with a host of consumer & value chain benefits. Birla Modal fibres offer best of comfort and luxury. These fibres have been designed to impart brilliant lustre, soft feel and excellent drape.



Birla Excel™

Birla Excel (Lyocell) is the 3rd generation man-made cellulosic fibres. It is truly environment friendly and is made through a unique closed loop process, where the by-products of the process are reused in the process itself, thereby minimising discharge and resulting in a near zero environmental impact. The solvent recovery from these processes is as high as 99.7% and this is most water efficient process for MMCF industry.



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Birla Purocel are our nonwoven fibre offering which are **nature-based and ideal for personal care, hygiene and medical usage and next-to-skin applications.**

Birla Purocel offers a wide range of fibres for nonwoven applications with a focus on sustainability, innovation and partnership.

Following are specialty offerings by Birla Purocel apart from regular products for nonwoven customers.

Birla Purocel | EcoDry

Purocel EcoDry is a biodegradable & compostable Viscose fibre with engineered hydrophobicity specially crafted for sustainable Absorbent Hygiene Products (AHPs).

It helps create super soft nonwovens for top sheet application in AHPs like sanitary pads that keep the user skin dry at the same time allowing fluids to get transferred to the core of AHPs. The fibre is fully sustainable in nature making it possible to have eco-friendly hygiene products meeting required performance.

Viscose Staple Fibre by nature is a hydrophilic fibre. Our innovation Purocel EcoDry is a specialty Viscose staple fibre which has been carefully designed with just optimum hydrophobicity to get the desired properties in the top sheet application of AHPs like sanitary pads or panty liners.



Purocel EcoDry Fibre provides perfect balance between the two most critical properties required in the absorbent hygiene product like rate of absorption as well as wetback or rewet.



For more information on all the product offerings, please visit <https://www.purocel.com/>



Plus Fibres for 100% Viscose-based Wipes

Specialised fibres for sustainable cellulosic wipes - Compliant with EU Single-Use Plastics Directive (SUPD).

Specially crafted viscose fibres to enable the switch from plastic based fibres to sustainable 100% cellulosic fibres while maintaining good process-ability and wipe properties:

- EU SUPD Compliant
- Fully Biodegradable & Compostable
- Enhanced process-ability
- Improved wiping performance

We've embarked on a journey towards 100% viscose-based wipes and our innovative fibre offerings are intended to fast-track this journey for a better tomorrow!



Eco

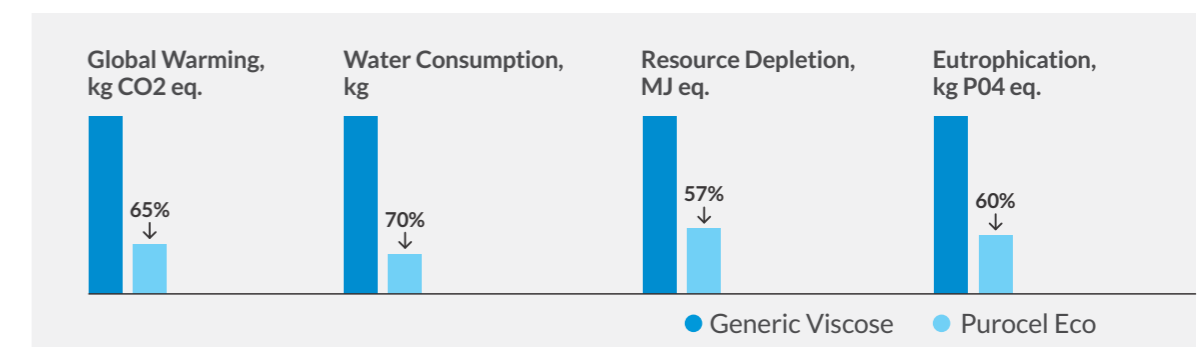
With Purocel Eco, an eco-enhanced nonwoven viscose fibre, we've taken our spirit of caring for tomorrow to the next level.

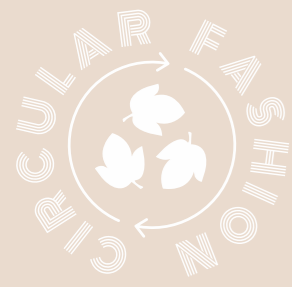
Purocel Eco comes from FSC® (FSC® C118017) certified sustainable forests and lowers GHG and sulphur emissions which meet EU BAT standards and higher usage of renewable energy sources making it even more sustainable. Purocel Eco has been manufactured in a facility having best-in-class Higg (3.0) FEM score. It can be identified in the end products like wipes through a unique molecular tracer which helps the end buyer trace the origin and full journey of the product he/she is buying.

Purocel Eco fibres have a lower environmental impact as compared to generic viscose fibres based on Higg MSI tool provided by SAC.



PUROCEL ECO ENVIRONMENTAL IMPACT





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Suitability of MMCF as an Alternative to Single-Use Plastics (SUP)



Birla Cellulose already offers the solution for replacing synthetic or plastic fibres from these products and an apt solution for global plastic menace for such applications.

European Union Commission's guidelines on a directive for single-use plastics covering restriction on placing in the market, marking/labelling requirements, awareness creation, EPR rules, etc. were finally adopted and implemented from July 2021. Some of the items that come under this category will be balloons, beverage cups, straws, wet wipes, sanitary towels. Wet wipes, is identified as one of the commonly used SUP as currently most of the wet wipes are a blend of viscose and synthetic fibres. However, the wipes made from 100% viscose are made from nature based cellulose from wood and is fully biodegradable in soil, water and marine environments. MMCFs are excluded from the scope of single use plastics and are sustainable material for several single-use plastic applications.

Birla Sodium Sulphate

Birla Sodium Sulphate is obtained as a byproduct from state-of-the-art closed-loop viscose fibre production process with an objective to recover natural resources and reduce emissions.

We produce different grades of this rayon-grade sodium sulphate as per customer requirements - regular, low pH, high whiteness, finer/coarser, PROSODIUM, etc.

Traditional industry segments for sodium sulphate applications are

**DETERGENTS | GLASS | TEXTILE PROCESSING | PULP & PAPER
DYES & CHEMICALS | LEATHER | CEMENT INDUSTRIES**



Product Innovation

Innovation is one of the key pillars of our business strategy and it is a continuous process.

We work collaboratively with technology providers, global research institutions and the value chain to bring out the products to delight our customers with improved sustainability performance and environmentally-friendly products.



Our global R&D centres have played a crucial role in furthering innovation and are continually developing sustainable products and processes for the textile and nonwoven industry.

Innovations in technology development have resulted in **Birla Cellulose setting new benchmarks in the raw material consumption, going much lower than the stringent EU BAT consumption norms**

for key raw materials such as pulp, solvents, caustic, water and many others.





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Natural fluid fashion that is now eco-enhanced

Livaeco fibres are made from wood pulp sourced from FSC® (FSC® C118017) certified forests and are produced through a closed-loop process in EU BAT compliant facilities. Livaeco comes with supply chain transparency and traceability through a unique molecular tracer and GreenTrack™ platform powered by blockchain technology.

This exquisite, natural based fabric gives your garments a unique combination of fluidity and luxurious softness. In addition to draping you effortlessly, Livaeco not only makes you fashionable but also helps preserve the environment. The molecular tracer helps in identifying the journey of the final garment and its origin from fiber stage.



WHY LIVAEACO

Some of the advantages of Livaeco fibres are:

Sourced from 100% sustainable forestry

Low water consumption

Low greenhouse gas (GHG) emissions

Traceability of source through Blockchain

Unique molecular tracer in fibre

Biodegradable

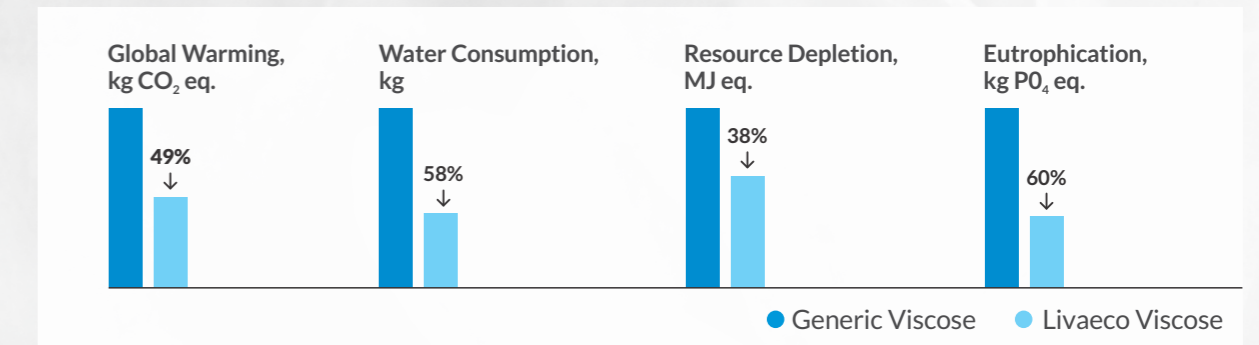


Birla Cellulose offers both viscose & modal fibres in Livaeco range for a variety of applications.

Livaeco Viscose

Livaeco viscose fibres have lower environmental impact as compared to generic viscose fibres (see adjacent graph) based on Higg MSI tool provided by SAC.

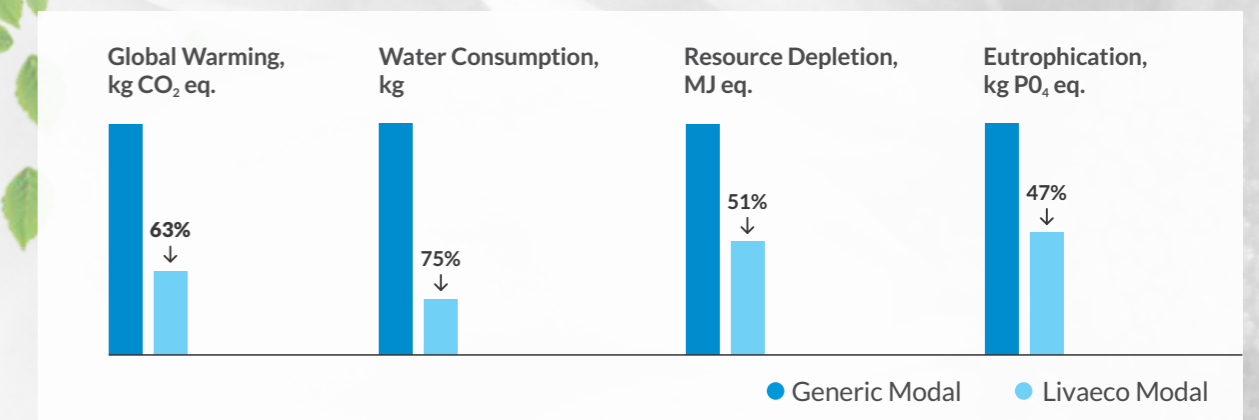
Currently, Livaeco viscose fibres are produced in 3 sites viz. GCD, Vilayat (India), Thai Rayon PCL (Thailand) & Birla Jingwei Fibres Co. Ltd. (China).



Livaeco Modal

Livaeco modal fibres have lower environmental impact as compared to generic viscose fibres (see adjacent graph) based on Higg MSI tool provided by SAC.

Currently, Livaeco modal fibre is produced in Thai Rayon PCL (Thailand).





