CII-ITC Centre of Excellence for Sustainable Development

Confederation of Indian Industry

21ST GLOBAL SUSTAINABILITY SUMMIT

Accelerating the Sustainability Transition

SPEED | SCALE | SYSTEMS

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"It is my belief that corporates have both an economic and social purpose and can play a pivotal role in building a sustainable future. Sustainability is no longer an adjunct to strategy; it is the defining driver of competitiveness and resilience. The enormous climate risks, livelihood challenges and inequality make it a crucial responsibility of businesses today to embed sustainability and inclusion as an integral component of strategy.

Accelerating the Sustainability Transition: Speed, Scale, Systems

It is indeed apt that the 21st Global Summit of the CII ITC Centre of Excellence for Sustainable Development is focusing on the theme Accelerating the Sustainability Transition: Speed, Scale, Systems. Undoubtedly, we are traversing a perfect storm of exceptional complexity and consequence with multiple challenges impeding progress. On the one hand, is the catastrophic climate emergency, widening inequality and rapid advances in disruptive technologies like AI. On the other, is a world mired by conflicts and fragmented multi-polarisation. These shifts are now increasingly manifest in volatile economic conditions, inflationary pressures, disruptions in trade and the rising vulnerability of food, energy and supply chains. I have spoken about this as TURN - Turbulence, Uncertainty and Rapid change - calling for Novel strategies to reimagine the future. The Centre's flagship Summit will help in deliberating some of the pathways that we need to pursue ahead.

The global context

Climate change is now a stark reality, impacting agri-food systems, water security and economic progress. The past 11 years were the warmest on record. At least 266 million people faced acute food insecurity last year. A recent UN report has warned that the world has moved beyond a water crisis to a state of "global water bankruptcy" where many water systems may no longer return to their historical normal. Indeed, globally, 22 of 34 planetary vital signs including global tree cover loss, Co2e emissions, sea level change are at record levels.

India mirrors the challenges, witnessing extreme weather events more frequently than ever. The country has witnessed a 15-fold increase in extreme heatwave days between March to September in the last 3 decades. About 75% of India's workforce is exposed to heat stress due to outdoor or heat-intensive jobs. Recent floods have caused extensive loss in Assam, while also impacting other states too. At the same time, several parts of the country continue to face deficient rainfall. Agriculture,

aquaculture, forestry and hydropower, together accounting for nearly a third of India's GDP, are highly exposed to climate impacts. As per estimates, without climate-smart adaptation, India could face economic losses of up to 13% of GDP by 2050, including a 16% decline in agri output.

Role of corporate - sustainability as a business imperative

It is my belief that corporates have both an economic and social purpose and can play a pivotal role in building a sustainable future. Sustainability is no longer an adjunct to strategy; it is the defining driver of competitiveness and resilience. The enormous climate risks, livelihood challenges and inequality make it a crucial responsibility of businesses today to embed sustainability and inclusion as an integral component of strategy. This belief lies at the core of our belief in ITC, one that is enshrined in our credo of Responsible Competitiveness – endeavours to achieve extreme competitiveness but in a way that enriches the environment and creates sustainable livelihoods. Even as ITC scaled newer heights in its businesses, it has retained its unique position as the only company in the world to be carbon, water and solid waste recycling positive for 2 decades now.

CII and ITC established the Centre of Excellence for Sustainable Development more than two decades ago, when sustainability was still in the fringes of corporate strategy. Since then, the Centre has played a significant role in bringing sustainability to the centre-stage by creating awareness, rallying industry around the cause, building measurement systems, advocating policy and pursuing the larger aspiration to help businesses embed sustainability in corporate strategy as a critical pillar of competitiveness. The CII-ITC Sustainability Awards has also played a critical role recognising and rewarding enterprises that deliver high shareholder value simultaneously with environmental enrichment and social inclusiveness. Nearly 500 organisations have been recognised through the CII-ITC Sustainability Awards. More than 12,000 professionals have been trained since 2006. Over 3,000 organisations, including MSMEs and value chain partners, have worked with the Centre on measurement, disclosure, and improvement.

India's confident march as a leader in climate action is indeed inspiring. India's per capita emissions remain significantly below those of most developed economies while sustaining one of the world's fastest-growing large economies. With forward-looking initiatives such as the International Solar Alliance, Carbon Credit Trading Scheme, National Green Hydrogen Mission and Mission LiFE, India has carved a unique position in the comity of nations earning respect and admiration. The country is today among the world's fastest-growing renewable energy markets. Solar energy capacity increased more than 41-fold, from 2.82 GW in 2014 to over 116 GW by mid-2025. More than 50% of installed power capacity now comes from non-fossil fuel sources including solar, wind, hydro, biomass and nuclear power.

Towards a cleaner and greener future

Going forward, it will be imperative to accelerate the sustainability journey on several fronts. While Decarbonisation has gained significant traction globally, Adaptation measures have not drawn the attention they deserve. The world, after breaching the 1.5°C threshold last year, is headed towards 2.8°C warming in this century if stronger pathways are not pursued. This is clearly alarming and calls for decisive and urgent action. Corporates must also accord greater priority to nature-based solutions with focus on climate smart agriculture, water stewardship, biodiversity conservation, soil health regeneration, and afforestation.

Agriculture is the most vulnerable to climate change and assumes larger importance in a country such as India with millions of livelihoods as well as food security intrinsically dependent on this sector. Regenerative practices, precision farming, and greater use of AI to optimize resources, forecast risks and enable site-specific action at scale will boost productivity and build farm resilience. At the same time, innovations will be key to transform our food systems for a hotter, resource-constrained world and usher in NextGen agriculture.

Resources are scarce and its optimal use is vitally important. Accelerating the transition to circularity through innovation in materials, design, reuse and recycling will be critical to unlock value, reduce resource intensity and decouple growth from waste.

For corporates, effective sustainability governance will be critical to embed climate and social priorities into business strategy, risk management and capital allocation decisions. In addition, given that there is a proliferation of sustainability requirements and disclosure frameworks, there is need to align definitions, data architectures, and assurance protocols to a single comprehensive disclosure that can serve multiple purposes rather than dissipating energy and focus through multiple disclosures.

Livelihood creation will remain a crucial pre-requisite for social progress and economic development. Recognising that significant livelihoods can be created along value-chains and in employment-multiplier sectors such as agri-food processing, tourism, wood-based industry and others, it is essential that policy imperatives support such sectors. Upskilling and reskilling will be called for to enable an employment-ready workforce, specially in new disruptive areas like AI. Empowering communities at the local level by enabling capacity building, strengthening self-help groups and channelising better utilisation of government schemes through effective public-private-people partnerships will also go a long way.

As India advances towards its vision of Viksit Bharat, industry will indeed play its role as a force multiplier for sustainable and inclusive growth. The CII-ITC Centre will continue to be at the forefront of this movement by forging new partnerships, facilitating innovation and inspiring bold actions to reaffirm our commitment to a sustainable future. I am confident that together, we can and will make a meaningful difference to enable actions that reinforce India's commitments for a cleaner, greener, and inclusive future.

Reshaping India's energy independence landscape

The next phase of transition will require installed capacity, transmission, distribution, and storage assets to all work together for an effective energy ecosystem that can deliver reliable, affordable, and clean power round-the-clock. While renewable deployment is hitting record highs, meeting this requirement is contingent on equivalent infrastructure development.

India's energy independence will depend on scaling renewables, strengthening storage and expanding transmission infrastructure to deliver reliable, and round-the-clock clean power at the scale required.

Dr. Praveer Sinha
Chairman
CII National Committee on Power
CEO & Managing Director
The Tata Power Company Limited

India has been one of the fastest growing economies in the world with a GDP growth rate of more than 7% for the last 5 years. This growth has come on the back of rising energy consumption as the country is now the world's third-largest energy consuming country. India also has ambitious targets to be a USD 5 trillion economy by 2030. Energy is critical to this growth story especially with increasing industrialisation and new load growth centres like Data Centres and EVs.

