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Success or Failure?

Getting future ready

The textile & apparel sector is gearing up to adopt circularity in its supply chain



A circular economy can be a game changer for Indian suppliers and manufacturers of textiles and apparel

Textile and apparel (T&A) manufacturing is considered to be one of the most polluting industries. In fact, the T&A industry is the second-most polluter globally. Over 20 per cent of industrial water pollution is due to garment manufacturing. Globally, 80 per cent of textile waste generated is not recycled and is often sent to landfills or incinerated. In fact, the industry is responsible for over 8 per cent of global pollution. With a growing economy and changing demographics, the consumption of textiles and clothing has gone up by more than 60 per cent today as compared to that in 2000 and this has significantly aggravated the whole situation. In the past 15 years, textile production has almost doubled.

Amidst all this, the industry finds itself in a quandary as it is struggling to balance its mainstream targets of productivity & production and its sustainability goals. The current linear system

of production, distribution and usage of T&A is not sustainable as there is less regard for environment impact. Experts are of the view that the current 'take-make-dispose' approach does not only adversely impact environment and society, but also the future business of the T&A industry.

"A circular economy can be a game changer for Indian suppliers and manufacturers of textiles and apparel. Indian suppliers and manufacturers stand to make considerable gains if they proactively adopt good practices and innovate through circular business models and practices and get ready to be part of the transformation that is happening globally. However, global discussions on circular economy have to be clearly contextualised for India. India is both a major producer and consumer of textiles and apparels and any circular economy intervention has to be aligned to the requirements of the

value chain actors in India," says a report by the Centre for Responsible Business (CRB), a think tank based out of New Delhi, which has created the framework to capture circular economy priorities or action points in alignment with the principles of a circular economy. This paper has been developed through extensive engagement with the stakeholders of the Indian T&A industry and identifies CE priorities in the Indian context.

The Indian apparel and textile sector contributes significantly to the Indian economy in terms of manufacturing, employment, exports and GDP. The A&T sector is a crucial component of India's economic backbone. It contributes about 2 per cent to India's GDP, and employs about 10.5 crore workers in the A&T and allied sectors. India is the sixth-largest apparel and textile exporter of the world. India's total exports of textile and clothing are

about 12 per cent of its exports. Apart from a growing presence in exports, India has been witnessing quick growth in the domestic market due to rapid urbanisation, increasing disposable income, increasing customer base and retail penetration.

Sustainability thrust

“With the world’s biggest fashion brands increasingly committing to net zero targets we are witnessing an upwards momentum for sustainability in the international fashion arena. This era of environmental and social awareness, as well as governance in the textile industry has to be the major focus for India. Concerted policy action such as the European Union’s Circular Economy Action Plan, which paves the way for the transition to a circular economy, the recently introduced New York Fashion Bill for supply chain mapping, and other such positive international developments will significantly affect the Indian textile sector given its crucial role in the global textile and apparel value chains,” says Atul Bagai Head, United Nations Environment Programme, Country Office, India.

UNEP’s work focuses on the value chain approach for interventions in the textile sector. It believes that coordinated actions in all regions by all stakeholders (government, industry, and consumers) and changes at each stage in the value chain involving players of all sizes and market segments are required to transition to a more sustainable and circular fashion. Additionally, stronger governance and policies are critical. UNEP is developing a roadmap for a collaborative pathway towards greater sustainability and circularity in the textile value chain.

“Circular economy offers a promising pathway for the Indian T&A industry, which endeavours to become a global leader in sustainable manufacturing and exports of high quality garments. With the right kind of investment and upskilling of young workers, circular economy can unlock millions of green jobs. The circular economy also enables manufacturers to reduce their environmental footprint by keeping value in the system longer and thus reduce waste. This is very crucial for the sector as resource scarcity, especially the lack of clean water can be



Over 20 per cent of industrial water pollution is due to garment manufacturing

detrimental to both industry and the society at large,” states Upendra Prasad Singh, Secretary, Ministry of Textiles, Government of India.

“The Union ministry of textiles is committed to promoting sustainable development of the economy where the T&P industry can play a key role. The ministry has launched a series of schemes over the years to upskill garment workers and make them future-ready as smart manufacturing and automation continue to shape the manufacturing landscape,” adds Singh.