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CASE STUDY

Next Generation Solutions & Circular Fibres



BACKGROUND

It is estimated that the fashion industry generates nearly 92 million tons of waste annually, out of which less than 1% is recycled. Most of it goes to landfill or is incinerated, and a large amount leaks to the environment leading to land and water pollution.

There have been three key challenges to building a circular business model in the fashion industry: availability of technology to recycle the fibres, lack of reverse logistics to segregate recyclable fibres, and fabrics not designed with a view of circularity.

Growing consumer awareness concerning the impact of clothing on the environment, depletion of resources and climate change has led to the industry exploring and adapting more sustainable raw material options.

With the advancement of technology, the cotton from pre- and post-consumer waste can now be recycled back into the viscose fibre which can replace the use of virgin wood-based pulp, thus providing a great potential of making a large shift from a linear to circular business model.

THE INITIATIVE

The challenge to recycling was that no technology was available to recycle pre- and post-consumer cotton waste into fresh fibres.

Investing in textile waste recycling technology has been a key part of Birla Cellulose's commitment to contributing to a circular economy. Our R&D efforts have led to several innovations that have shown promising results and are in various stages of development.

LIVA REVIVA

Birla Cellulose has achieved a breakthrough in manufacturing viscose fibre 'Liva Reviva' using pre-consumer cotton waste and following the principles of a circular economy. With pre-consumer waste comprising 30% of the constituent and the rest of the wood pulp from sustainable forest, Liva Reviva has successfully achieved the Recycled Claim Standard (RCS) certification.

The performance of Liva Reviva is at par with 100% virgin wood-based cellulosic fibre and it has already been adopted by major global brands and several other brands are developing collections based on Liva Reviva.

Liva Reviva has several ecological benefits in addition to circularity. It has lower water consumption and lower GHG emission as compared to generic viscose based on the Higg MSI tool provided by SAC.



GREENTRACK™

GREENTRACK™ - BLOCKCHAIN-BASED TRACEABILITY PLATFORM

Birla Cellulose understands the importance of traceability & transparency. Through its blockchain-based platform GreenTrack™, Birla Cellulose, along with its value chain partners, tracks material flow in the supply chain from forest to retail. Through a simple scan of the QR code, the end-to-end sustainability journey is visible to consumers and helps them make an informed purchase decision.

OTHER DEVELOPMENTS IN CIRCULAR FIBRES

Birla Cellulose R&D team is working on several other waste recycling processes, and several of these processes are looking promising. We have filed for a joint patent for nanollose lyocell fibres which are based on microbial biomass based on food waste. We are also working on developing fibres based on agri-waste of different types and lyocell fibres derived from algae-based biomass. In the coming years, we hope to commercialise more circular fibres thereby giving the brand partners and customers wider choices on circular fibres. This will also reduce the pressure on virgin wood-based pulp.

IMPACT AND OPPORTUNITIES

We have successfully established Liva Reviva for textile applications and achieved properties similar to standard viscose fibres. We have also established a complete traceability system based on GreenTrack™ platform which provides traceability of the entire value chain on the blockchain-based technology and a unique embedded molecular tracer.

We have introduced a 'reverse logistics' system for

collecting suitable cotton waste for recycling and this has created a positive social impact for the recycling industry which comes from a weaker section of the society, as the value of waste has increased by upcycling. Currently, these efforts are being expanded.

RECOGNITION

Birla Cellulose has emerged as a winner in the first edition of the "National Innovative and Sustainable Supply Chain Awards" by UN Global Compact Network India held in April 2021

The case study - Liva Reviva & Fully Traceable Circular Global Fashion Supply Chains - was awarded for innovation for circular fibre made with pre-consumer waste and end-to-end 'live' supply chain transparency and traceability through its unique blockchain-based platform GreenTrack™.

WAY FORWARD

Birla Cellulose's current efforts are focussed on developing products made with post-consumer waste and increased use of alternate feedstock. We plan to aggressively scale up the production of circular fibres to a level of 100,000 tons per year by 2024 and are committed to accelerating innovations that are aligned with UN SDGs 2030.



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End-of-life Considerations

Birla Cellulose considers the end-scenario of the products that it makes. The fibres are made from renewable wood from managed forests and they are fully biodegradable in marine, soil & water and compostable in industrial and home-composting conditions.

Man-made Cellulosic Fibres (MMCFs) follow a natural cycle. They come from nature and go back to nature. Products such as the apparels made from our fibres are biodegradable if they are not mixed with some other synthetic fibres.



Microplastic pollution in marine bodies is increasingly becoming a major cause of concern as it finds its way into the human food chain. Microplastics are generated during the washing cycles and end-of-life of fabrics made from synthetic fibres such as polyester, nylon, etc. MMCFs are fully biodegradable and made from natural cellulose and do not have any adverse impact on human health.

Product Safety

Safety of our products is a top priority as they are used as basic constituents to make products used daily for various applications. Hence, we make sure they are safe during their use phase as well as do not degrade the environment in their post-use phase.



Following product certifications both for textile and nonwoven applications allays any concern regarding the safe use of products that are worn/used for direct skin applications.

STANDARD 100 BY OEKO-TEX®

All Birla Cellulose fibres are certified to STANDARD 100 by OEKO-TEX® (Class I product) which means it is safe for use in applications having skin contact and is even safe for use in baby articles.



USDA BIOBASED CERTIFICATION

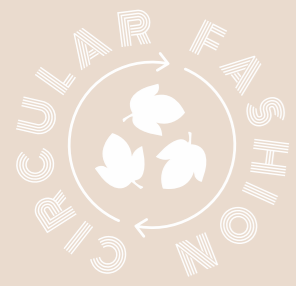
Birla Cellulose received this certification from the US Department of Agriculture (USDA) for their regular as well as specialty products such as Birla Viscose, Birla Modal, Birla Excel, Birla Spunshades fibres, Livaeco, Liva Reviva, Purocel, Purocel Eco. This certification confirms that the product is derived from plants and other renewable agricultural/forestry materials and provide an alternative to conventional petroleum-derived products.



TUV AB OK CERTIFICATION

Regular viscose fibres from Birla Cellulose are certified according to OK Scheme by TÜV AUSTRIA BELGIUM NV/SA for compostability in various conditions like industrial composting and biodegradability in soil, water and marine environments. The fibres are biodegradable and compostable at the end of life and this clearly shows the circular nature of MMCFs coming from the renewable and sustainable raw material wood.





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Valuable Partnerships

- Actively contributing towards development of standards with SAC, ZDHC and Textile Exchange
- Full Circle Textiles and Sorting for Circularity – joint collaborative project with Fashion for Good, Leading Brands & Innovators
- Birla Cellulose case gets featured in the Harvard Case Study list

Challenges 2021-22

- Barriers in scaling up innovations due to long and scattered textile value chain
- Opportunity for integration of different global best practices to reduce duplication



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Overview

A successful organisation requires partnerships among its stakeholders and is founded on mutual respect and commitment to agree upon certain principles that evolve over time. Common vision and the partnership goals must be clearly defined and shared mutually, having synergies with the objective of delivering better products for the people and planet. Sustainability across the value chain can be achieved by working in tune with the shared needs strategically with all stakeholders, thereby generating broader and better results.

We work with our stakeholders to understand their expectations and transform them into meaningful long-term missions. It ranges from conserving ancient forests, next-generation solutions, exploring alternative raw materials, adopting the best technologies for closed-loop processes, sustainable products or circularity, transparency & traceability and social aspects.

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 than each one individually, creating combined higher value for all the stakeholders.

The gamut of our partnerships is diverse and includes sustainable sourcing, forest conservation, sustainable innovations and products, environment protection, people well-being to name a few, that are aligned with the UN SDGs.

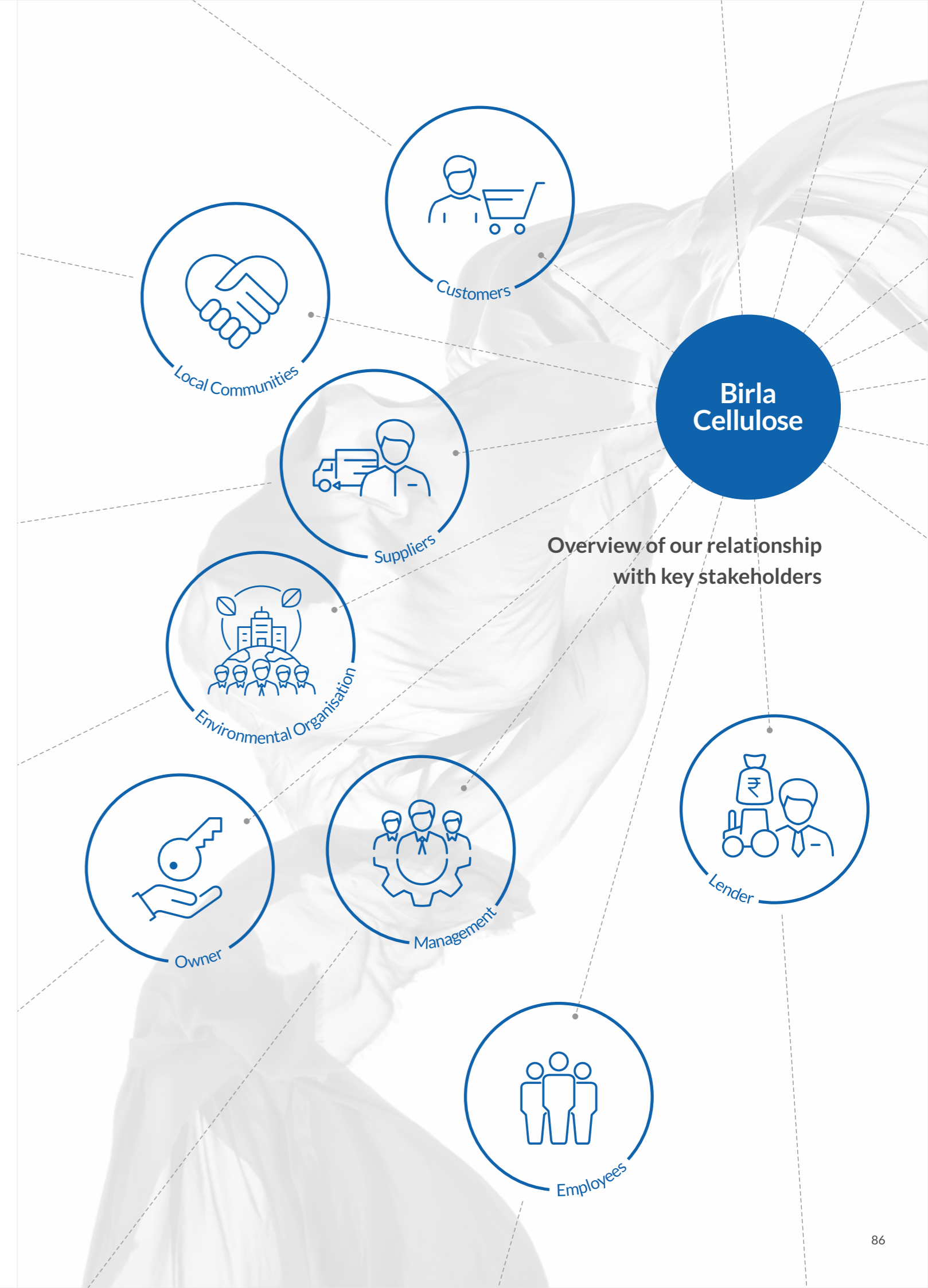
For Birla Cellulose, the Valuable Partnership is a collaborative philosophy, trusting, respecting and having a shared vision for a common goal and a better tomorrow.