India currently imports nearly 88% of its crude oil, nearly 48% of its natural gas, and about 26% of its coal, and fossil fuels meet more than 90% of its primary energy consumption. As the West Asia crisis has shown, these supply chains are beginning to be increasingly precarious. Meeting India's growth aspirations will require achieving energy independence.

For the most part, this transition is being driven by a push in renewable energy installations. As of July 2026, India has crossed 500 GW of installed capacity, of which 54% is made up of clean & green sources. The biggest contributor here is solar energy at an installed capacity of 165 GW (30% of the total installed capacity), followed by wind energy at a total installed capacity of 58 GW. By 2030, India's total installed capacity is expected to grow to 770 GW with clean & green capacity at growing to 500 GW (64% of the total). By 2035, India is expected to add a capacity of over 600 GW, 50% of which is expected to come from solar capacities alone.

However, the major challenge with large scale renewable energy deployment is intermittency. Standalone solar and wind power, while helpful for decarbonising the energy mix, cannot be used to provide continuous, reliable power throughout the day as they depend on weather conditions. As long as this holds, the power mix will require conventional and fossil fuel generation to provide baseload and meet rising demand. In order to displace conventional & fossil fuel generation on a round-the-clock basis, storage solutions are key.

By deploying a mix of long-term & short-term storage solutions like pumped hydro and battery storage, renewable power can be made firm. At present, India's installed storage capacity (both battery & pumped storage) is at ~7 GW. This is expected to grow nearly sevenfold by 2030 and more than 20 times by 2035 in order to make RE additions firm.

However, generation & storage capacity addition alone will not be sufficient for India's energy transition. It will have to be supported by a commensurate increase in transmission capacity. With the current transmission network of more than 5 lakh ckm falling behind the pace of RE additions in the country, projects are frequently stranded and face high levels of curtailment. Better resource planning is required to ensure that projects that are being commissioned are able to evacuate power timely to the country's power requirements.

This has been supported by timely and forward looking policy making. Several schemes, ranging from Viability Gap Funding for BESS projects and the Production Linked

Tata Power is building an integrated clean-energy ecosystem, scaling generation, storage, transmission, manufacturing and consumer solutions for dependable, affordable power.

Incentive scheme for Advanced Cell Chemistry and Battery Manufacturing, for storage, to the Green Hydrogen Mission for alternate fuels, have been announced by the Government of India.

On solar alone, the government has supported two tranches production linked incentives for solar manufacturing, PM-KUSUM for solar pump installations, and the PM Surya Ghar Yojana for rooftop solar installations, which has helped nurture and sustain the ecosystem in India. With the anticipated opening up of the nuclear sector to private participation under the SHANTI Act, India is bringing together multiple parts of the energy landscape to ensure a meaningful, holistic, and just energy transition.

Tata Power's portfolio is aligned with this understanding. Our renewable projects, transmission investments and storage pipeline illustrate the growing requirement for parallel infrastructure development across the value chain, from generation and transmission to distribution, storage, trading, manufacturing and energy solutions.

As one of India's largest integrated power companies, we operate a growing portfolio of renewable capacity. Currently at 26 GW, by 2045, we have plans to have a completely clean & green portfolio that can supply RTC power. This capacity is supported by ~5 GW of our in-house solar cell & module manufacturing capacity, as well as our 7,000 ckm long transmission network. To address the intermittency of renewable energy, we are also developing ~2 GW of hydropower assets in Bhutan and 2.8 GW of Pumped Storage Assets in Maharashtra. Through our in-house manufacturing presence, we are manufacturing solar cells & modules that can meet the requirements of both large scale projects as well as solar rooftop solution, and have plans to integrate further upstream with an ingot & wafer facility.

We are also serving customers directly, both through our distribution businesses, where we serve approximately 13 million consumers, as well as our solar rooftop solutions and EV charging network. We serve more than 0.5 million rooftop solar consumers – a number that is projected to grow to 3 million consumers in the next 3 years. We have also installed more than 0.2 million home EV chargers across India, helping consumers lead clean & green lives the way they want.

Energy transition is now critical for industrial competitiveness and economic resilience. India's energy transition is already moving at remarkable speed. The next opportunity lies in ensuring that this momentum is matched by the right scale of investment, the right infrastructure and the right systems across the energy value chain. The time to work together to convert India's clean-energy potential into dependable, affordable and accessible power for every sector of the economy, is now.

Author

A seasoned power sector professional with a career spanning almost four decades, Dr. Sinha has held several leadership positions across the power sector value chain. As CEO and MD of Tata Power Delhi Distribution Limited, he was instrumental in driving the turnaround of the DISCOM through technological and social interventions and setting a benchmark operational model for other DISCOMs and developing countries to follow. Under his current leadership, Tata Power is at the forefront of transforming itself from a century old power utility company into a new-aged sustainable, technology oriented and customer centric green energy solutions company. Dr. Sinha has led multiple partnerships with national and international technology partners and institutional associations. He has contributed significantly to setting up the first international incubator in India for promoting innovations in the clean energy space.

De-risking the transition: the leadership imperative for sustainable development

The next decade of sustainable development will not be won solely through technological innovation. It will be won through institutional innovation. Success will depend on partnerships, capability building, and governance models that align public goals with private expertise.

Sustainable development scales when confidence in investments, technologies and long-term commitment reduces risk and accelerates implementation.

Usha Subramaniam
Country President (India)
Grundfos

The world has never been more aligned on the need for sustainable development. From climate action and energy transition to water security and resilient infrastructure, the direction is clear. Yet the defining challenge of this decade is no longer setting ambitious goals; it is accelerating implementation at the required scale and speed. India stands at a remarkable moment in its development journey - one of the world's fastest-growing economies, one of the largest energy consumers, as well as home to some of the most pressing water and climate challenges! The question is no longer whether the transition to a sustainable future will happen. The question is how quickly can it happen, how inclusively can it happen, and most importantly, how can it be de-risked.

The topic of de-risking often evokes the thought of finance. Yet, the most important role of leadership today is not merely to mobilize capital, but to create confidence. Sustainable development does not scale because money is available. It scales because stakeholders have confidence that the investments will perform, technologies will deliver, and institutions will remain committed over the long term.

India's experience offers a valuable lesson. The renewable energy journey accelerated not simply because solar and wind technologies became more affordable, but because policy consistency, market mechanisms, and successful implementation reduced uncertainty for investors and developers. Confidence attracted capital, and capital accelerated growth. The same principle now applies to the broader sustainability transition. The first risk to address is the technology risk. Across industries, municipalities, and utilities, decision-makers often ask the same question: Will this solution work in Indian conditions? Whether it is smart water infrastructure, advanced wastewater treatment, digital energy management systems, or emerging technologies, adoption accelerates only when trust is established.

This is why demonstration projects, pilot programs, and lighthouse initiatives are so important. They provide evidence. They transform possibilities into proof points. Leadership in this context means creating platforms where innovation can be tested, scaled, and replicated. Every successful project not only solves a local challenge but also reduces perception of risk across the entire ecosystem. And also allows for the opportunity to scale.

The second challenge is financial risk. Many sustainable solutions create significant long-term value but require upfront investment. Too often, sustainability initiatives are evaluated through the lens of acquisition cost rather than lifecycle value.

Green bonds can support large-scale infrastructure investments. However, sustainability-metrics-linked financing can reward organizations that achieve

measurable environmental outcomes. Outcome-based financing models can tie returns directly to verified results such as water savings, energy efficiency, or carbon reduction.

But perhaps the most important shift is a mindset shift. Leaders must help organizations make the shift - from asking, "What does this cost today?" to asking, "What value will this create over the next decade?" Sustainable development is not an expense. It is an investment in resilience, competitiveness, and future prosperity.