“Circularity is becoming very important and all leading global retailers have set targets to reduce their carbon footprint – garments and textiles exporters have realised that it is no longer just talk; it’s reality and needs immediate action. However the speed of action will depend on the buyer’s push and requirements,” says Sanjay Jain, past chairman, Confederation of Indian Textile Industry (CITI) and MD, TT Ltd.

“The concept of ‘reuse, recycle and reduce’ can take us towards the sustainable future in the years to come. We have become more materialistic without many constraints and this is damaging our very own environment. Regarding recycling of products, we are moving in the right direction but this alone is not sufficient. The other two are also very important elements which need to be imbibed in our daily

lifestyle. Innovative technologies and enhanced cooperation between the industry, academia and government will be the key enablers towards sustainability in the sector,” says Prof RS Rengasamy, Department of Textiles and Fibre Engineering, Indian Institute of Technology, Delhi.

According to a Bain & Company research report, circularity represents a decoupling of economic growth from resource consumption. For companies, it means conserving materials, extending a product’s lifetime through repair and reuse, and ultimately recycling. It also includes improving utilisation through new business models, such as those that offer products as a service, and sharing economy platforms.

The Bain & Company research conducted in partnership with the World Economic Forum shows that business leaders increasingly feel a sense of urgency about embracing circularity. Circular disruption is underway in many industries, often led by new entrants with innovative business models. In a recent survey of senior executives, it found that leadership teams grow more aware that they are vulnerable to circular disruption the more time they spend preparing for it. In its study, it states that supply chain executives are planning to double the share of revenue from circular products and services by 2030.

“A company’s supply chain must be

Making a green statement

Tirupur has set a precedent by emerging as a truly sustainable apparel-making hub

Knitwear cluster Tirupur in Southern India has today emerged as a completely transformed apparel manufacturing hub. Just a few years ago it hosted one of the most polluting textile units in the country. This evoked massive protests by local farmers and other communities after which the Madras High Court ordered the closure of 750-odd dyeing and bleaching units in this cluster for not complying with the State Pollution Control Board's zero-liquid discharge ZLD norms. Today, Tirupur is a completely 'Zero Liquid Discharge' garment cluster and the water used by its dying and processing units is treated at common affluent treatment plants and reused. By doing so, it not only consumes

significantly less water but also does not discharge any polluted water.

Having emerged as a sustainable sourcing destination for knitwear, the ₹60,000-crore business (which exports half of its production to the global market) currently has 300 dyeing units attached with 18 Common Effluent Treatment Plants (CETPs) and 60 dyeing units with their own Individual Effluent Treatment Plants (IETPs). The CETPs and IETPs in Tirupur have successfully implemented Zero Liquid Discharge (ZLD) – a first of its kind, globally. Every day 18 CETPs recycle 100 MLD of water and 60 IETPs recycle 20 MLD of water. The effluent is treated to recover 94 per cent of the water, which is resent for

processing and the remaining 6 per cent is recovered as salt solution or salt to reuse for various processes.

"We as a cluster have shown a great degree of resilience and perseverance to reach where we are today. We are proud of having transformed Tirupur into a green hub where most of the resources are used in a sustainable manner. The initial years were really difficult as these dyeing units were in no position to comply with ZLD requirements. But we have managed to overcome all challenges to set up one of the most sustainable circular fashion supply chains," says KM Subramanian, President, Tirupur Exporters Association and managing director of the ₹750 crore KM Knitwear, which exports 50 per cent of its knitwear production to the global market.

"For almost 10 years, we have been strictly pursuing our

ZLD model and along the way we have also taken up multiple projects which are aimed at significantly reducing our carbon footprint. As a green cluster, we have gone ahead," says A Sakthivel, President, Federation of Indian Export Organizations; chairman, Apparel Export Promotion Council and founding president of TEA.

Kumar Duraiswamy, joint secretary, TEA says that the toxic effluents generated during the processing of fabrics were depleting the ground water level before implementation of ZLD, but that has been now completely eliminated and the treated water is reused for the processing of fabrics.