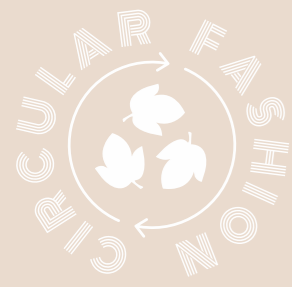
'Valuable Partnerships' is a vital pillar of our sustainability strategy and is consistently applied across all the other pillars, namely Responsible Sourcing, Responsible Manufacturing, Sustainable Products & Circular Economy, and Social Responsibility.

Our Engagement Approach

Stakeholder Engagement has been our approach to fulfilling the requirements of this important pillar. The relationship of trust, communication, transparency and regular engagement with our key stakeholders forms the foundation of our business value system.

The engagement has the following fundamentals in common:





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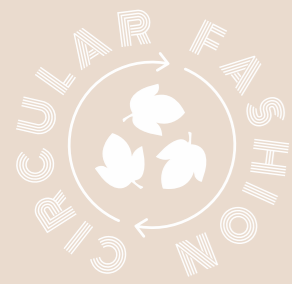
BIRLA CELLULOSE STAKEHOLDER ENGAGEMENT PLATFORMS



Stakeholder Group	Engagement Mechanism	Frequency	Stakeholder Expectations	Our Approach
Employees	iSay - Interaction with Leadership Team	Annual	<ul style="list-style-type: none"> Work-life Balance Career Growth 	<ul style="list-style-type: none"> Recreation facilities, celebration of major festivals, cultural programmes, sports day etc.
	Townhall Meetings by CXOs	Regular	<ul style="list-style-type: none"> Learning & Development Fair Wages & Remuneration 	<ul style="list-style-type: none"> Employee performance management system Development plan for all employees
	Annual Performance Reviews	Annual	<ul style="list-style-type: none"> Health & Safety Talent Recognition 	<ul style="list-style-type: none"> Functional & Behavioural trainings provided based on Training Need Identification (TNI)
	Continuous Feedback Programme			<ul style="list-style-type: none"> Specially designed programmes for Technical Leadership Development
	Training Programmes	Continuous basis		<ul style="list-style-type: none"> Monetary award schemes like iApplaud - an instant recognition scheme
	Monetary Award, Recognition Scheme (iApplaud, PRIDE)			<ul style="list-style-type: none"> PRIDE Award for a team for a high impact project in manufacturing, innovation, marketing etc.
	Employee Satisfaction Survey	Annual		<ul style="list-style-type: none"> Regular safety trainings are imparted to employees and their families especially road and driving safety Health & Safety programmes in all manufacturing sites



Stakeholder Group	Engagement Mechanism	Frequency	Stakeholder Expectations	Our Approach
Customers	Customer Feedback	Continuous	<ul style="list-style-type: none"> Good customer experience Provide solutions 	<ul style="list-style-type: none"> Customer feedback is taken on continuous basis on the product performance, quality, cost, service and delivery. Customer Happiness is a mission.
	Visit to Customers	Regular	<ul style="list-style-type: none"> Customer value proposition, price, quality, delivery, and product features 	<ul style="list-style-type: none"> Implemented Mission Happiness based on Net Promoter Score - combination of top-down and bottom-up approach
	Customer Technical Services	Need based	<ul style="list-style-type: none"> Application development After-sales support Complaint resolutions 	<ul style="list-style-type: none"> Products are certified to globally recognised certifications which ensures product safety Dedicated Customer Technical Service team actively supports customers in productivity and quality improvements, and technical problem resolutions
	Grievance Redressal	Case-to-case basis		<ul style="list-style-type: none"> Customer complaint resolution process for resolution of the problem by root cause analysis
Value Chain Partners	LIVA Partnership Programme	Continuous	<ul style="list-style-type: none"> Create value from strong product and brand for value chain partners 	<ul style="list-style-type: none"> LAPF addresses the issues such as fashion forecasts, product perfection, innovative yarns / fabrics, connecting partners with buyers
	Fashion Forecast	Fashion Season	<ul style="list-style-type: none"> Provide visibility to future trends 	<ul style="list-style-type: none"> Fashion Studios launch collection every season which customers use to forecast their demand



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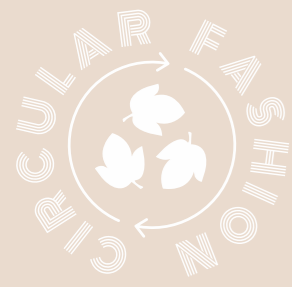
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Stakeholder Group	Engagement Mechanism	Frequency	Stakeholder Expectations	Our Approach
Value Chain Partners (contd.)	Exhibitions	Regular	Product and application development support for value chain	<ul style="list-style-type: none"> Latest developments 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. Joint development programmes for better materials, optimising cost, logistics, packaging
Multi Stakeholder Organisations	Innovation	Regular	• Best-in-class technology and products	• Collaborations with Institutes and Technology focussed organisations to continually apply latest knowhow
	Sustainability	Regular	• MMCF value chain sustainability	• Implementation of global best practices in MMCF production and supply, Life cycle studies etc.
	Best Practices	Regular	• Apply global best practices	• Working groups and regular collaboration with multi-stakeholders such as ZDHC, TE, Canopy, WBCSD; develop certification standards for sustainable viscose
	Standards Development	Need based	• Develop new standards	
Brands & Retailers	Fashion Studios	Every season	• New product innovations	• Regular meetings to understand the needs and share the new designs and products
	Partnering	Continuous	• Common goals for sustainability	• Developing new products aligned to the need of sustainability focussed customers



Stakeholder Group	Engagement Mechanism	Frequency	Stakeholder Expectations	Our Approach
Suppliers & Contractors	Vendor Assessment, Supplier Audits, Review Meetings, Contractor Management	Regular	<ul style="list-style-type: none"> Continuity of orders Timely payment Transparency 	<ul style="list-style-type: none"> Supplier risk management process including human rights Contractor Safety Management Supplier Code of Conduct, compliance with regulations and applicable laws
Communities	Need Assessment	Continuous basis	• Local employment	• Community Need Assessment
	CSR	Continuous basis	• Infrastructure development	• Meetings with Community Representatives
	Meetings	Periodic	• Livelihood & training programmes	• Development and construction of village roads, school renovation, street lights etc.
	Social Impact Programmes	Continuous	• Develop weaker section of society, women empowerment	• Skill development programme on tailoring, embroidering and beautician for women
				• Health camps, pulse polio immunisation programme, rural/mobile clinics
				• Animal husbandry projects, skill training, self-help groups for Sustainable Livelihood
				• Collaboration with local communities, NGOs and focus on women empowerment and financial independence



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Stakeholder Group	Engagement Mechanism	Frequency	Stakeholder Expectations	Our Approach
Investors & Shareholders	Investor Results	Quarterly, Half-yearly, Annually	<ul style="list-style-type: none"> Corporate Governance & Risk Management Returns on investment Operational performance 	<ul style="list-style-type: none"> Structured governance Board of Directors Risk Management Committee Financial and operational performance discussions Cost reduction approach and initiatives Site visits
	Board Meeting	Annual		
	Investor Day	Annual		
Media	Corporate Communications	Continuous basis	<ul style="list-style-type: none"> Developments in the organisation Regular 	<ul style="list-style-type: none"> Regularly updating the websites and communicate about any changes in the organisation, product launches etc. Using social media platforms for events organised, any publication done by the organisation
	Social Media Platforms	Regular		
Government & Regulatory Bodies	Communication with Regulatory Bodies	Regular	<ul style="list-style-type: none"> Payments of taxes Compliance to laws Pollution prevention Local economy growth 	<ul style="list-style-type: none"> Regular payment of all applicable taxes in all the geographies of operations Compliance to applicable laws of the land Adherence to all norms of Pollution Control Board Employment of local people
	Formal Dialogues	Regular		

Customers & Value Chain

Customer centricity is a key tenet of Birla Cellulose. Keeping customer goals in mind, we align our sustainability decisions in order to support our customers and amplify their efforts in making the planet and society better. Our value chain partners produce products and provide services based on environment, social and economic expectations of the customers.

A number of customer and value chain centric engagement initiatives were undertaken during the year.

Customers

Birla Cellulose has a global footprint with customers in more than 65 countries and has a stronghold on each and every global textile cluster.

We have a comprehensive mechanism that leverages multiple aspects across the ecosystem to fulfil the expectations and preferences of customers and markets:

MISSION HAPPINESS

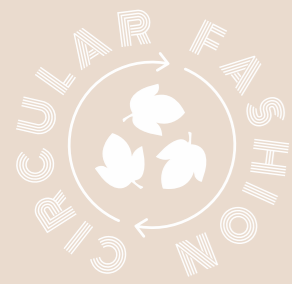
Mission Happiness is an umbrella of various engagement activities with customers done on a real-time basis to deliver a positive and uniform customer experience. Employees are encouraged for being agile & pro-active towards customers' requirements.



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 and nonwoven sector. Customer meet is one of the key initiatives to reach out to customers.





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CUSTOMER TECHNICAL SERVICES (CTS)

Robust customer service systems and rigorous mechanisms are in place to build a long-term relationship with our customers.



The CTS engages with the customer through reactive/proactive visits, complaint resolution, new product rollout, process optimisation projects etc.

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 to produce fabrics that meet LIVA standards.

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



Marketing



Vendor Management



Design Innovation



Product Perfection



Sustainability

LAPF DESIGN STUDIOS



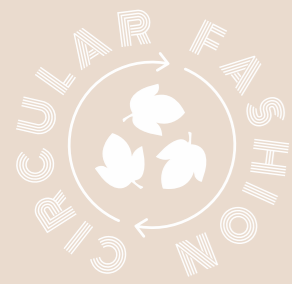
LAPF Studio is a hi-tech experience centre with more than 2,000 samples of Viscose, Modal & Excel (lyocell) fibres on display with detailed technical specifications.

It is a one-stop platform for buyers who prefer to review, prefer variety & convenience in buying along with the feasibility to connect with value chain partners. LAPF Studios are hubs to connect with garment manufacturers & exporters, local & international brands, international buying houses, agents & traders, and fashion design houses.

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 also discussed during our interactions with global fashion brands and retailers.





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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.

On the workers side, 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 113.



Local Communities

Empowering the community has always been a key component of our business strategy. Birla Cellulose has partnered with nearby communities to actively contribute to their social and economic development. The businesses prosper when local community supports and contributes.

We work together with the community and make them an active participant in our business through employment generation and various initiatives for mutual growth.

For more details refer to our "Social Responsibility" on page 107.



Collaboration with Various Organisations & Associations

Birla Cellulose is part of several multi-stakeholder organisations, industry bodies & associations and engages with them to stay abreast on the latest developments in the industry/sector. Partnerships with these bodies help us introduce new standards and best practices to contribute to shaping the future of MMCF industry.

Here are some of the key partnerships:

Canopy

Birla Cellulose works closely with Canopy and has developed a robust wood sourcing policy in alignment with the CanopyStyle initiative for our man-made cellulose. Moreover, we collaborate with them to develop innovative solutions such as the development of Next Generation fibres, including Liva Reviva and, advancing conservation solutions helping to protect Ancient and Endangered Forests.