The third and perhaps most significant challenge is execution risk. Many promising projects struggle not because the technology is inadequate or the financing is unavailable, but because implementation is fragmented. Various factors such as stakeholders operating in silos, rigid procurement frameworks, skill gaps, and lack of accountability diminish pace and quality.

The next decade of sustainable development will not be won solely through technological innovation. It will be won through institutional innovation. Success will depend on partnerships, capability building, and governance models that align public goals with private expertise.

Nowhere is this more evident than in the relationship between water and energy.

Traditionally, these sectors have been viewed separately. In reality, they are deeply interconnected. The water-energy nexus holds one of India's greatest opportunities.

Every unit of water saved reduces energy consumption. Every unit of energy saved often reduces pressure on water resources. A smart water network, for example, can reduce leakage, lower pumping requirements, optimize performance, cut electricity consumption, and decrease carbon emissions - one intervention that creates multiple benefits.

Leaders, therefore, need to move beyond project thinking and embrace systems thinking. Moving from wondering simply about the asset to be built to the more important area of outcomes to be achieved.

Is it reliable access to clean water? Or affordable and resilient energy systems? Or climate-resilient cities and industries? When there is a focus on outcomes, the ability to design instruments that de-risk those outcomes and attract broader participation is super-charged.

This will require a new form of collaboration. Governments alone cannot fund the transition. Private sector organizations alone cannot de-risk it. Financial institutions alone cannot scale it. Progress will come when governments, industry, investors, technology providers, and communities work together as partners in a shared mission.

Ultimately, India's challenge is not a shortage of ambition. There are bold targets, growing technological capabilities, and increasing access to capital. The next frontier is confidence - in technologies, in financing models, in partnerships and in execution.

The leaders who will shape the next decade are not those who merely manage resources. They are those who reduce uncertainty. They are those who transform risk into opportunity and ambition into action. Because sustainable development scales when risk becomes manageable, trust becomes institutionalized, and vision is translated into execution.

Author

As the Country President of Grundfos India, Usha plays a pivotal role in shaping the company's strategic direction and growth within the Indian market, which leverages her extensive experience in business management, profit centre management, and fostering people development. Her leadership aligns with Grundfos' commitment to Diversity, Equity and Inclusion (DE&I). She champions a workplace where diversity is celebrated, equitable opportunities are provided, and inclusion is at the heart of the organisational culture. She emphasises integrating sustainable strategies into business operations, ensuring long-term value creation for the company, its stakeholders, and the environment.

Engineering India's climate resilience

India's industrial growth hinges on climate resilience. As climate risk threatens USD 26-9 trillion in national assets, this article contemplates on the solutions to effectively manage and mitigate climate risk for Industry. It charts the way forward through actionable frameworks and building common platform anchored on intelligence, interventions and investment to strengthen Industrial resilience and competitiveness.

Climate risk is increasingly a business-continuity risk for Indian enterprises. Asset-level climate intelligence can quantify physical and financial risks, prioritise adaptation and protect continuity. Resilience requires embedding climate intelligence into strategic planning and investment.

Anup Jindal
CEO and Joint MD
RMSI

After 10,000 years of relative climate stability, this is an era of erratic climate marked by exacerbating heatwaves, intensifying floods, protracted droughts and inexorably rising sea levels. Climate uncertainty coupled with geopolitical dynamics and resultant supply chain disruptions has made persistent uncertainty the new global normal. Unchecked global warming can exacerbate climate related economic losses to 18% of global GDP by mid-century. 1.5°C warming goal could contain losses to about 4.2% of GDP. Climate transition is therefore the only option to safeguard human lives and economic growth. For India, stakes are high as it ranks ninth on The Climate Risk Index 2026, with around 430 extreme climate induced disasters, causing nearly 80,000 deaths and USD 170 billion direct economic loss. Over 80% of India's population lives in districts exposed to climate-induced disasters. India's national asset base valued at around USD 26-29 trillion is at high risk, with significant concentration of these assets in natural-catastrophe hotspots.

Indian industry is at the epicentre of this challenge and can play a pivotal role in navigating climate transition. Industry will require substantial expansion to achieve USD 30-35 trillion (~ INR 2,500 lakh crore) economy goal by 2047. The registered factory sector alone represents more than INR 46 lakh crore of fixed capital. Nearly half of this fixed industrial capital is concentrated in 4 states i.e. Gujarat, Maharashtra, Tamil Nadu and Karnataka; exposed to extreme heat, floods, drought and water stress. As the scale and concentration of productive assets continue to grow, climate risk is increasingly becoming a balance-sheet and business-continuity risk for Indian enterprise.

In this era of increasing climate volatility, asset-level intelligence is becoming fundamental to protecting enterprise value and business continuity. The macro-level climate risk does not give true picture of risk to the asset. Also fundamental parameters such as measuring certain mm of rainfall does not give flood risk. A granular assessment can quantify potential physical damage, downtime and financial loss at individual sites, enabling enterprises to identify concentrations of risk, prioritise adaptation investments, inform insurance and capital-allocation decisions, and embed climate resilience into asset planning.

The Industrial assets function through a complex interconnected network of suppliers, logistics corridors, power and utility systems and workforce to name few elements of this interconnected ecosystem. On a hypothetical basis, 1-3% disruption could put INR 0.8-2.5 lakh crore of industrial output at risk. Hence, building Industrial resilience requires understanding vulnerabilities across entire operating ecosystems to avoid business disruptions. Climate intelligence, therefore, must become integral to strategic planning, operational frameworks, capital allocation and investment decisions.

A national climate resilience platform can turn climate intelligence into actionable interventions, unlock green finance and strengthen business resilience at scale.

The resilience of large enterprises is equally dependent on the MSMEs embedded across their value chains. Yet many MSMEs lack the institutional capacity, capital and technical expertise to interpret climate risk and invest in appropriate resilience measures. Climate disruption at this layer can quickly cascade across the value chain, affecting production schedules, operational efficiency and continuity of larger enterprises. Strengthening MSME resilience is therefore an industrial competitiveness imperative. Democratising access to climate intelligence so that smaller enterprises can understand their vulnerabilities and act on them is essential to protecting the continuity and competitiveness of India's broader industrial economy.

This calls for a national architecture that makes climate intelligence accessible at scale. The Government of India should consider a National Interoperable Climate Resilience Platform for Industry, designed as digital public infrastructure. The proposed platform could provide enterprises with a common view of physical and transition risks-and translate these risks into actionable interventions. The platform will be anchored around the 3Is: Intelligence, Interventions and Investments. Intelligence would integrate climate, weather, geospatial, emissions, energy, water and infrastructure data to provide enterprises with an asset-level view of physical and transition risks. Interventions would translate this intelligence into actionable resilience measures, enabling businesses to prioritise investments and strengthen operational continuity. Investments would connect measurable risk reduction with access to green finance - turning resilience into an investible proposition.

Complementing this architecture, Industry and Government may join hands to build a standardized MSME Climate Passport. With appropriate data governance and safeguards, the Climate Passport could translate 3I [Intelligence, Intervention, Investment] framework into an actionable agenda for MSME ecosystem.

Government can play catalyst's role by establishing the common data architecture, interoperability standards, and trust framework-the digital rails for climate action; but industry must become the execution engine. India has already demonstrated how digital public infrastructure can democratise essential services at large scale. Climate intelligence could be the next frontier. By combining intelligence, intervention and investments at scale, India can move from climate commitments to climate competitiveness while demonstrating to the Global South that economic growth and climate resilience can advance together.

Author

Anup Jindal is an accomplished entrepreneur with deep expertise in building technology-led, data-driven businesses. An early pioneer of quantitative approaches in India, he has built and scaled ventures across specialised domains including geospatial, utilities, telecommunications, insurance, climate risk, sustainability and AI data services. He combines strategic discipline with execution rigour, championing resilient, purpose-driven business models and South-South technology partnerships.