"Our efforts have paid off. Apart from the successful implementation of ZLD, we are doing multiple things to positively impact our surrounding and environment. In fact, we have set a precedent that others can also emulate and help

resilient as well as sustainable. In view of increased concerns about climate change and the environment, a circular and sustainable supply chain will need to not only apply rules that benefit society and the environment, but also ensure that resources are available for the future. As a result, it is critical for businesses to assess and reconsider their supply chain options, emphasising sustainability, flexibility, agility and efficiency," says Dipali Goenka, MD & CEO, Welspun India.

Meanwhile, the Indian textile sector is also gearing up to adopt circularity in its value chain. One such effort is the formation of an industry-led platform – Circular Apparel Innovation Factory (CAIF). Started in 2018 and formally launched in November 2019 at Sankalp Forum's 11th Global Forum in Mumbai, CAIF is a global initiative of Intellectap, the impact advisory arm of the leading impact investing organisation, Mumbai-headquartered Aavishkaar Group, which works to build businesses that can benefit the underserved segments across Asia and Africa. Intellectap

builds enabling ecosystems and channels capital to create and nurture a sustainable and equitable society.

Building an ecosystem

CAIF is supported by the DOEN Foundation, a Dutch foundation supporting initiatives in the field of culture and cohesion and in the field of green and inclusive economy, as also Aditya Birla Fashion & Retail Ltd (ABFRL) as its founding anchor partners. To accelerate the shift of the industry from its current 'take-make-dispose' approach to one that is more circular across the lifecycle, CAIF works with a diverse group of stakeholders from across the value chain.

"As an industry-led platform, CAIF's mission is to build the ecosystem and strengthen capabilities to drive the transition to a circular economy in the apparel and textile industry. The platform is building the textile industry's innovation infrastructure by bringing together key stakeholders to collaborate and work together on achieving the five key circular goals: increasing the

use of sustainable inputs and material; maximising the utilisation of clothing & textiles; increasing the recycling of clothing; boosting production through renewable inputs and minimising negative social impacts and increasing social responsibility," says Venkat Kotamaraju, director, CAIF.

CAIF's vision, roadmap and day-to-day programmes are shaped and informed by a neutral industry-led and industry-facing governing body which comprises leaders from organisations including ABFRL, The DOEN Foundation, Arvind Ltd, H&M, Marks and Spencer, UN Environment Program, UNIDO and Vikas Bali (CEO Intellectap).

CAIF has been partnering and collaborating with over 15 brands and manufacturers (local, regional and global) directly through programmes in India and Bangladesh. Through different initiatives, CAIF's network includes over 400 innovators and solution providers (local, regional and global), which it partners with and enables through capability building

build a more sustainable ecosystem for the industry," states N Thirukkumaran, General Secretary, TEA.

"Tirupur as a knitwear hub has come a long way. Each and every stakeholder has played a role in making this cluster a truly sustainable garment manufacturing one. We will continue to carry on with our endeavour to take this success story to the next level," says

R. Gopalakrishnan, Chairman of Tirupur-based Royal Classic Mills. Led by flagship knitwear brands like Classic Polo, the ₹750-crore company boasts the largest IETP in Tirupur.

Besides ZLD implementation, Tirupur units have installed both solar power plants and wind energy generators, producing 1,600 KVA per day, whereas the power consumption of the industry

in the Tirupur cluster is only about 250 KVA. Moreover, the overall power consumption of the entire district of Tirupur is 650 KVA. Hence the excess green power produced is distributed through the Tamil Nadu power grid.

In another significant initiative called 'Vanathukul Tirupur', a mass tree plantation drive has been carried out by an NGO called VETRY.

Supported by Tirupur garment units, VETRY, during the last 8 years, has planted 15 lakh saplings.

Rainwater harvesting is one of the major activities being followed widely in the cluster. In the last few years, the amount of rainwater harvested has made many factories self-sufficient in terms of water usage.

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Globally, 80 per cent of textile waste generated is not recycled and is often sent to landfills or incinerated

and facilitating partnerships with brands and manufacturers across programmes. CAIF's construct for engaging innovators and solutions providers is through the time-tested 4S ecosystem approach of Search, Seed, Support and Scale.