CIRCULAR CHIC CAMPAIGN

Canopy launched a new campaign - Circular Chic - to create awareness and to leverage the industry as a force for good to conserve Ancient and Endangered Forests. The campaign has focused on raising awareness to reduce the sourcing of wood for pulp and fibre, and use waste resources, which are already in circulation, instead. The idea for the campaign, which features a bestselling author, actors, models and activists was to provide positive messaging around solutions. Circular Chic shows that Next-Gen solutions are ready and need to be scaled. Birla Cellulose participated in the campaign through our innovative solution - Liva Reviva - made from pre-consumer cotton waste (up to 30%) as the feedstock. We are committed to, at a minimum, scale up our production to 100,000 tons by 2024 and will be responsive and nimble to customer demand.

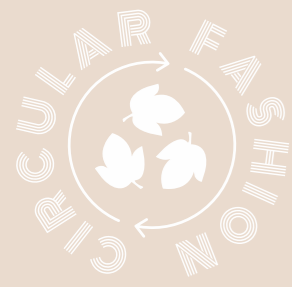


Sustainable Apparel Coalition (SAC)

Birla Cellulose is a member of SAC since its inception and has been driving the Higg Index in all its fibre manufacturing units.

We have regular discussions to further improve the standards and systems such as Higg FEM, Higg FSLM, Higg MSI and other tools as promoted by SAC. Birla Cellulose contributed to SAC's 3-year strategic plan for the global fashion industry.





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A DECADE IN REVIEW - THE SAC CELEBRATES 10 YEARS OF BOLD PROGRESS

Birla Cellulose is a member of the Sustainable Apparel Coalition (SAC), a global consortium of more than 200 brands. In 2021, to celebrate 10 years of bold progress, the SAC released a comprehensive report detailing its signature achievement - the completion of the Higg Index, a suite of tools for the standardised measurement of value chain sustainability. In addition to illustrating the impact of the Higg Index, the report lays out the framework for the SAC's ambitious new mission to transform business for exponential impact. Going forward in the next decade, the Higg Index will be central to the SAC's mission of transforming businesses for exponential impact - providing the building blocks necessary to help us make smarter and more informed decisions about the products we make, how we make them, and how we partner together to reduce the impact on people and the planet.



ZDHC - Roadmap to Zero Programme

ZDHC's mission is to enable brands and retailers in the textile, apparel, and footwear industries to implement sustainable chemical management best practices across the value chain. Through collaborative engagement, standard-setting, and implementation, it aims to achieve zero discharge of hazardous chemicals.



ZDHC
CONTRIBUTOR

Birla Cellulose is a contributing member of ZDHC and is a member of several task teams related to wastewater treatment for MMCF, circular textiles, supplier advisory group and standard-setting.

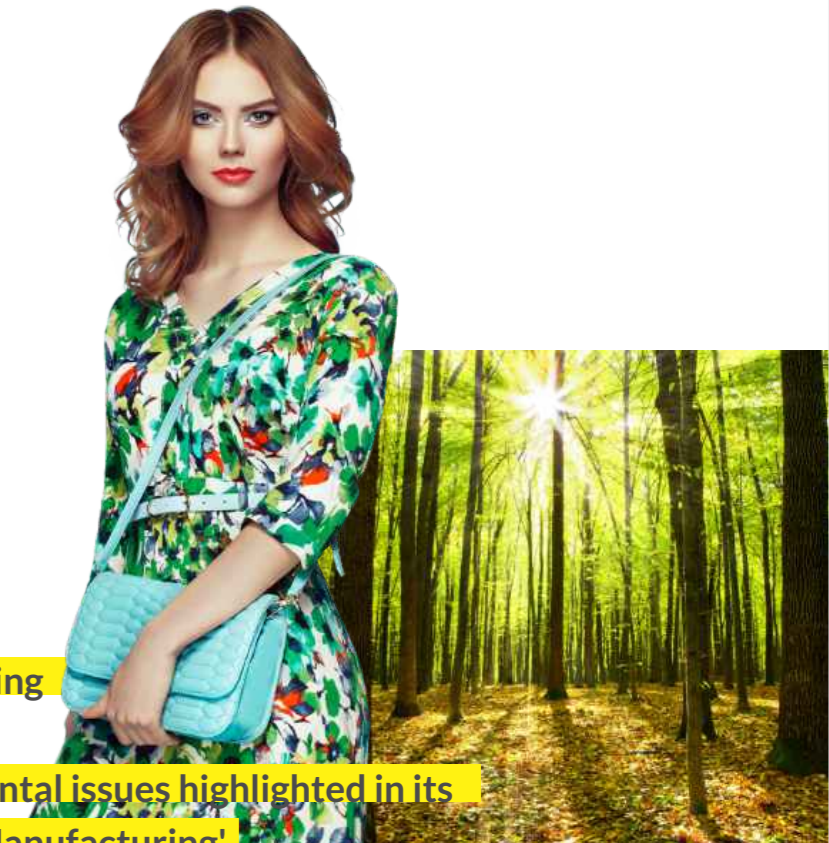


Changing Markets Foundation (CMF)

MMCFs have the potential to be one of the most sustainable fibres if the key sustainability issues are addressed appropriately.

Birla Cellulose is committed to working with Changing Markets Foundation to address the health and environmental issues highlighted in its 'Roadmap for Responsible Viscose Manufacturing'.

More details are available in Responsible Manufacturing section of this report.



Textile Exchange (TE)

Textile Exchange is positively impacting climate by accelerating the use of preferred fibres across the global textile industry.

Birla Cellulose is a member of Textile Exchange. We are a key partner in TE's Climate+ Strategy project and MMCF Roundtables.

We worked with TE on the MMCF Producer Transparency Questionnaire which will help global fashion brands/retailers to gain uniform, easy to read and comparable information of their MMCF fibre suppliers on the production site level.

Birla Cellulose participated in TE's Corporate Fibre & Materials Benchmark (CFMB) and Biodiversity Benchmark. We engage with representatives of global brands and supply chain partners on sustainable product offerings through Textile Exchange hub networks.



Fashion for Good

Fashion for Good is the global initiative that aims to make all fashion good. It's a global platform for innovation, made possible through collaboration and community. With an open invitation to the entire apparel industry, Fashion for Good convenes brands, producers, retailers, suppliers, non-profit organisations, innovators and funders united in their shared ambition.





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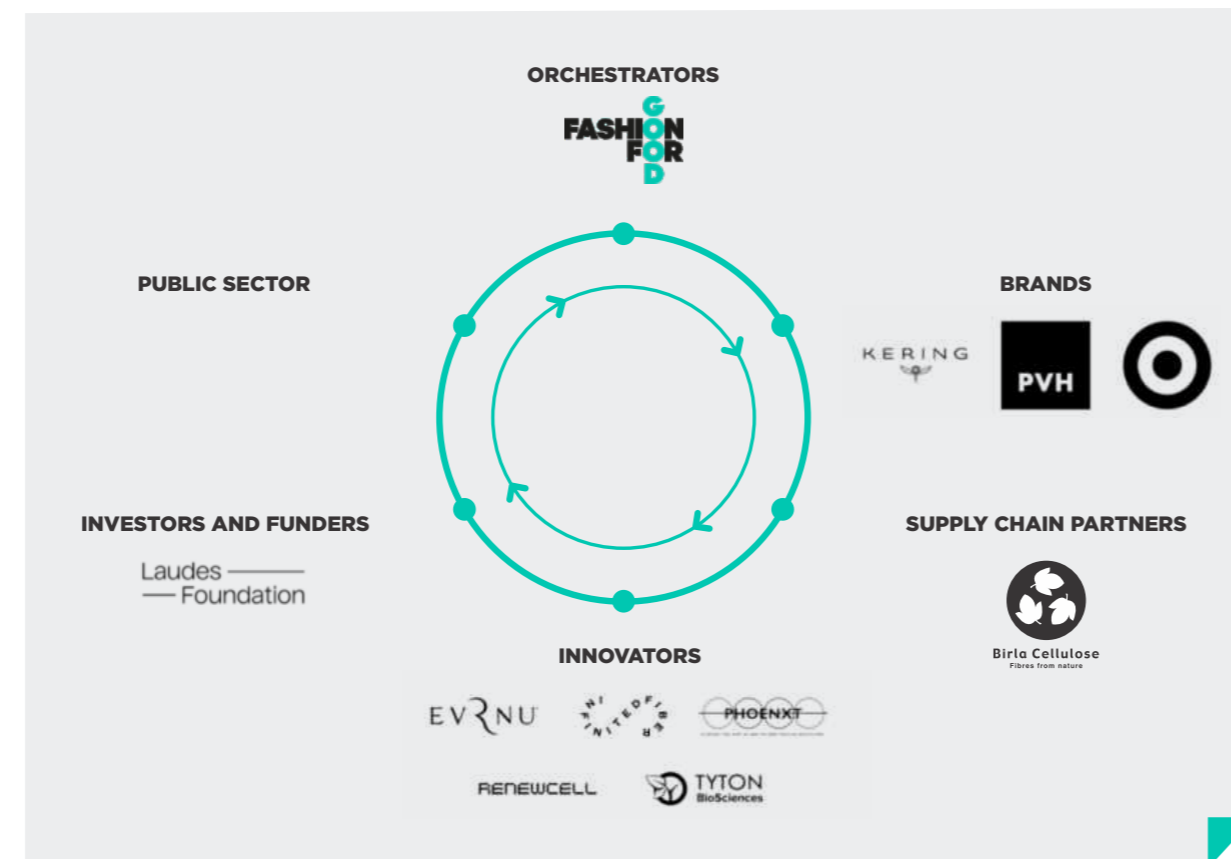
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CASE STUDY

Update: Full Circle Textiles Project - Scaling Innovations in Cellulosic Recycling



The 'Fashion for Good' that initiated a consortium project in 2020 was executed in less than 18 months. The Project "Full Circle Textiles - Scaling Innovations in Cellulosic Recycling" aims to investigate economically viable and scalable solutions for cellulosic chemical recycling to enable a closed loop system converting textile waste - of cotton and cotton-blend materials, to produce new Man-made Cellulosic Fibres (MMCF).

For the brief of the project, please refer to our Sustainability Report FY20, page 124

Birla Cellulose, one of the supply chain partners, helped spin regenerated cellulosic fibres from the recycled pulp provided by innovators who have chemically recycled the textile waste into cellulosic pulp.

Further, each innovator's pulp and resultant fibres were evaluated and received feedback on the quality of their pulp and discussed areas for technical improvement.

The recycled fibres from Birla Cellulose were made into yarn. This was also an important step as it demonstrates the capability of the regenerated cellulosic fibres in terms of most suitable use-case/end product for each fibre.

PROJECT ACHIEVEMENTS

The project achieved all three of its goals:

Conduct a qualitative and quantitative due diligence assessment with several innovators producing cellulosic output to inform the priority on who to support and grow to scale in the long term

Test closing the loop from pre/post-consumer textile waste to new cellulosic fibres from several innovators' chemical recycling technology

Create a consortium project to enable collaboration across the supply chain and lay the foundation to scale innovation

- The recycled pulp met the technical requirements of Birla Cellulose. The innovators were able to match the recycled content of commercially available regenerated cellulosic fibres and create a fibre that matched in terms of technical performance
- The finished product met the brand's specifications - demonstrating the capability of chemical recycled fibres in meeting the quality requirements of large brands
- The project gained significant traction and galvanised the industry towards scaling chemical recycling technologies - This helped to raise awareness on the importance and potential of chemical recycling to reduce textile waste in the industry and drive the transition towards circularity

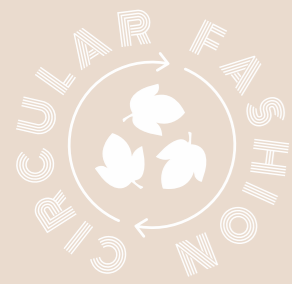
KEY LEARNINGS

A phased and collaborative approach is key - The consortium structure of this project brought together the key stakeholders to demonstrate and scale innovation. Moreover, the collaborative structure means that risks are shared and stakeholders can concentrate efforts on their area of expertise.