RMSI is a geospatial company building trusted digital infrastructure through AI, geospatial intelligence and digital twins.

Powering the next phase of India's energy transition with biology

To unlock the next phase of growth, three areas will be critical: increasing farm productivity, improving efficiency in bioenergy production, and accelerating innovations that convert biomass waste into value. Biosolutions can contribute meaningfully across all three.

Powering India's clean mobility transition through biofuels, energy diversification, reduced fossil fuel dependence, stronger farmer incomes, and lower carbon emissions.

Krishna Mohan Puvvada
Regional President - Middle East, India & Africa
Novonesis

India imported 88.7% of the crude oil it consumed in 2025-26, the highest share on record. As consumption rose while domestic production dipped, the need for energy resilience in an integrated mobility ecosystem has never been greater. A country adding vehicles at India's pace needs every clean energy pathway working in tandem, and we are seeing strong momentum on energy diversification in mobility, be it electrification, biofuels, hydrogen, or biogas.

While biofuels are often considered a 'bridge'-a path from fossil fuel-based transportation to non-fossil-it in fact lies at the heart of India's clean energy transition. With bioenergy, we have seen the ability to build speed, scale and systems that reduce fossil fuel imports, boost farmer incomes and lower carbon emissions. The next phase for biofuels hinges on innovation and growth: diversified feedstocks, improved farm productivity, and new frontiers in aviation and shipping.

Momentum on clean energy pathways

India has been seeing strong momentum on pathways to cleaner energy on our roads, though challenges persist. In the electrics segment, 2.5 million electric vehicles were registered in FY 2025-26, taking overall penetration to roughly 8.5 per cent. While penetration is rising, a well-spread charging network can further accelerate adoption. Green hydrogen has great potential for range and refuelling speed in long-haul trucking, mining fleets and ports. As technology matures and scale kicks in, the price gap will narrow. The CBG blending obligation and the GOBARdhan Scheme have offered a fillip to biogas production, giving producers a guaranteed offtake mechanism. Supply now must catch up to demand, supported by streamlined feedstock availability and expanded biogas plant networks. The biodiesel pathway is also picking up pace, with work underway towards better aggregation and collection of Used Cooking Oil (UCO).

Bioenergy: Achieving speed, systems and scale

The biofuels success story shows what can happen when speed, systems and scale come together. India achieved 20% ethanol blending in 2025, well ahead of schedule. Ethanol production capacity has grown roughly fivefold since 2014 to around 2,000 crore litres, achieving scale and technology maturity. Strong policy support, including blending mandates and the Pradhan Mantri Ji-VAN Yojana, has created the systems-level foundations for this growth story and the building blocks for new innovations in the space.

Biosolutions can unlock India's next phase of bioenergy growth by increasing farm productivity, improving fuel production efficiency and converting biomass waste into value - making the entire value chain more viable and scalable.

Biology holds the answers for the future of biofuels

The next phase of growth for bioenergy is already underway. On the roads, the country is moving towards flex fuel blends that leverage E85 and E100 blends. In the air, Sustainable Aviation Fuel (SAF) represents the next logical extension of this platform - offering a pathway to decarbonize a hard to abate sector, with blending targets already in place. In our waters, ethanol presents an opportunity to decarbonize shipping, with operational proof now emerging on ethanol as a low-carbon SMF.

A growing ethanol industry will have changing needs, including land use patterns and the need to extract more energy from the same or fewer resources. To unlock the next phase of growth, three areas will be critical: increasing farm productivity, improving efficiency in bioenergy production, and accelerating innovations that convert biomass waste into value. Biosolutions can contribute meaningfully across all three.

Biosolutions already support both ends of the bioenergy value chain, from agriculture to fuel production. Biostimulants can increase average yield in sugarcane by 15% or more. At the same time, biosolutions for ethanol production can deliver up to 3% higher yields, faster fermentation, and stronger performance under challenging operating conditions. They can also help leverage newer crops for ethanol, such as Napier grass and sweet sorghum, or even biomass and agricultural waste. As a country that generates an estimated 350 million tons of agricultural waste annually, making the most of our biomass is crucial. With biogas, enzymes and microbial solutions can improve biomass conversion rates across feedstocks ranging from cow dung, rice straw, and food waste, generating methane yield improvements of 10-33% depending on substrate and operating conditions.

By maximizing capabilities at the farm and the refinery, biosolutions make the entire value chain more viable, more cost-effective, and easier to scale as demand continues to grow.

The road ahead

With speed, scale and systems in place, the next stage of the clean energy biofuel transition rests on how we innovate towards emerging needs. Future-ready infrastructure that integrates multiple mobility pathways will need continued policy focus and support, alongside a defined implementation pathway. Defined ethanol-based sustainable aviation and marine shipping fuel pathways can be a step in the right direction. Ensuring viability for flex fuel vehicles will mean enabling demand-led growth by addressing consumer economics, vehicle availability and fuelling infrastructure.

India has shown what is possible when speed, scale and systems come together; biology can define our next chapter towards sustainability.

Author

Krishna Mohan Puvvada is a senior business leader with over 30 years of experience in the biosolutions industry, with deep expertise in building and scaling businesses across emerging markets. As Regional President for the Middle East, India, and Africa at Novonesis, Mohan drives business strategy and growth across a diverse and high-potential region. Over his career, Mohan has held several leadership roles across sales, business management, and regional operations, with a track record of delivering sustained growth, expanding market presence, and building high-performing teams. He brings deep expertise in strategic planning, channel management, and customer-centric innovation.

Creating the conditions: financing the transition at speed and scale

Financial instruments, however well designed, cannot compensate for poor policy backdrop. Capital ultimately goes where returns are attractive, and every step that makes doing business faster, simpler, and more predictable makes a market more investable.

GFANZ is focused on mobilising capital into clean energy, industry, and infrastructure, particularly in emerging and developing economies.

Mary Schapiro
Vice Chair
Glasgow Financial Alliance
for Net Zero (GFANZ)

This Summit's theme is "Accelerating the Sustainability Transition: Speed, Scale, Systems - is a fitting description of where global finance stands right now: in the middle of a race, not the beginning of one.

For years, practitioners and policymakers focused primarily on risk: how to understand it, price and build it into decision-making. That lens mattered but was never the whole picture. The rest of that picture has now come into view: the opportunity in actively pursuing the upside of the transition by remaking energy systems, modernizing industry, and building economies that withstand shocks. Today, that upside is measured in the trillions of dollars a year in expected investment opportunity.

Opportunity by itself doesn't translate into capital deployed. Money moves when the policy environment is predictable, when projects are structured well enough to finance, when risk can be priced, and when institutions have bandwidth to execute. Building those conditions is, in many ways, the central task of this decade.

GFANZ's mandate is squarely focused on mobilizing capital into clean energy, industry, and infrastructure - with particular attention to emerging and developing economies. For us, getting capital to move at the scale required comes down to four things governments, development institutions, and financial markets need to get right. India, in different ways across each of these four areas, is ahead of much of the world - and offers lessons the rest of the world would do well to study.

GFANZ is committed to helping countries learn from one another to identify ways to mobilize capital at pace and scale, and would be honored to partner with CII and others to help identify and replicate the mechanisms that have worked best.

First, building pipelines of bankable projects

In much of the world, the binding constraint isn't capital - it's the shortage of projects that are ready to be financed. Converting national climate targets into projects which a lender or investor can underwrite, takes sustained collaboration between governments, development finance institutions, and private capital, working through regulatory hurdles together and turning concepts into properly structured deals.