In the next 24-36 months, CAIF will be looking to partner with 30-40 like-minded and value-aligned organisations, through which it will further build the ecosystem and capabilities across value chain stakeholders. These partnerships will catalyse change on the ground – strengthening and expanding its work in India, Bangladesh, East and West Africa, as well as SE Asia. These partnerships will include entrepreneurs, civil society

organisations, think tanks, industry bodies and policy actors to create an enabling environment to realise tangible impact goals for MSMEs, entrepreneurs, brands and retailers.

The T&A platform is targeting these regions because they are critical in the fashion industry's global value chain. They are critical since the global South accounts for a significant amount of manufacturing for the global value chain of the global industry. For example, India is one of the biggest importers of textile waste from the US and Europe. The country recycles it and sends it back. Besides, more than 50 per cent consumption of fashion and apparel is in the global South. Global South include economies outside the

developed economies like the US and Europe.

"With the global South economies being significant contributors to sourcing, manufacturing, exports, recycling and consumption in the complex global value chain, it was crucial for the global south to have a voice and a seat at the table. While there was growing momentum globally (especially in Europe) from individual organisations, we saw an opportunity in taking an ecosystem approach that will not just surface the dots (gaps and stalemates) but also help connect the dots (mobilising capital, knowledge and networks to build the ecosystem) in interesting ways for impact to happen at scale. More importantly,



With the right kind of investment and upskilling of young workers, circular economy can unlock millions of green jobs

while the dominant narrative globally around the circular economy emphasises economic and ecological value creation, CAIF aims to alter this narrative that also includes how we ensure no individual or group is left behind on this path towards progress,” explains Kotamaraju.

Ambitious targets

CAIF is looking to make the work of the apparel, textile and fashion industry more sustainable (resource-efficient, resilient and responsible) through reducing carbon emissions (both avoidance and removal), while creating green and circular jobs for those employed across the value chain. Some of the partner brands and manufacturers have very clear and ambitious targets like for example moving to recycled water usage (away from fresh water) by 70-100 per cent between 2025 and 2030, eliminating energy usage and consumption by 30-50 per cent by 2030, replacing virgin material usage with recycled material use by 50-70 per cent by 2030, etc.

While a platform like CAIF is helping the industry be compliant to meet sustainability goals, individual textile organisations are also formulating their policies.

Arvind Ltd has continued to push boundaries with its allies across all its six key inputs – cotton, people, money, energy, water and chemicals. The denim major along with Better Cotton Initiative (BCI) has led the implementation

of the Better Cotton Standard, laying the foundation for more sustainable cotton production.

For the textile industry, wastewater is a major challenge. With Levi's and the Zero Discharge of Hazardous Chemicals (ZDHC) programme, Arvind is eliminating hazardous chemicals from the value chain. This has helped it in eliminating harmful chemicals from its processes, reduce chemical consumption, substitute hazardous with greener chemicals, and recover salts from wastewater to keep the environment clean.

Energy is as significant a material issue as water and Arvind is optimising energy productivity and adding renewables to the energy mix to conserve this resource. In the last few years, it has been able to cut down its total direct and indirect emissions by around 15 per cent. Its Ethiopia operations are fully powered by renewable energy. Its ally, Cleantech Solar, has helped it install a 16.2-MW rooftop solar at its Santej facility in Gujarat, which is India's largest rooftop solar installation at a single location. The company is also working with farmers to use residues of cotton crop in boilers instead of coal to generate steam from biomass. This programme

will be scaled up further in the coming years.

“Climate change has fast emerged as the most fundamental challenge that the textile industry is facing today, which involves environmental protection, economic and social development. Contributing to sustainable development is the only way we can counter rising temperatures, limited freshwater, and changing weather patterns. These changes have a direct impact on the production of natural fibres such as cotton, which is the mainstay of the textile industry. At Arvind, we have a two-pronged approach to deal with it. We are fundamentally right ourselves, as an organisation, in the issues which are material to our stakeholders and collaborate with our allies to amplify our sustainability efforts,” says Sanjay S. Lalbhai, Chairman & Managing Director, Arvind Ltd.