The phased approach of the project brought discrete milestones for innovators to achieve in order to move from assessment to implementation.

NEXT STEPS FOR SCALING

The need is now to focus on scaling cellulosic chemical recycling as the technology has been validated at a pilot level.



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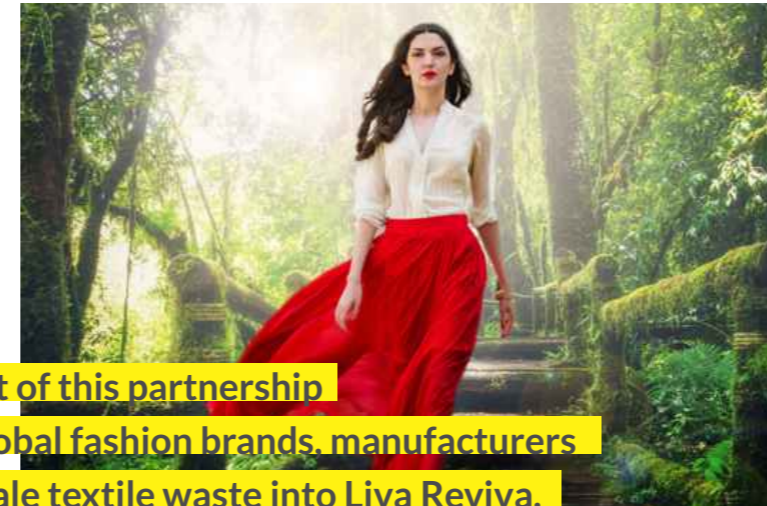
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Circular Fashion Partnership



Circular Fashion Partnership

Birla Cellulose has joined the "Circular Fashion Partnership", a cross-sectorial project led by Global Fashion Agenda, Reverse Resources and BGMEA, to accelerate the transition to circular fashion industry, by demonstrating the Circular Fashion Business Case in Bangladesh.



Birla Cellulose is excited to be part of this partnership and will work with well-known global fashion brands, manufacturers and recyclers to capture and upscale textile waste into Liva Reviva.

This partnership will help scale up the reverse logistics which Birla Cellulose has already established by closely working with Reverse Resources in the last 2 years.

We have partnered with several manufacturers to evolve waste segregation protocols to ensure that the collected cotton waste conforms to standards required for viscose fibre manufacturing. The manufacturers in turn gain access to a superior recycling option compared to the incumbent down-cycling recycling measures. Birla Cellulose helps train potential reclaimers on identifying suitable blends and has successfully on-boarded several recyclers using a systematic qualification process.

INITIATIVE

Birla Cellulose Case Gets Featured in the Harvard Case Study List

The case study titled 'Birla Cellulose: Spearheading Sustainable Fashion' is authored by Prof. Utkarsh Majumdar (visiting faculty at IIM Udaipur and a member of the Board of Governors at IIM Raipur) and Namrata Rana, Director of Futurescape, and is published by Ivey Publishing, a leader in providing business case studies with a global perspective.

The case looks at the crisis faced and outlines how the company handled the situation, pointing to lessons on participative leadership and decision-making, characterised by introspection and self-criticism rather than finger-pointing. Further, the case touches upon many aspects of crisis management, managing resources optimally, and utilising sustainability as a competitive advantage. The case study can be accessed [here](#).

Sorting For Circularity India Project



Fashion for Good launched the Sorting for Circularity India Project, a consortium project to understand both the pre-consumer and post-consumer textile waste streams in India, and to pilot sorting and mapping solutions. The project aims to build an infrastructure towards greater circularity in the years to come.

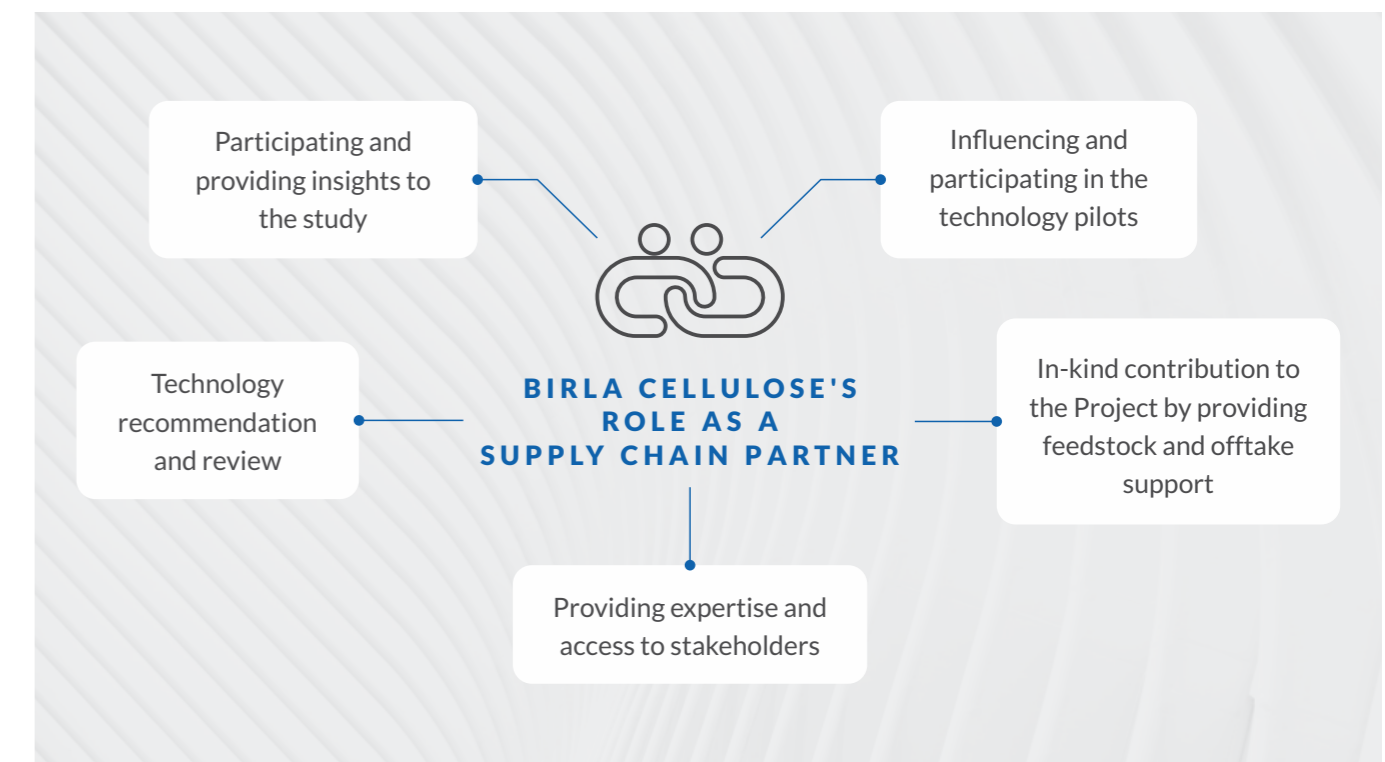
The project brings together industry players including Fashion for Good partners Adidas, Levi Strauss & Co., PVH Corp., Arvind Limited, Birla Cellulose and Welspun India. A key technology partner for the project is Fashion for Good innovator Reverse Resources which provides the analysis of the pre-consumer textile waste streams in addition to designing and running the pre-consumer pilot. The project is supported through catalytic funding provided by Laudes Foundation.

Over 15 months, the project will demonstrate a new textile value chain across three phases.

Firstly, by obtaining an overall understanding of the textile waste supply chain of pre- and post-consumer textile waste in India.

Secondly, by identifying and piloting technologies that enable the traceability of textile waste and its accessibility to existing recyclers.

And finally, by providing recyclers with access to textile waste feedstocks that meet the quality parameters of advanced recycling technologies, giving these technologies an incentive to scale in India.





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Fashion Forever Green Pact



Renewable fibres such as MMCFs have taken the lead as a more sustainable alternative. Nevertheless, the majority of these fibres are sourced from uncertified forests, leaving these ecosystems vulnerable to deforestation, illegal logging and threatening the people that rely on them. With uncertified sourcing expected to grow, the fashion industry must take action to safeguard forests from further harm.

FSC® (FSC® C118017) certification is a vital tool that can help protect forests worldwide and responsible forestry standard, linked to a strict chain of custody certification, is a proven solution to tackle today's climate and biodiversity challenges. This means choosing this standard helps protect the future of forests and the communities that depend on them.

The Fashion Forever Green Pact is a call for the fashion industry – brands, retailers and manufacturers alike – to take immediate action to ensure responsible sourcing on behalf of the world's forests.

Only viscose producers with a full 'Green Shirt' designation within the Canopy Hot Button Ranking can join this initiative.

Birla Cellulose has joined the Fashion Forever Green Pact as a signatory. By joining, we are proactively committing to responsible procurement policies, sustainable sourcing of 100% of FSC® (FSC® C118017)-certified MMCFs within a year of signing and labeling at least one collection with the FSC® (FSC® C118017) label by 2025.

WBCSD'S Reporting Matters



Birla Cellulose collaborates with World Business Council for Sustainable Development (WBCSD) every year for its Sustainability Report review.

WBCSD has been helping us to improve the design and content of our Sustainability Report by benchmarking it with the best reports globally.

In October 2021, WBCSD included us as a good practice example for the Stakeholder Engagement indicator in their '2021 Reporting Matters' publication.



These best practice examples are usually the best two or three examples of this indicator (in this case, stakeholder engagement) from across the more than 170 company reports WBCSD reviews each year.

The Microfibre Consortium

Birla Cellulose is among the initial signatories of 'The Microfibre Consortium' (TMC) as a research member.

It will help TMC in carrying out testing, help develop guidelines and participate in studies. The purpose is to be aware of the developments happening in this area and engage with the development and research work as well as guidance and test methods.



Industry Associations

Birla Cellulose is part of several industry bodies & associations and engages regularly with them to keep abreast on latest developments in the industry such as policy formation, new developments, etc. Partnerships with these bodies help us introduce new standards and best practices to contribute to shaping the future of viscose industry. To know more, please refer to our sustainability report 2018-19, page no. 131.



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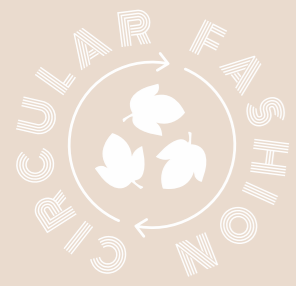


Social Responsibility

- Achieved reduction of 89% in LTIFR over baseline of FY15
- Foundation stone laid for Aditya Birla Public School at Pallipalayam, (Tamil Nadu, India) a major spinning and weaving hub

- CSR expenditure of about \$ 2.35 million as compared to \$ 1.98 million in FY20
- 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



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COMMUNITY

Our Social Responsibility pillar is aimed at ensuring the collective well-being of our stakeholder groups, primarily focusing on our communities, employees, and their safety. Birla Cellulose over the past decades has been making continuous efforts on the social fronts and thus has been successful in creating an impact on the economic and social development of weaker sections of society at large. The community around our operations at all locations are key stakeholders for the organisation and we believe in inclusive growth with them.