That's part of why GFANZ has worked so hard on country platforms: in Indonesia and Vietnam, where Just Energy Transition Partnership projects - from floating solar to grid transmission - have reached financial close, and in Brazil, where the Climate and Ecological Transformation Investment Platform has assembled a USD 23 billion pipeline, with more than four billion already mobilized. India has now stood up its own country

platform focused on adaptation and resilience, and GFANZ is ready to bring what we've learned elsewhere to that effort.

Growing these pipelines also depends on early-stage project preparation - a function that remains underfunded relative to its outsized catalytic effect.

Second, putting public finance to work catalytically

Even where good projects exist, political risk, currency exposure, and project-specific uncertainty can keep private capital on the sidelines and push up the cost of financing. Development finance instruments can absorb some of that risk, but concessional capital is limited, which makes using it well - rather than just using more - the priority.

A few tools stand out: catalytic equity (where an estimated twelve to twenty-five billion dollars annually could mobilize 30 times as much private capital); stronger guarantee and insurance mechanisms; instruments that address local-currency and FX risk; and standardized approaches to blended finance. None of these work in isolation.

Third, getting the enabling environment right

Financial instruments, however well designed, cannot compensate for poor policy backdrop. Capital ultimately goes where returns are attractive, and every step that makes doing business faster, simpler, and more predictable makes a market more investable.

India provides a clear demonstration of what strong fundamentals can achieve. Competitive reverse auctions, a waiver of inter-state transmission charges, and solar parks offering pre-cleared land and ready grid connection drove solar tariffs down by ~80%. The pace has been remarkable: India crossed 300 GW of non-fossil capacity this July, over 60% of the way to its 500 GW target for 2030. That milestone came after adding a record 55 GW in the previous 12 months, after hitting transition investment of USD 68 billion in 2025. No new capital had to be invented; conditions were created that let existing capital move.

Beyond energy policy, additional areas require improved enabling environments too. For example, GFANZ is working to strengthen high-integrity carbon markets, which offer another route for channeling finance where it's most needed. Additionally, prudential regulation deserves scrutiny: many of these rules were written before today's investment scale needed for mitigation and resilience was understood, so it's fair to ask whether they still serve their original purpose — or whether they're blocking capital from flowing into emerging markets in ways that don't reflect underlying risk.

Fourth, building capacity throughout the system

None of these efforts will succeed unless institutions across the financial system have the capacity to act. In many emerging markets, more than half the climate finance required will come from domestic sources which must be able to assess climate opportunity, structure transactions, and work with international capital.

As part of the Indian G20 Presidency's technical assistance action plan, GFANZ launched the Global Capacity Building Coalition at COP28 alongside the UN, IMF, World Bank, and leading MDBs. Its membership has grown to over 120 organizations, and its Knowledge Hub offers over 500 free climate finance resources supporting practitioners to mobilize sustainable finance.

Financing what lasts

Together, these four levers create conditions for finance to flow at the speed and scale the transition demands. But we must also ensure the energy, industry and infrastructure financed today - much of which will still be operating in 2050 and beyond - are resilient to changing climate.

Adaptation can be harder to finance than mitigation: it requires pulling investment forward to avoid losses later, and its benefits accrue across a wide range of actors. Yet GFANZ research drawing on twenty-two real world case studies shows private finance is already financing adaptation solutions globally — from climate-smart agricultural lending and grid hardening to parametric insurance protecting households and countries against droughts, floods, and hurricanes. In many cases, private finance delivered the solution on commercial terms. These models are replicable.

The question before us is no longer whether the transition can be financed but whether we can create conditions to finance it at the speed and scale this moment demands. If we succeed, we will not only strengthen resilience to a changing climate; we will unlock growth, competitiveness, energy security, and opportunity for billions of people. That is the future we should be financing — and the future we can build together. GFANZ stands ready to work with partners, in India and beyond, to deliver that future.

Author

Mary L. Schapiro is Vice Chair of GFANZ and Vice Chair of Global Public Policy at Bloomberg L.P. With over 30 years in public service, she has held senior financial regulatory roles under four U.S. presidents. She served as the 29th Chair of the SEC, the first woman to hold the position, and previously chaired the CFTC and FINRA, making her the only person to lead all three major U.S. financial regulators. Schapiro led the TCFD from inception through 2023 and now chairs the Climate Data Steering Committee and Global Capacity Building Coalition, advancing sustainable finance and climate-data capacity globally.

Climate ambition isn't the bottleneck anymore. Implementation is

Accelerating sustainable finance depends on the ability to translate standardized methodologies into practical action through collaboration, harmonization and peer learning.

Building stronger emissions measurement, data capabilities and peer collaboration to turn sustainable finance ambitions into practical, decision-useful action for India's evolving financial ecosystem.

Madeline Schneider
Director of Operations, PCAF
Associate Director, Guidehouse

The sustainability conversation in the financial sector has entered a new phase. Where the focus once centered on awareness-raising and ambition, the challenge now is turning these foundations into consistent, decision-useful action.

In India, this transition is particularly relevant as financial institutions are preparing for a structured disclosure environment. The Reserve Bank of India's (RBI) Draft Disclosure Framework on Climate-related Financial Risks, released for consultation in 2024, signals growing regulatory expectations for banks and other regulated entities to strengthen governance, strategy, risk management, and disclosures related to climate-related financial risks. As financial institutions prepare for these evolving requirements, strengthening internal capabilities, data systems and internal governance will be critical to effectively measure emissions associated with their financial activities.

Emissions measurement serves as one of the most critical accelerators of sustainability action, providing the foundation for organizations to move from ambition to implementation. Organizations can only effectively manage what they measure first. For financial institutions, the largest part of emissions resides in activities associated with their financial activities (Scope 3, Category 15). Measuring these emissions provides the basis to understand portfolio exposure, identify priority or hotspot areas for action, support informed climate-related decision-making and enables portfolio steering.

With robust measurement, financial institutions have the ability to make decisions based on evidence, which in turn enables them to further direct resources and capital towards opportunities that are most material to them. Used in this way, emissions accounting moves beyond a reporting exercise and becomes a strategic management tool. The question is therefore not only whether financial institutions can measure their emissions, but whether they can use the results to inform action.

For the Indian context, this journey is shaped by three practical realities:

- Financial institutions are at different stages of maturity. Some are beginning to assess emissions associated with financial activities, while others are preparing disclosures or embedding greenhouse gas accounting into internal governance and decision-making processes.
- Data availability and quality remain constraints, particularly where external emissions data, such as information from investee companies or portfolio-level data may be unavailable, incomplete, or unsuitable for emissions estimation.
- Adapting global methodologies to the Indian context can be complex, particularly where asset class mapping needs to reflect the local portfolio structures and regulatory conditions.

Turning emissions measurement into actionable climate finance through stronger data, capacity building, standardized methodologies, and peer collaboration in India.

These realities demonstrate why capacity building is an accelerator of sustainability. Technical workshops, practical exercises and peer learning programs help translate methodological knowledge into institutional capability.

The India Accelerator by the Partnership for Carbon Accounting Financials (PCAF) applies this implementation-focused model. The programme is designed as a hands-on capacity-building platform, combining explanations of the PCAF Standard with guided calculation examples, interactive exercises, and real-world case studies, helping participants move from high-level awareness towards practical application in the Indian context.

The experience of Indian financial institutions shows that the next stage of implementation depends on making emissions estimation and reporting more consistent, decision-useful, and locally relevant. As financial institutions move beyond initial methodology awareness, they are increasingly focused on how emissions measurement can support climate risk assessments, portfolio analysis, and transition planning. This has highlighted the need for India-specific emission factors and practical guidance that improve the accuracy and usability of emissions calculations.

Peer learning has also emerged as a critical enabler. Financial institutions often encounter similar questions around data collection, methodology application and disclosure. Sharing experiences allows financial institutions to compare approaches, test assumptions, and learn from solutions already being developed across the market. It also helps turn individual implementation challenges into shared priorities for the wider financial ecosystem.