“Throughout the pandemic, the PDS Group has shown itself to be resilient in the face of global health and economic challenges, which is a credit to our staff, our customers, and our suppliers who have continued to support us, and my leadership team which has been steadfast and dedicated. In the not-too-distant future, the world may face disruption and devastation if we do not address climate change, biodiversity and nature loss, and inequality. At PDS Group, we are committed to ensuring that together with our partners we build a better, more sustainable supply chain,” says Sanjay Jain, CEO of apparel major, the PDS Group.

While textile players are carrying out initiatives and interventions, the CRB team, meanwhile, has identified CE interventions based on secondary research and extensive stakeholder consultations across various value chain actors especially with brands (domestic and international), suppliers and manufacturers, dyeing and chemical companies, academia, innovators, and state government officials. These ideas, aligned to the CE priorities defined in the framework, have

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The A&T sector is a crucial component of India's economic backbone

been broadly categorised as actions proposed for practitioners and as possible policy interventions.

Some of the main recommendations: guidelines defined indicating the types of material to be used (virgin + recycled); chemicals to be avoided/used; designs for durability; designs for end-of-life processes/purposes; cost of collection for end of life factored in; clear labelling (transparency and traceability); patterns/design innovation (role of designers and brands).

"Towards this end, there is a need to issue an advisory on textile production parameters and processes and constitute a task force (suggested to be anchored with the ministry of textiles) that can facilitate the setting of industry guidelines for circular design and manufacturing amongst industry players. For eg Ellen McArthur's guidelines on jeans manufacturing; waste water effluent standards for the textile and dyeing industries should be developed by the Central Pollution Control Board along with the State Pollution Control Boards under the supervision of the Ministry of Environment, Forest and Climate Change. Implementation guidelines should be prepared by CPCB with significant empowerment to ULBs to sensitise with local needs," recommends the CRB research.

CRB believes that there is a need to work with alternate materials that are less water- and energy-intensive, can be easily recycled, and are more durable. Some examples are hemp, banana fibre, and other sources of cellulose.

Emphasis has to be given to manmade fibres and extensive R&D is needed both for alternate materials and cost-effective recycling technologies. Further, innovations in these areas should be supported. Transparency and traceability will be required to authenticate material sources and fibre content to support recycling.

Reducing waste

While managing waste from the apparel & textile sector, CRB says that pre-consumption waste can either be reduced through technology adoption (for larger units) or through linking production units to upcyclers/ recyclers to prevent waste from going to landfills. Consumers need to be educated and incentivised to recycle used garments. Reverse logistics need to be considerably strengthened to support a recycling/upcycling/repair eco-system.

The need for energy-efficient machinery and use of cleaner energy is well understood amongst industry actors. However, the need for a stable policy has been identified as a major requirement. This policy ought to be long-term and stable as renewable energy requires large investments from companies. Innovation at the MSMEs should be promoted (including hand-icrafts), focussing on in-situ technical/technological innovations. Official case studies should be documented and scaled/replicated elsewhere. The Technology Upgradation Funds Scheme (TUFS) should be amended to include more energy-efficient technologies/

equipment.

As per CRB, the industry can undertake detailed water audits to measure its water footprint along its operations and identify measures to reduce water consumption. Technologies for wastewater treatment are very costly at the moment and adoption at scale is hindered. Incentives can be provided for the use of recycled water. Regulations can be passed to mandate the partial use of recycled water. Modernisation of dyeing units should be incentivised as this directly impacts the consumption of water. Common infrastructure will need to be considered for smaller units and all polluting processes can be clustered in a common facility.

The think tank believes that a systematic, human-centred transition to a circular economy is needed for the textile and apparel industry for better environmental and social performance, as well as to improve competitiveness and improve market access. Opportunities are also emerging for attracting international and domestic sources of sustainable (ESG) finance, especially with the Government of India developing a roadmap on Sustainable Finance in India. Continued and concerted support involving various segments of the government at all levels is needed to create the enabling environment for circularity.

For seamless adoption of CE intervention, skill and capacity building of workers and entrepreneurs is required and is critical, especially from the point of a 'just transition'. This will ensure that a circular transition not only creates new job opportunities but also that existing jobs are protected in a transitioning sector. Further, certain categories of consumers can start to play a key role in influencing both national and international brands.