Management Approach

Community service is a vital 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.

We are proactively involved with the communities to understand their expectations and support them to enhance their socio-economic development.

This includes facilitating health, sanitation, hygiene programmes, and supporting infrastructure development such as schools and medical facilities, in surrounding villages.

For Corporate Social Responsibility (CSR), we have a well-defined policy, a dedicated budget and a structured committee that oversees and approves all our CSR related activities and management. 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.

The CSR activities are structured in line with the United Nations Sustainable Development Goals (SDGs) and the projects primarily emphasise empowering the communities around the area of operations of the organisation.

Key Focus Areas



SUSTAINABLE LIVELIHOODS



HEALTHCARE



EDUCATION



INFRASTRUCTURE DEVELOPMENT



SOCIAL CHANGE

Sustainable Livelihoods

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

Several initiatives have been undertaken covering the following developmental programmes to bring economic prosperity to the lives of local communities:

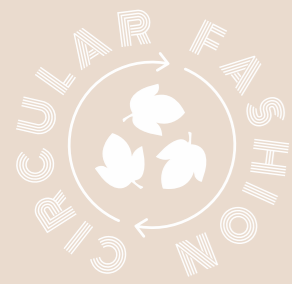
Agriculture

- **1,126 farmers** were covered under the on-field demonstration of crop varieties, and sessions to explain how they can avail the benefits of Government schemes in Nagda
- **41 farmers** benefitted through agricultural training at Harihar
- **47 farmers** benefitted from the workshop on how to increase agricultural productivity, field exposure visit in Vilayat

Animal Husbandry

- Integrated livestock development project started in collaboration with BAIF (Bharatiya Agro Industries Foundation) in Nagda
- 3 livestock development centres have been established, each covering around **35 surrounding villages and 3,536 animals treated and vaccinated**
- At Harihar, animal treatment and vaccination were conducted in 4 villages in collaboration with the veterinary hospital of Hulikatti, Airani and Maknur villages. **A total of 3,752 animals from 662 farmers were vaccinated**





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Education



Our endeavour is to stimulate the aspiration for learning and knowledge at all stages through formal schools – Balwadis (Balwadi is an Indian pre-school run for economically weaker sections of the society, either by government or NGOs) for elementary education, quality primary education, Aditya Bal Vidya Mandirs, girl child education and adult education programmes.

This year we undertook the following initiatives:

Promotion of Girl Child Education

The girl child education initiatives were undertaken to improve enrolment, reduce drop-outs benefitting 375 girls in Nagda. Also, Anaemia check-up programmes were organised with schools in rural and urban areas.

'Kanya Kelavni Certificates' for continuing education

Vilayat: To encourage girls for higher education, girls continuing their higher studies post Class 8 were given 'Kanya Kelavni Certificates'. **A total of 138 girls were appreciated for continuing their education.**

School Infrastructure Development

Nagda: Middle, primary schools and Aganwadis were **provided 200 furniture sets** (table & benches), ensuring sitting arrangement for the students. This will help in creating a better education environment and improve their learning and development.

Healthcare

We endeavour to provide quality healthcare facilities to the people living in villages and elsewhere, through our hospitals, primary healthcare centres, mother and childcare projects, immunisation programmes with a thrust on polio eradication, healthcare for visually impaired, physically challenged and preventive healthcare through awareness programmes.

Immunisation Programmes

Immunisation camps are conducted in collaboration with government programmes with an intent to support the drives for the eradication of Polio, Hepatitis B, Diphtheria and Tetanus. **Nearly 58,197 children have been immunised around Nagda, Harihar, and Vilayat Units.**

Monthly Medical Check-up

Indonesia: Monthly medical check-up for Cilangkap village to help people in monitoring their health.

Corona Warrior Health check-up

Kharach: Organised a detailed health check-up programme for 65 police staff which consists of Hansot police station & Sahol village check post.

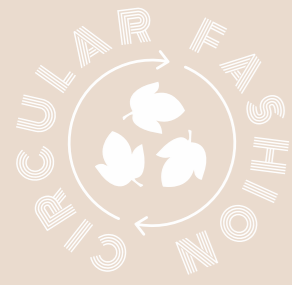
Artificial Limb Fitment Camps

Grasim Harihar organised 'Artificial Limb Fitment Camp' in association with Karnataka Marwari Youth Federation, Bengaluru, where **129 disabled people were given walkers, sticks and crutches to help them lead an independent life.**

Mobile Dispensary

Vilayat: Health dispensary visits each village twice a month and provides free medical consultation along with treatment of basic ailments. **The facility was provided in 10 villages benefitting 2,677 villagers.**





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Grasim Nagda

We are providing quality healthcare services in 250 villages. We addressed the following major initiatives in the areas of Curative, Preventive, Reproductive, Child and Quality Health care.

PREVENTIVE

An awareness 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. **111 on-spot testing were done. More than 1,174 people benefitted through awareness generation programmes.**

CURATIVE

- Running a full-fledged 150 beds hospital (Indubhai Parekh Memorial) equipped with the latest medical facilities.
- 80-bedded fully equipped G. D. Memorial Hospital is being run at Ujjain for catering to the needs of the community. **Around 1.22 lakh people have availed of the benefits from hospitals.**

MOBILE

Mobile health camps in 18 villages for the prevention of seasonal diseases. **61 camps were organised and 3,444 people benefitted.**

REPRODUCTIVE

Adopted 35 villages for mother and child healthcare awareness programme that aims to reduce anaemia in pregnant women, antenatal care, child nutrition, timely vaccination and institutional delivery. **2,073 beneficiaries got covered under this programme.**



Infrastructure Development

We have been investing in infrastructural development initiatives in rural areas to ensure that communities have access to clean drinking water, sanitation facilities and proper roads, among other facilities.

- Nagda: Sanitation was never perceived as a priority especially in rural areas where open spaces were readily available. Hence, the aim was to motivate people and bring a change in their attitude towards sanitation, health and hygiene. **We organised programmes in collaboration with the Panchayat benefitting 545 people in 11 villages.**



- Harihar: Street lights were distributed to Kodyal Hospet Gram Panchayat. This has helped the people of Kodyal Hospet village to commute on the village road during the night. **A total of 5,500 people benefited from this project.**
- Harihar: Village road was renovated at Nalwagal village in Kodyal Hospet Village Gram Panchayat. **A road length of 3 km was cleaned and renovated benefitting a total of 975 people from this project.**

Social Change

We contributed toward socio-economic development through initiatives in the field of education, health, livelihood and infrastructure.

Empowerment through Enterprise Development (Nagda)

Building the skills of rural girls and women is our prime focus area. We have been providing them with various skills to become self-independent. The sewing training programme is one of the main activities. The training duration is of 3 months and the trainer teaches them to sew all types of clothes that are prominent in villages. The training is certified by Usha International which enables them to take a loan from bank to start their enterprise. **This year we provided training to 285 girls.** The girls are able to sew clothes for themselves and their families.

Supported Mass Marriage at Vashi Village (Vilayat)

Vashi Village Development Committee organised Samuh Vivah (all caste mass marriage) at Vashi village. The initiative was aimed at supporting people who are socially and economically backward. In this mass marriage, **17 couples participated from nearby villages.**





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EMPLOYEES

Management Approach

A safe workplace is one of the 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 is in place for monitoring safety in the organisation.

At Birla Cellulose, we are committed to protecting human health and ensuring a safe working environment for all our employees and contractual workers and surrounding communities. At the same time, we are always taking steps to further advance

the safety, health, and wellbeing of our employees and communities.

We encourage our staff and employees to report safety gaps and opportunities for their improvement.

Business Safety Performance

The continued safety efforts and initiatives have supported positively in achieving the overall Business Safety performance during FY21:

Particulars	UoM	FY20	FY21
Total no. of lost time accidents (Reportable Accidents)	Number	33	25
Lost Time Injury Frequency Rate (LTIFR)	per million hours worked	0.87	0.94

Despite lower LTIs, higher LTIFR is mainly on account of lower man hours due to Covid-19



Key Initiatives

BUILDING SAFETY CULTURE

Safety culture is an important part of Birla Cellulose's occupational health and safety management.

In continuation of the key initiatives of leadership engagement & line ownership through linkage of safety performance with performance appraisal system, an **extensive exercise of evaluation of the performance of Business & Unit Safety Sub-committees** using a standardised protocol was conducted and specific feedback with an action plan for improvement was developed for achieving excellence in Safety Management System. Further, handholding of the sub-committees & act groups with a periodic assessment to evaluate the improvement and achievements is in progress.

SAFETY TRAINING & COMPETENCY BUILDING

Birla Cellulose established 'Safety Training & Education Management System' (STEMS) in 2019 to design and coordinate training plans for all of its employees at the site and business level. Our mission is to enhance individual competence and create business value through systematic learning and development focusing on three qualities of employees: **Knowledge, Skill and Attitude.**



Due to the challenging circumstances during COVID-19, we leveraged from the group online training platform and developed Pulp & Fibre e-learning portal for catering to business specific safety training requirements. In FY21, we successfully rolled out **15 customised e-learning modules.**

Further for effective engagement, we initiated the **"Ask to Learn"** drive, an online quiz & learning platform for a better and wider understanding of the requirements of key safety standards.

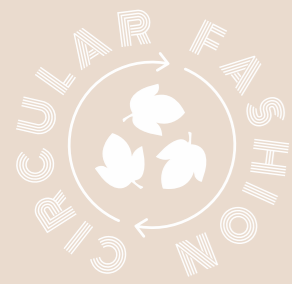
Additionally, for the technicians & contractors, COVID-19 awareness & protocol, mock drills, hazard communication & safety training were conducted in small groups and via job-specific toolbox talk to ensure safe operations at the shop floor.



PROCESS SAFETY MANAGEMENT

In continuation with the integrated approach to Process Safety Management (PSM) directed at the elimination of incidents and the mitigation of risks, we introduced the following key processes:

- Standard Process Safety Event & Incident Reporting protocol along with investigation
- Communication and monitoring the Process Safety event action plan
- Management of Change process integrated in SAP-Recording, Workflow & KPI Dashboards
- MOC Quality Assessment Scorecard – Feedback mechanism to ensure effective risk assessment & control measures are in place for changes with respect to Plant, Process, Procedures & People.



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DIGITALISATION IN SAFETY

To further strengthen the performance and effectiveness of various safety processes and to adapt to the new normal, the Safety Portal "SHIELD - Safety & Health Information Exchange and Learning Directory" was further leveraged for

Self- Assessment / Audit of Key Safety Standards

Safety Performance Scorecard

Task Management - Action tracking platform

The above modules have supported extensively for ensuring effective remote review, monitoring & feedback mechanism for the key safety processes during the pandemic.

COVID-19 PREPAREDNESS & RESPONSE

While approaching the start of the year 2020, the world was exposed to a challenging situation in the form of the COVID-19 global pandemic. We, at Birla Cellulose, were not immune to its impact and consequences. The nature of our operations and application of our products provided us with the opportunity to serve the nation by supplying our products to key industry segments such as PPE masks and non-woven fabrics to the healthcare industry.

In the light of the COVID-19 global pandemic, Birla Cellulose team actively provided up-to-date guidance for employees on occupational health and safety protocols, working remotely, meetings, and travel restrictions. We have implemented preparedness plans and extensive measures to help protect the safety of our employees around the world while safely continuing business operations.