This is where collaboration and harmonization reinforce one another to accelerate implementation. While collaboration enables stakeholders to share expertise, address common barriers, and develop practical solutions, harmonization ensures a consistent foundation for measurement and disclosure. PCAF brings these elements together as an industry-led platform that supports financial institutions with common methodologies, practical tools, peer learning, and capacity building.

In India, this community-driven approach is helping institutions strengthen implementation capabilities, advance data solutions, and move from measuring emissions to using those insights to inform decision-making and action.

The next stage of sustainable finance in India will not be defined by ambition alone. It will depend on whether financial institutions can build the capabilities and partnerships needed to apply standardized approaches in relevant and decision-useful ways. Consistent methodologies provide the foundation, with capacity building, improved data, and peer learning are what turn insight into implementation.

Author

With over 10 years of expertise in sustainable finance and energy efficiency, Madeline advises financial institutions in designing, implementing and reporting of sustainability strategies and actions on their transition towards net-zero emissions. A particular focus lies on greenhouse gas emissions accounting and emission reduction strategies for commercial real estate and mortgage portfolios. At PCAF, she leads all activities related to regional and national implementation of the PCAF Standard, strategic and accredited partner and stakeholder management, policy and regulatory alignment as well as communications and marketing. Madeline is a certified Expert in Climate and Renewable Energy Finance from the Frankfurt School of Finance & Management.

Access via climate leadership

The role of SBTi in India's low-carbon transition

While India faces unique challenges as a rapidly growing economy, the Science Based Targets initiative (SBTi) serves as a critical enabler by providing a globally recognized, science-aligned framework that translates ambition into measurable implementation, ultimately strengthening India's competitive position in the global net-zero transition.

Introduction: India at a pivotal moment

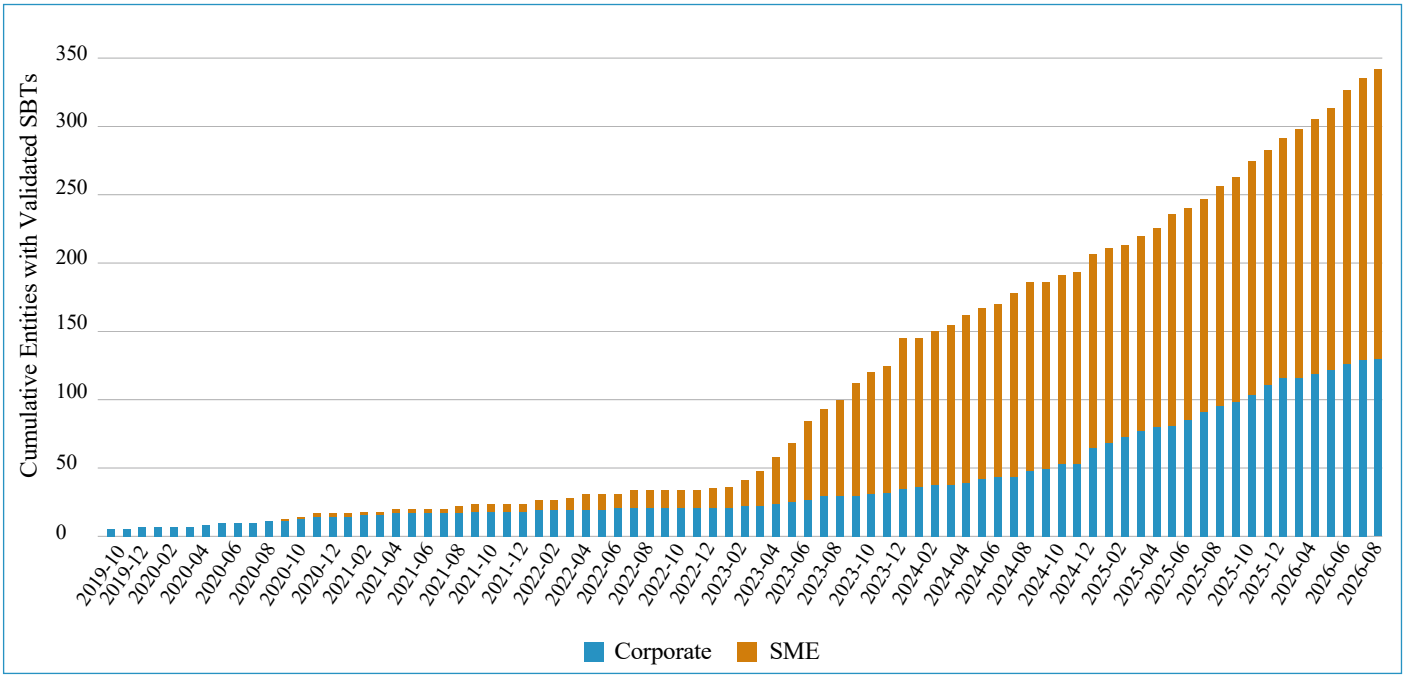
Since the global COVID pandemic, India has experienced higher sustained growth than any other large country. GDP has expanded by more than 7% per year and in 2023 India surpassed China to become the world's most populous country. Energy consumption increased by a fifth between 2021 and 2025 and India achieved its 50% renewable-energy-capacity goal 5 years before its 2030 target year. In part due to the accelerating energy transition, the growth of India's greenhouse gas emissions has steadily declined to an estimated two-decade low in 2025. India has emerged as a central country in the global transition to the net-zero emissions state that is needed to stabilize our climate.

The Current landscape: Momentum and conversion gaps

As the economy, energy system, and associated greenhouse gas emissions have grown, more Indian companies and small and medium enterprises (SMEs) are setting targets with SBTi. While India's leading conglomerates were the first to set targets, SMEs took off in 2023 and accounted for more than 60% of total validated science-based targets as of July 2026. The chart below illustrates the progression of India's science-based targets from an initial group to nearly 350 in July 2026.

Whereas GDP growth has averaged above 7% per year since the pandemic, the number of Indian entities with validated science-based targets has grown by more than 40% per year. Indian companies and SMEs have realized that SBTs are a strategic asset

Figure 1: Monthly Growth of Validated SBTs in India



Source: https://sciencebasedtargets.org/target-dashboard

for managing transition risk and securing long-term value. However, the comparison with other countries shows that the current number is the start to a longer journey. Japan had the same number of validated SBTs in April 2023 and in July 2026 surpassed 2,500 validated targets. In China, the same cumulative level of validated targets was reached in January 2025 and in July 2026 the country had more than 780 validated targets. One unique challenge in India is the lower near-term validation conversion rate (59%) than the global average (73%), suggesting local barriers in translating published commitments into validated targets.

The most recent phase has broadened the distribution of validated Indian entities to 34 sectors. As of July 2026, the top 10 sectors accounted for roughly 75% of all validated targets.

Science-based targets can help Indian businesses strengthen credible climate leadership, access finance, expand global markets and accelerate meaningful climate action at scale.

Table 1: Top 10 Sectors for Validated SBTs in India

	Sector	Corporate	SME
1.	Software and Services	21	37
2.	Professional Services	3	35
3.	Textiles, Apparel, Footwear and Luxury Goods	15	1
4.	Pharmaceuticals, Biotechnology and Life Sciences	19	6
5.	Trading Companies and Distributors, and Commercial Services and Supplies	2	19
6.	Construction and Engineering	2	18
7.	Automobiles and Components	10	9
8.	Chemicals	10	9
9.	Consumer Durables, Household and Personal Products	2	12
10.	Hotels, Restaurants and Leisure, and Tourism Services	1	8

Source: https://sciencebasedtargets.org/target-dashboard

The mix of services and emissions-intensive heavy industry illustrates the variety of company rationales for setting SBTs. Three motivations cited by target-setting entities include requests from clients or purchasing organizations, access to European and other more regulated markets, and preferential terms with financial institutions. Furthermore, these targets help India to achieve its own climate goals.