A move to support integration of the circular economy must be institutionalised and led by the ministry of textiles. The ministry should develop a roadmap for the sector, with inputs and consultation with suppliers, exporters, brands, experts, CSOs, etc. Besides, EPR and reverse logistics need to be deployed especially by brands/buyers to reduce textile waste, says the CRB report.

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Going beyond carbon

New frontiers in sustainability commitments are there to be crossed

The landscape of climate commitments by corporates/ businesses is evolving rapidly, as society and governments accelerate their response to the climate crisis. Globally, 7,000+ corporates/ businesses have pledged to accelerate net-zero as a part of the UN's 'race to zero' campaign and 1,400+ have set science-based net-zero targets verified by the 'science-based target initiative' (SBTi). While carbon abatement has been established as the key constituent for mitigating ill-effects of climate change, multiple other associated issues need to be addressed. These include water scarcity, plastic pollution, soil degradation and bio-diversity loss.

According to the UN, about a million species are threatened today with extinction but the fact is that the current response to the impending biodiversity loss is insufficient. UNICEF assesses that about two-thirds of the global population experiences severe water scarcity for at least 30 days in a year, while over two billion people live in regions with inadequate water supply. The impact of water scarcity could lead to the displacement of around 700 million people by 2030. Another UN agency, UNEP suggests that up to 200 million tonnes of plastic can be found in our oceans and a projected 23-37 million tonnes could be added every year by 2040.

Emergence of ESG compliance and regulations: Today, business stakeholders, investors and regulators are demanding that companies provide an assessment or report on how their businesses are operating in the context of ESG dimensions. This facilitates them to make informed decisions by identifying corporates/businesses prone to risks and/or underperforming on various environmental metrics compared to those adopting sustainable practices. The investors also expect climate commitments to be science-based and linked to the core business strategy of the corporates/ businesses. As of date, more than 270 investors, with \$61.3 trillion in assets under management, have signed a pledge with the 'net-zero investors' initiative; to support the goal of net-zero emissions by 2050.

There are various principles, frameworks and standards that are guiding the ESG reporting. They include 'global reporting initiative' (GRI), 'carbon disclosure project' (CDP), 'task force on climate-related financial disclosures' (TCFD), SASB standards, 'international integrated reporting framework' and 'international sustainability standard board' (ISSB).

Emerging markets have also ramped up their efforts in improving ESG standards aligned to global best practices. India has introduced its own



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'business responsibility & sustainability reporting' (BRSR) framework that is mandatory for top 1,000 companies. This framework intends to set standardised and quantitative disclosures on ESG parameters for corporates/ businesses across sectors. BRSR covers nine core principles -- integrity, safety, employee well-being, stakeholder management, human rights, environmental protection, public policy, inclusive growth and consumer engagement to address, which are the key ESG parameters. It is aligned to reporting requirements of TCFD, GRI, CDP and SASB and is inter-operable with most international frameworks. This enables corporates/ businesses already disclosing sustainability reports on these international reporting standards to cross-reference the disclosures required under BRSR.

However, an analysis of the various existing ESG reporting standards and allied corporate climate commitments showcases significant focus on climate mitigation outcomes. The scope here to account for other challenges impeding sustainability is limited indeed.

Focus on carbon plus sustainable benefits: Recent developments such as framework for 'taskforce on nature-related financial disclosures' (TNFD), SBTi's guidelines for forest, land and agriculture (FLAG), 'guidelines for planning and monitoring corporate bio-diversity performance' by IUCN, 'the global commitment and circular economy for plastic use', led by Ellen MacArthur Foundation – these are all paving the way for carbon plus initiatives. In India, the scope of environment within the BRSR framework also attributes value to environmental/ sustainable outcomes beyond energy and GHG/ scope emissions reporting including aspects like solid waste management, water consumption and withdrawal, sustainable sourcing, 3R (reduce, reuse and recycle), extended producer responsibility (EPR), and life cycle assessments. Further, the BRSR framework is aligned with sustainable development goals (SDGs), thereby promoting corporates/ businesses to demonstrate their performance on achievement of SDGs beyond their climate commitments.