COVID-19 Key initiatives

Employee & Community Welfare

- Enhancement of health care infrastructure at sites – Isolation wards, number of beds, Oxygen Plants, Defibrillators etc.

- Tie-up with hospitals for availability & ease of timely medical support
- 4-hour online assistance, guidance & support to employees for COVID-19
- Continuous communication on the dynamic situation, location specific government protocols & awareness of cardinal rules
- Accommodation and essentials (Food) inside colony premises
- Visits to the contract workers' living clusters to check health/hygiene



Business Operations

- Preparedness plans & safety reviews ensuring safe start-up post lockdown (no major process safety incidents)
- Inventory management of hazardous chemicals (minimum inventory), safe disposal of waste products
- Back up teams for critical process
- Working in staggered shifts, work from home



OCCUPATIONAL HEALTH

In continuation with the implementation of the Group Occupational Health technical standards, the following initiatives have been implemented:

- Enhancement of Medical/ Health Infrastructure – Increase in number of beds, additional healthcare personnel, defibrillators, in-house oxygen plant facility, etc.
- Conducted Respiratory Protection Survey – Action plan in progress
- Qualitative Exposure Assessments (QLEA) & Quantitative Exposure Assessment (QNEA) action plan implementation & monitoring in progress

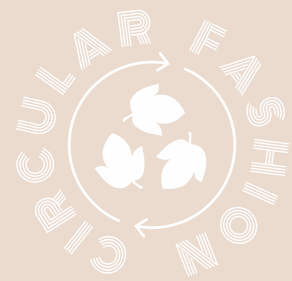
Implementation of recommendations arising out of the above initiatives are being monitored in Apex safety meetings for compliance.

Developing Our People

Developing a high-performance learning organisation and building a strong talent pipeline are our crucial agendas.

Our development process begins with the 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. Our programmes encompass employee engagement, employee health and wellness, talent management, change management, organisation effectiveness, among other aspects. We ensure that our employees learn and grow as our business flourishes and adapt to the current dynamics with greater ease.





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Learning and Development

TECHX - TECHNICAL EXCELLENCE ACADEMY FOR STRENGTHENING TECHNICAL CAPABILITIES

The technical trainings continued on online platforms. The trainings are bifurcated into 4 modules, namely Process, Mechanical, Electrical & Instrumentation and Power plant. These modules have a plethora of topics being covered under it. For e.g. Water Chemistry, Energy Conservation, Overview of Auxiliary, Viscose and Spinning, Overview of Pulp, Mass and Energy balance, Power Plant efficiency to name a few.

Some key highlights of TechX



In 2020, TechX TNI was done for 925 engineers capturing their technical training needs and customising the programmes as per their learning needs.

385 employees have been covered from April 2020 to March 2021 and the learning journey under the umbrella of TechX continues.

A feedback survey with the TechX participants rated the technical programmes at 95% satisfaction.

CORE MANAGERIAL SKILLS PROGRAMME

In the reporting year, the L&D team launched their Core Managerial Skills programme for Department Heads (DHs) through digital medium. 23 DHs underwent this training programme of Core Managerial Skills. Key topics covered in the programme were Financial Acumen, Understanding of Shop-floor Management, Orientation on Sustainability, Overview of VSF process, Overview of Pulp manufacturing, Building Appreciation on Textile processes, Managerial Effectiveness, Customer First Mind-Set & Presentation Skills.



Talent management

Our talent management vision is to identify, build and nurture talent to deliver superior business results while addressing individual career aspirations. Our businesses have aggressive growth plans.

One of the critical requirements for this growth is adequate talent pool to take up the roles of Department Heads and Function Heads, who are expected to increase with the growing business.

Our business follows a very extensive process of talent management for identifying and developing high potential employees across the business. All eligible candidates are identified basis their consistent performance and other pre-defined criteria and potential assessment is initiated for them. The managers of such eligible employees assess their respective team members on the 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 a 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 the career development opportunities. The successors are marked for critical positions. These successors are additionally groomed to take on higher roles.

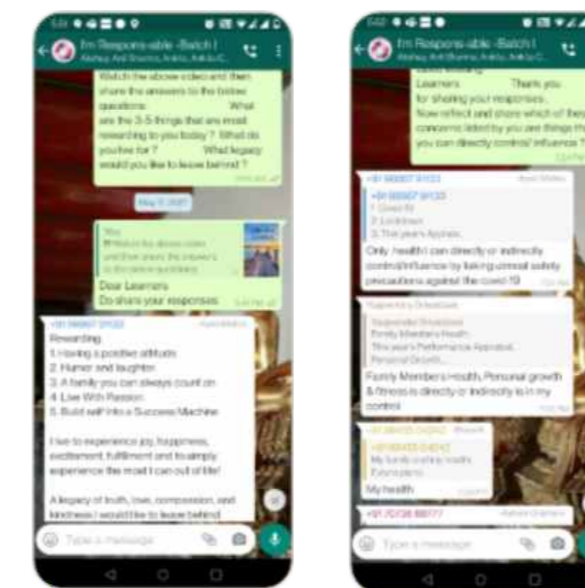
FIRST TIME MANAGER PROGRAMME

The aim of this programme was to enrich the gradual shift of employees from being a part of a team to leading a team. This required grave support from the organisation, hence the FTM programme was brought back for the second time. 116 managers with recent exposure to the concept of team handling were part of this programme. Topics covered were Managerial communication, Feedback skills, Planning, Delegation, Influencing and Coaching skills & Conflict management.

WHATSAPP LEARNING

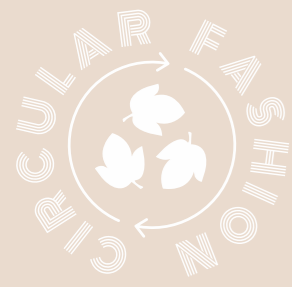
With the focus on low cost, high impact learning interventions, the team devised a one-of-its-kind learning intervention focussed on developing personal effectiveness in early career employees. Around 42 employees were part of it from 9 business units (including SEA). The idea was to run a completely digital learning programme on WhatsApp with content and reflective questions posted weekly. Pit stops of the programme were Self-Assessment, LSI, quizzes etc. The content of the resources was adopted from the book 'Seven Habits of Highly Effective People'.

The entire learning journey was scheduled over a period of 7 weeks and had a positive feedback.



SPOTLIGHT

The project Spotlight is designed to create comprehensive profile of an individual covering their personal and professional career experiences. A detailed profile helps the management in taking critical decisions around succession planning, role movements, job enlargements. It gives deeper view of the employee's detailed career journey, critical skills and capabilities, career aspirations and development need, family details and any challenges and concerns. The spotlight covers employees in combination of critical role holders and talent pool members.



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HR Portfolio: Organisation Effectiveness

CAREER DISCOVERY PROGRAMME

Launched Career Discovery Programme which offers career counselling to our employee's children in helping them to make one of the most important decisions of children's lives and parenting support at critical junctures. Once enrolled, the child will receive career counselling up to their Graduation/ Post Graduation. Close to 60 employees have enrolled for this programme for their children. This programme covers following -

					
Psychometric Assessment	One-on-One Career Counselling	Lifelong Access to Mentoria's Knowledge Gateway	Access to Webinars from Subject Matter Experts	Master Counsellor Workshops	Access to career helpline



BLEND & GROW - GUIDE TO MANAGER TRANSITION SUPPORT PROGRAMME

This programme aims to offer a smooth transition experience to the manager who would take the charge of leading the new team. The programme is designed to support the manager as well as the team members to settle down well. It focusses on the softer aspects of transition especially around winning the support of new team, building rapport with peers, gaining support from supervisors.

WISE (WOMEN INVESTING IN SKILLS & EXPERIENCES) BATCH 2

The objective of this programme is to develop women employees at junior level with focus on building mindset, confidence to lead, opportunity to come together and gaining perspective that has direct relevance to their professional journey.

Covered 32 women employees for this journey in Batch 2 this year.

"CALL BUDDY" PROGRAMME

The intent of this programme is to provide networking opportunity and open the doors for conversation, connections, inspiration and guidance between the women employees of our Business. It will also offer them comfort in knowing that a senior mentor will be guiding them through various situations and challenges of life and career stages. 15 women employees have been assigned their buddy.

SUPPORTING DIVERSITY IN THE WORKPLACE

Birla Cellulose operates in 6 countries and hence our diverse workforce comprises different cultural backgrounds with a wide range of skills. We are strongly committed to supporting diversity and equality and believe that all employees should be given the opportunity to progress based on their merits and abilities. We aim to ensure that we hire local talent regardless of ethnicity, sexuality or social background

and that skills are transferred equally throughout our operations. We comply with all relevant employment legislation in the countries where we operate, as a minimum.

In FY21, a Diversity and Inclusion (D&I) strategy is being created for Birla Cellulose, focussed on making Birla Cellulose an aspirational workplace for diverse workgroups.

RESPECTING HUMAN RIGHTS



The Human Rights and the well-being of our employees and communities around us are critical to the success of our business and its sustainability in the long-term. Birla Cellulose is committed to upholding the human rights standards across its operations as well as protect human rights across the supply chain and our contractors. We have established a Human Rights Policy ([click here](#)) in accordance with United Nations Global Compact (UNGC), International Labour Organization (ILO), United Nations Guiding Principles for Business and Human Rights and other internationally recognised frameworks.

A Human Rights Due Diligence (HRDD) Tool recognising the needs of various stakeholders have been developed by the Aditya Birla Group Sustainability Cell. The HRDD tool has a list of 78 possible potential abuses corresponding to 36 Human Rights in a business setup. Birla Cellulose is using this tool to identify the probability of occurrence and the possible consequence due to risks leading to potential human rights abuse on employees, suppliers, contractors and communities.

Our commitment entails respecting human rights and seeking to avoid involvement in human rights abuses, identifying, assessing and minimising potential adverse impacts through due diligence and management of issues, and resolving grievances from affected stakeholders effectively.

Innovation Challenge for Pulp & Fibre Employees

Birla Cellulose is actively driving various initiatives to promote an Innovation culture for building sustainable competitive advantage. 'Pride in Innovation' was one such initiative. It is an innovation challenge that has facilitated the business in:

Unlocking innovation potential throughout the business in a game-like approach

Providing everyone with an opportunity to express their ideas across units/departments

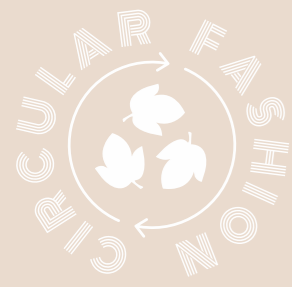
Creating a platform to enable the business to source, develop and commercialise innovation

To invite ideas across the business, 8 business-driven themes were announced, ranging from process and product quality and resolving customer and quality issues to change in business cost structure and scaling up innovation from R&D to the marketplace.

The business received an overwhelming response, with 340+ ideas at the preliminary stage. Of these, 57 ideas were shortlisted by Unit-level interim committees. The Pulp and Fibre team was ably supported by Business Innovation Cell to further shortlist the top 6 ideas.

The business leadership team finalised two winning teams and the winners were felicitated with a cash prize and an opportunity to implement their ideas.





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Employees by Gender



Nos.

		FY18	FY19	FY20	FY21
Permanent	Male	8,969	8,683	8,764	8,326
	Female	666	676	713	689
Temporary	Male	6,112	3,043	4,963	3,038
	Female	259	85	267	154

Employees Turnover



Nos.