Conclusion: India as a global reference point

Choices made by businesses in India will have an impact worldwide—and the transformation to a net-zero global economy cannot succeed without them. The SBTi's 2026-2030 strategy recognizes the significant potential of businesses across India and the rest of Asia to expand corporate climate action globally, and the initiative is committed to working alongside these businesses to help turn the region's growing climate ambition into action at scale. SBTi offers Indian companies the chance to not just follow global trends but to shape their own credible, science-aligned pathways to leadership and climate stabilization. Continued adoption of science-based targets can help Indian entities to access finance and international markets.

Nate Aden
Head of Asia, Head of Financial Standards
Science Based Targets initiative

Author

Nate Aden oversees SBTi expansion in Asia and development of financial standards. As a staff member with the World Resources Institute, Nate co-founded the SBTi in 2015. Over the years, he has contributed to the initiative's technical development, including target-setting methods, sector pathways, and financial standards. He has authored or co-authored dozens of peer-reviewed journal articles and reports, including "Technologies and policies to decarbonize global industry: Review and assessment of mitigation drivers through 2070". Nate has over 20 years of experience in industry, energy, trade, and climate across China, the U.S., and Europe. He holds a PhD from UC Berkeley and degrees from Stanford and Cornell.

De-risking India's green transition

For Indian policymakers as well as institutional allocators, deliberate de-risking is the critical mechanism required to convert high-risk green projects into bankable, institutional-grade assets.

Strategic de-risking, standardized green finance frameworks, and carbon markets are essential to transform green projects into investment-grade assets and attract long-term institutional capital.

Prof Amit Garg
Professor and National Investment & Infrastructure Fund (NIIF) Chair in ESG
IIM Ahmedabad

India faces a monumental investment challenge in achieving its net zero emissions target by 2070, requiring an estimated USD 10 trillion in cumulative capital. Domestic public finance alone cannot support a transformation of this scale. While global and domestic institutional investors-pension funds, sovereign wealth funds, and insurers-sit on vast pools of patient capital, they remain hesitant to deploy it. The primary barrier is a stark mismatch between perceived project risk and the stringent regulatory return mandates under which these investors operate. For Indian policymakers and institutional allocators alike, deliberate de-risking is therefore the critical mechanism required to convert high-risk green projects into bankable, institutional-grade assets.

To mobilize institutional capital at scale, India must move from treating green infrastructure as a series of isolated, transaction-level pilots towards establishing a programmatic pipeline of stable assets. Institutional investors operate under strict fiduciary duties that heavily penalize volatility, illiquidity, and early-stage development risk. Greenfield projects, meanwhile, are routinely encumbered by protracted land acquisition, grid connectivity bottlenecks, and environmental permitting delays. To overcome these hurdles, policymakers must prioritize the use of public and concessional funds to absorb early-stage development risk.

Once a sustainable project becomes fully operational and clears its initial developmental constraints, it acquires a low-risk and predictable yield profile. Such operational assets can then be pooled and packaged into standardized market vehicles, e.g. Infrastructure Investment Trusts (InvITs), allowing conservative institutional investors to enter the market cleanly.

Concurrently, a transparent and formalized national green taxonomy framework is required. It would reduce greenwashing risk by providing compliance officers with unambiguous, globally aligned metrics for classifying sustainable assets. To lower the entry barrier further, the state must deploy blended finance and first-loss guarantee structures. Where public capital absorbs the initial tranche of defaults, a project's credit rating can be elevated into the "AA" or "AAA" bands mandated by conservative pension and insurance regulators, thereby unlocking substantial institutional portfolios that are otherwise closed to green assets.

The taxonomy argument needs a factual update. The Department of Economic Affairs released the draft framework of India's Climate Finance Taxonomy in May 2025 and closed consultation that June, so the live question is no longer whether India has one. It is whether the sectoral annexures arrive with activity-level thresholds specific enough for a compliance officer to act on, and whether they can align with the EU system of Carbon Border Adjustment Mechanism (CBAM) without importing benchmarks Indian steel cannot physically meet this decade. Steel is currently the only sector with a low-carbon pathway defined out to 2070. Everything else is being classified against a trajectory nobody has published yet.

Mobilizing institutional capital for India's net-zero transition through de-risking, blended finance, green taxonomy, currency hedging and carbon markets.

Dedicated hedging instruments must also be scaled to manage offshore currency volatility, protecting foreign sovereign wealth from macro-level rupee depreciation. Currency is the least discussed constraint and frequently the decisive one.

Hedging the rupee costs a dollar investor somewhere in the range of 350 to 450 basis points a year, which consumes most of the spread that made the asset interesting in the first place. A pooled, partially subsidised hedging facility of the sort TCX operates for thinner currencies is the missing instrument, and building one is a fiscal decision rather than a financial-engineering exercise.

A further catalyst within this transition framework could be a fully operationalized Carbon Credit Trading Scheme (CCTS), provided it is well designed and administered, and not built upon the architecture of earlier energy efficiency mechanisms. It could accelerate global capital deployment by targeting green transitions in India's heaviest-emitting, hard-to-abate sectors: steel, cement, and power.

By enforcing firm intensity caps across these foundational industries, preferably at the level of plant-owner groups rather than individual plants, the market mechanism could create an alternative and predictable revenue stream for green transitions in India. These solutions include green hydrogen and nature-based options such as biochar in steelmaking, alternative binders in cement production, and grid-scale renewable storage alongside nuclear generation in the power sector.

Carbon bench line is to be ascertained and accounted at sector and project levels, e.g. GWP of methane has been revised to 28 (from 21 used until now) and nitrous oxide to 265 (from 310 until now). Banks funding carbon mitigation projects under CCTS and institutional investors must follow the same.

For institutional investors, a functional carbon market provides a transparent, data-driven benchmark against which to value climate performance across India's industrial backbone. This structural transparency materially reduces asset-level volatility and mitigates underlying greenwashing concerns. Rather than depending on politically vulnerable public subsidies, green projects could gain a self-sustaining cash incentive.

Ultimately, integrating carbon pricing through the CCTS allows policymakers to transform decarbonization from a regulatory compliance cost into a tradeable, high-utility revenue class capable of attracting global capital at scale.

Author

A globally recognized expert in climate change, sustainable development, energy transition, and ESG, Prof Garg's expertise spans carbon markets and climate finance, corporate greenhouse gas accounting, energy-environment modelling, sustainable infrastructure, and the water-energy nexus. He has served as Lead Author and Coordinating Lead Author for multiple assessment reports of the Intergovernmental Panel on Climate Change (IPCC), contributing to the panel awarded the 2007 Nobel Peace Prize. Prof Garg has authored several highly regarded books and policy reports and has advised the Government of India, the World Bank, UN agencies, and other global institutions on net-zero pathways, climate policy, ESG frameworks, and sustainable business transformation.

Prioritising nature for business resilience

To align to the goals of the Global Biodiversity Framework and move towards a future that is nature-positive rather than nature-negative will require integrating a consideration of nature across the organisation, both horizontally and vertically, building the capacity to understand the link between nature-related dependencies and impacts and financial outcomes – both positive and negative.

Nature is now a critical business and financial resilience issue - requiring organisations to integrate nature-related dependencies, risks and opportunities into strategy, governance, risk management and financial decisions.

Resilience for business and finance in today's changing world means accounting for many aspects - technology, geopolitics, sustainability –- and among them, nature has emerged as a clear issue for senior decision-makers, regardless of sector. With nature degradation and nature loss accelerating, leading to consequences across the economy, finance, society and planet, it has become increasingly difficult to ignore nature-related issues within risk management and strategy.

What is lacking in the calculus of many companies today is not the knowledge that nature is an integral part of building resilience and addressing sustainability concerns across the organisation, but how to understand and address the ways in which the organisation interfaces with nature, and tie these learnings into overall risk management, business strategy, governance and financial decision making.