Leveraging the learnings from the growth of carbon market and pricing mechanisms: As corporates/ businesses begin to account for larger sustainable development aligned outcomes, we could witness a rapid shift in the market with monetisation of environmental assets (like water, bio-diversity, plastic, etc) aligned to existing carbon pricing mechanisms. Carbon markets have

Santosh Kumar Singh is managing director, and Kavya Hari, manager, Intellicap

been helping corporates/ businesses to meet their carbon goals. The rise in net-zero targets and carbon neutrality goals by corporates/ businesses has driven demand for carbon credits to an unprecedented height; with the voluntary carbon market hitting a record value of \$1 billion worth of carbon credits in 2021. More than 60 per cent of the value of transactions are attributed to sectors with significant co-benefits contributing to SDGs (like clean cooking, agriculture, forestry, land use, household devices etc).

The rising focus on sustainable/ environmental outcomes beyond emission reductions has already begun development of new methodologies or labels/ certifications by independent carbon crediting standards and/or new market-based mechanisms. A few examples include 'plastic waste reduction standard' by Verra, 'gender standard' by WOCAN, 'circular credits mechanism' by BVRI, 'bio-diversity credits', etc. This new era of credits for allied segments such as bio-diversity credits, water credits, plastic credits is expected to grow rapidly in the near-term. The trajectory of these credits may be more rapid than that of carbon credits, considering the various lessons that may be applied to the former from the latter. Meanwhile, as the standards and guidelines continue to evolve and be established for the carbon market, the same may be replicated for credits from other segments, thereby

The impact of water scarcity could lead to the displacement of around 700 million people by 2030



shortening the route-to-market. Therefore, businesses and investors must take note of these credits as they will be jostling for capital consumption alongside carbon credits sooner than expected. ♦

CATAPULTING INDIAN STAINLESS STEEL SECTOR'S GREEN GROWTH

At the very top of the green-growth pyramid for India's metal sector, lies stainless steel. Stainless steel manufacturing is one industry that majorly contributes towards sustaining green production. The metal is widely used across an array of key sectors, including construction, infrastructure, railway, automotive, transportation, processing sector.

Owing to its corrosion resistance, high strength, aesthetic properties, low lifecycle cost, circularity and low maintenance requirement, stainless steel stands out from carbon steel in a unique way. These features, in addition to widespread adoption across a variety of end uses, are expected to fuel India's economic expansion.

As one of India's leading stainless steel manufacturers, we strongly believe that sustainability goes beyond conservation. Having committed to no more investment in thermal energy earlier this year, we have now initiated Project Samanvay along with Ernst & Young (EY) LLP as our partners to achieve our broad Environmental, Social and Governance (ESG) goals, forecast our Green House Gas (GHG) emissions, and establish carbon neutrality targets in line with Science

Based Target initiative (SBTi).

The focused initiatives include deploying energy-efficient measures, process reconfiguration, adopting and investing in circular economy principles, improving material efficiency, fleet decarbonization, investing in low-carbon emission technologies for stainless steel production etc. Additional steps include air emission compliance within strict norms prescribed by PCBs, waste heat recovery to reduce consumption of fossil fuels, maximising utilization of renewable energy, reduction in specific energy consumption surpassing PAT targets set by government, advanced digital process controls for ensuring highest product quality with minimal wastage and energy efficient production, and raw material and finished goods movement by rail freight to avoid emissions associated in road transport.

Currently, we have a stainless steel melting capacity of 1.9 million metric tonnes (MMT) at our Hisar and Jajpur manufacturing facilities. We have planned a capacity expansion at our Jajpur facility by FY23 that will take the total melting capacity to 2.9 MMT.

During FY2021-22, we reduced our carbon emissions by 3,100 metric tonnes and initiated a switch from a thermal



Jagmohan Sood
Director, Jindal Stainless (Hisar) Limited

energy-intensive manufacturing setup to renewable energy alternatives such as solar & wind power, Green Hydrogen, adding electric vehicle fleets, upgrading to energy efficient equipment, and usages of bio-fuels as part of our decarbonization initiatives. With the ongoing efforts in this direction, we aim to catapult our carbon abatement numbers to over 1 lakh metric tonnes.