Employees Hired		FY18	FY19	FY20	FY21
Management	Male	205	221	219	99
	Female	32	30	41	16
Non-management	Male	72	58	56	40
	Female	14	21	21	14
Permanent	Male	239	315	170	125
	Female	28	51	36	42
Employees Separated		FY18	FY19	FY20	FY21
Management	Male	211	189	269	266
	Female	17	22	27	21
Non-management	Male	52	56	37	91
	Female	13	25	13	25
Permanent	Male	301	469	364	353
	Female	33	24	38	47

Employee Training



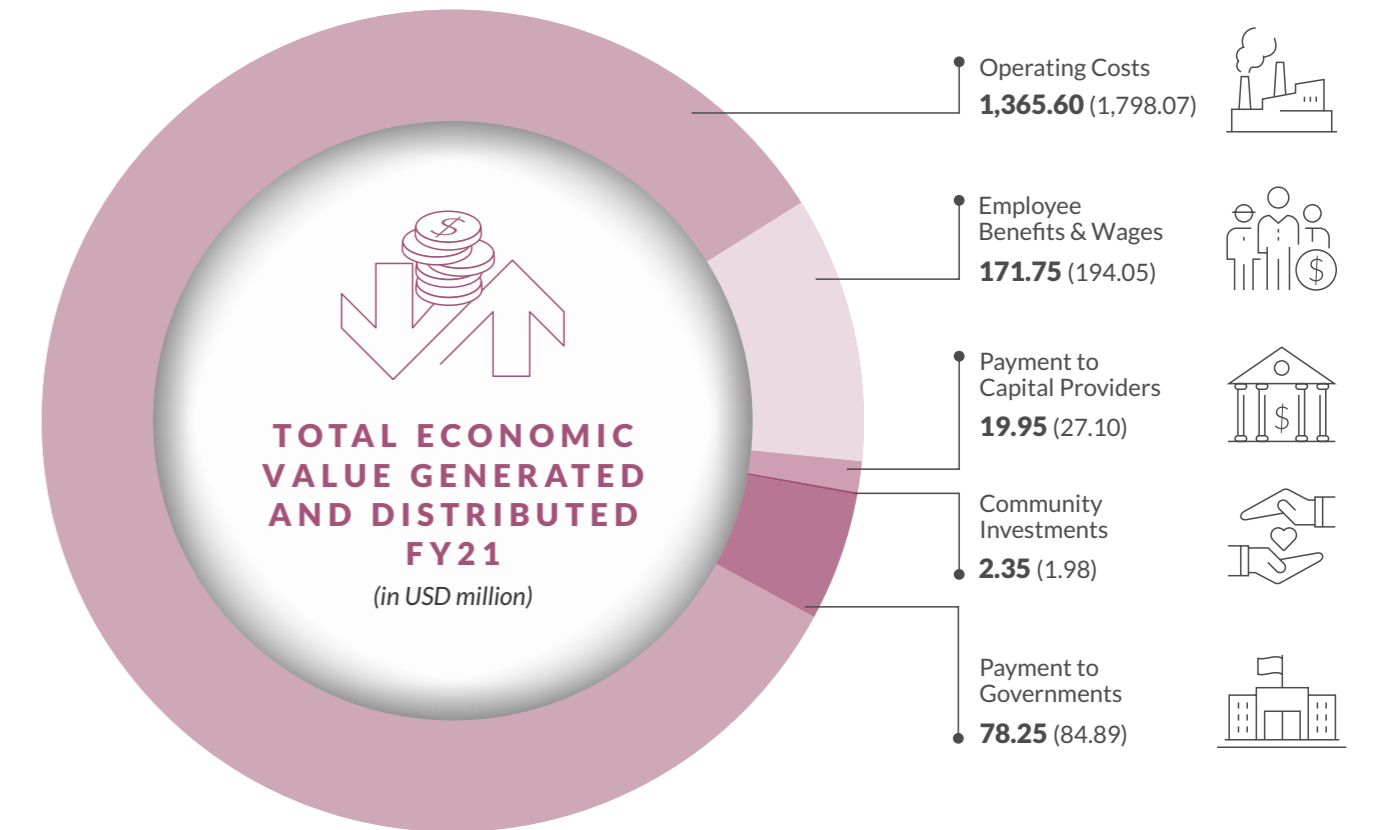
Average Hours of Training per Employee (Hrs)

	FY18	FY19	FY20	FY21
Permanent	16.33	19.49	16.31	8.93
Temporary	2.84	16.43	8.55	7.49

Socio-economic Development

We continued to create 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.

All the parameters for the economic value generated, distributed and retained by Birla Cellulose have been tabulated herein.



Economic Value Retained

77.57
(44.56)



Economic Value Generated

Revenues
1,715.47
(2,150.25)

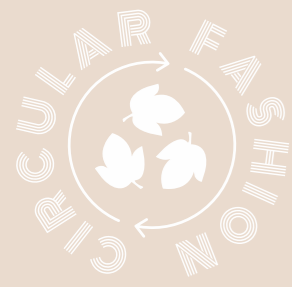


Economic Value Distributed

1637.9
(2,106.09)



Figures mentioned in brackets are of FY20.



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INDEPENDENT ASSURANCE STATEMENT

To,
The Board of Directors and Management
Grasim Industries Limited,
Mumbai, India

Ernst & Young Associates LLP (EY) have been engaged by Grasim Industries Limited (the 'Company') to perform a 'limited assurance engagement' as defined by International Standards on Assurance Engagements, here after referred to as the engagement, to report on, the Pulp & Fibre business (Birla Cellulose) of Aditya Birla Group's Sustainability Report (the "Subject Matter") for the reporting period FY 2020-21. This statement applies to the sustainability disclosures of Birla Cellulose, which includes following units:

1. Staple Fibre Division, Nagda (MP)
2. Birla Cellulosic, Kharach (Gujarat)
3. Grasim Cellulosic Division, Vilayat (Gujarat)
4. Harihar Polyfibers & Grasilene Division, Harihar (Karnataka)
5. Excel Fibre Division (Nagda & Kharach)
6. P.T. Indo Bharat Rayon (Indonesia)
7. Thai Rayon Public Company Limited (Thailand)
8. Birla Jingwei Fibres Company Limited (China)
9. Domsjö Fabriker AB (Sweden)
10. AV Group NB Inc., Canada (AV Cell & AV Nackawic Mills)

In preparing the Sustainability Report FY 2020-21, the company applied the Global Reporting Initiative (GRI) Standards (Criteria). The company's management is responsible for selecting the Criteria and for presenting the Sustainability Report FY2020-21 in accordance with that Criteria, in all material aspects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records, and making estimates that are relevant to the preparation of the subject matter, such that it is free from material misstatement, whether due to fraud or error.

EY's responsibility, as agreed with the management of the Company, is to provide limited assurance on the Sustainability Report FY 2020-21, in accordance with the International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ISAE 3000'). Our responsibility in performing our assurance activities is to the management of the Company only, as per the agreed scope of assurance 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 sustainability data is entirely at its own risk. The assurance statement should not be taken as a basis for interpreting the Company's overall performance, except for the aspects mentioned in the scope below.

Assurance criteria

The assurance engagement was planned and performed in accordance with the International Federation of Accountants' International Standard for Assurance Engagements Other than Audits or Reviews of Historical Financial Information (ISAE 3000). 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 of the disclosures under the key performance indicators as per GRI Standards.



Scope of assurance

The scope of assurance covers the following aspects:

- ▶ Review of the Sustainability Report FY 2020-21 for detecting, on a test basis, any major anomalies between the information reported and relevant source data / information.
- ▶ Review of data and information related to Company's sustainability performance for the period 1st April 2020 to 31st March 2021 on a sample basis through desk reviews, pertaining to the following Environmental and Social Disclosures of the GRI Standards:
 - Environmental Topics: Energy (302-1), Water (303-3, 303-4, 303-5), Emissions (305-1, 305-2, 305-7), Effluents and Waste (306-3, 306-4, 306-5).
 - Social Topics: Employment (401-1, 102-8), Occupational Health and Safety (403-9).

Limitations of our review

The assurance scope excludes:

- ▶ Operations of the Company other than those mentioned in the 'Scope of Assurance';
- ▶ Data and information other than those mentioned above;
- ▶ Data and information outside the defined reporting period i.e. 1st April 2020 to 31st March 2021;
- ▶ The Company's statements that describe expression of opinion, belief, aspiration, expectation, aim or future intention provided by the Company;
- ▶ Review of the company's compliance with regulations, acts, guidelines with respect to various regulatory agencies and other legal matters;
- ▶ Data and information on economic and financial performance of the Company;

What we did to form our conclusions

In order to form our conclusions, we undertook:

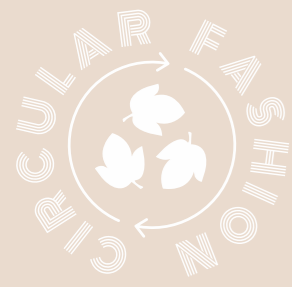
- Remote audit including interview with management representatives and execution of an audit trail of claims and data streams, on a selective test basis, to determine the level of accuracy in collection, transcription and aggregation processes followed for reporting of sustainability disclosures, at the following locations:
 - Thai Rayon Public Company Limited (Thailand)
 - AV Group NB Inc., Canada (AV Cell & AV Nackawic Mills)
 - Grasim Cellulosic Division, Vilayat (Gujarat)
 - Staple Fibre Division, Nagda (MP)
 - Birla Cellulosic, Kharach (Gujarat)

Our Observations

- ▶ The Company has demonstrated its commitment to sustainability by reporting its performance on various GRI topics through the Sustainability Report for FY 2020-21.
- ▶ There is further scope to strengthen the internal data controls, documentation management and method of calculations for the indicators under assurance scope to ensure uniform and accurate reporting.
- ▶ Specific observations for the verified KPIs have been provided in the management letter which has been submitted to the Company separately.

Our Conclusion

Based on the procedures and the evidence obtained, for the review carried out as per 'Limited Assurance Engagement of ISAE 3000', nothing has come to our attention that causes us not to believe that the Sustainability Report presents the Company's sustainability performance data fairly, in material respects, in accordance with the GRI Standards reporting principles and criteria.



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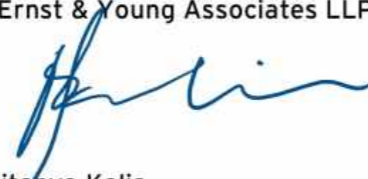
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Our assurance team and independence

Our assurance team, comprising of multidisciplinary professionals, has been drawn from our climate change and sustainability network and undertakes similar engagements with a number of significant Indian and international businesses. As an assurance provider, EY is required to comply with the independence requirements set out in International Federation of Accountants (IFAC) Code of Ethics¹ for Professional Accountants. EY's independence policies and procedures ensure compliance with the Code.

for Ernst & Young Associates LLP,

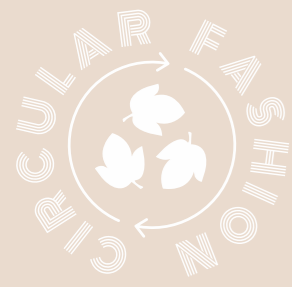


Chaitanya Kalia
Partner
16 March 2022
Mumbai

¹ International Federation of Accountants (IFAC) Code of Ethics for Professional Accountants. This Code establishes ethical requirements for professional accountants. The guidance related to network firms was updated in July 2006.

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