The guidance and recommendations developed by the Taskforce on Nature-related Financial Disclosures (TNFD), as well as other organisations in the nature and finance space, provide tools, methodologies and approaches that corporates and financial institutions can use to understand, assess and disclose their nature-related dependencies, impacts, risks and opportunities (known collectively as nature-related issues).

The TNFD has worked with scientific bodies and consulted heavily with the market, including over 1800 Forum Members, to design the framework and guidance, released in final form in September 2023. The TNFD's LEAP approach provides a methodology for the assessment of nature-related issues, moving through four phases: Locate, Evaluate, Assess and Prepare. Additional guidance and capacity-building materials from the TNFD provide support on moving from the understanding and assessment cultivated through the LEAP approach to embedding these into governance, risk management, organisational strategy and beyond. As of November 2025, over 730 organisations have committed to publishing TNFD-aligned disclosures, representing over USD 22 trillion in AUM and over USD 9 trillion in market cap from across 52 countries, and over 800 organisations have published TNFD-aligned reports, growing at nearly 50% per year.

Many companies are making use of the LEAP approach and its associated guidance - such as for transition planning or scenario analysis - to not only understand where nature-related risks currently lie in their value chains and portfolios and how to mitigate those risks – they are also unlocking opportunities for growth and innovation in industrial practices and finance.

The insights from TNFD-aligned assessments can drive better decision making across an entire organisation, especially when teams and functions beyond the sustainability department understand how nature is woven into a company's operations and value chain or present in a financial institution's investments.

Nature is becoming a core business consideration, with TNFD guidance helping organisations embed nature-related risks and opportunities into decision-making, reporting and long-term strategy.

To align to the goals of the Global Biodiversity Framework and move towards a future that is nature-positive rather than nature-negative will require integrating a consideration of nature across the organisation, both horizontally and vertically, building the capacity to understand the link between nature-related dependencies and impacts and financial outcomes -both positive and negative.

The TNFD has developed a series of guides, called "Asking Better Questions on Nature" for senior decisionmakers in various functions across a company or financial institution, with the goal of building the capacity for all teams to talk about nature with a shared vocabulary. Four guides have already been published which walk senior executives through several key questions that surface decision-useful information for their role.

These guides target board directors, Chief Financial Officers, Chief Legal Officers and asset owner Chief Investment Officers, and several more will be published through the end of 2026: for bank risk committees, for insurance underwriting committees and for asset manager Chief Investment Officers. As each new function or department builds their capacity to understand how their organisation depends on and impacts nature, and the ensuing risks and opportunities, the organisation can better manage risk, allocate capital and develop future-proof strategies.

This significant market uptake on a voluntary basis highlights a shift in mindset among companies and capital providers, who increasingly appreciate that the resilience of the planet's ecosystems and biodiversity underpins the resilience of their business and financial portfolios. As we look ahead, we see business momentum on nature-related issues continuing to grow, particularly in light of the growing awareness of nature-related issues among investors and central banks.

Even for those who have not explicitly begun nature-related assessment or reporting, the first steps may have already been taken, through alignment with other reporting requirements. CII India Business & Biodiversity Initiative (IBBI) and the TNFD published guidance regarding the alignment of the Business Responsibility & Sustainability Reporting (BRSR) and TNFD frameworks.

The guidance outlines a high level of consistency between the two, including significant overlap between TNFD's core disclosure metrics and the BRSR core indicators. This means that many Indian companies may inadvertently be meeting the TNFD's recommendations already, integrating nature into existing sustainability disclosures and reporting.

As nature becomes part of annual reporting cycles, standard-setting and regulation, companies and financial institutions that have considered nature throughout their organisation and embedded that decision making process across functions will be well-equipped to continue building resilience long-term.

Taskforce on Nature-related Financial Disclosures (TNFD) is a market-led, science-based and government-supported global initiative. TNFD is comprised of 40 business and finance leaders from around the world and was launched in 2021 with the support of the G20. TNFD provides recommendations and guidance for market participants and other stakeholders about how nature beyond climate should be assessed, managed and reported. It has built a global movement of support and action, including over 730 organisations and over USD 22 trillion in assets under management (AUM) now committed to reporting their nature-related issues aligned with the TNFD recommendations published in September 2023.

Towards climate informed nature positive action

Why biodiversity must lead the business transition

To make nature-positive growth possible, governments, businesses, financial institutions and communities must act as partners in a shared transition.

Businesses must move beyond compliance towards climate-informed, nature-positive strategies that place biodiversity and ecosystem resilience at the heart of sustainable economic growth.

The conversation around business sustainability has become a priority for all stakeholders. From businesses to government stakeholders to financial institutions, the need for an economic transition to address the interconnected issues of climate change and biodiversity loss has been increasingly recognised. While climate action has rightly been at the centre of this transformation, the next phase must go further. We need to move beyond a checklist-driven compliance approach to a climate informed nature positive business strategy that places biodiversity and ecosystems at the heart of the sustainability transition.

Biodiversity loss and climate change have a negative feedback loop i.e. ecosystem degradation can accelerate climate change, while climate impacts increasingly undermine the resilience of ecosystems and communities. Climate and biodiversity are inseparable since nature loss undermines carbon goals, food security, and financial stability. Forests, wetlands, rivers, oceans and grasslands provide essential ecosystem services - from carbon sequestration and water regulation to food security, livelihoods and disaster-risk reduction. Economies and businesses depend on these regulating and provisioning services to remain viable. Therefore, biodiversity loss is not just an environmental issue, it is also an economic issue with real financial risks.

A 'natural' business case

Biodiversity loss is often framed as an environmental concern and for businesses it is seen as an "externality". The business case for biodiversity protection is fundamentally about risk mitigation and opportunity creation. Ecosystem services like pollination add billions annually to agriculture and mangroves save crore of rupees in avoided flood damage each year. The World Economic Forum estimates that more than half of global GDP - around US$44 trillion in economic value - is moderately or highly dependent on nature and the services it provides.

While ecosystem protection and species conservation are fundamental requirements for our planet, this perspective does not fully capture the role of nature in supporting economies and societies. For businesses, this means recognising dependencies and impacts on nature across operations and value chains. For financial institutions, it means recognising that nature-related risks within their investment portfolios can translate into material financial risks. For policymakers, it means integrating biodiversity and ecosystem resilience into economic planning, infrastructure development and financial regulation.

From commitments to implementation

We have witnessed significant momentum in developing sustainability frameworks, setting targets and commitments towards halting and reversing nature loss. With multiple policy developments at both the domestic as well as international level, the efforts should now shift towards translating these commitments into implementation.

There are several sustainability and transparency frameworks that provide guidance on assessing and reporting nature-related metrics. Taskforce on Nature-related Financial Disclosures (TNFD), WWF Risk Filter Suite (Biodiversity Risk Filter, Water Risk Filter), RSPO Certification framework (Roundtable on Sustainable Palm Oil). can strengthen transparency around nature-related dependencies, impacts, risks and opportunities.

WWF-India is also developing a suite of financial risk-filter tools tailored to the Indian context, with a focus on two key sectors - linear infrastructure and forest-risk commodities-both of which have significant implications for forests and biodiversity.

A nature-positive future requires decision-makers to move beyond "do no harm" and actively protect, manage and restore ecosystems

However, these disclosures should serve as a means rather than an end. Nature-related disclosures should provide the baseline for developing credible transition pathways, supported by robust policies and processes that translate commitments into measurable outcomes for addressing nature loss.

Partnerships driving transition

We will need institutional partnerships and policy incentives to drive nature-positive transition. Governments, businesses, and financial Institutions must come together to integrate nature into policy, business and financial decision making. Enabling policy frameworks support business transformation.

Financial institutions have the responsibility to redirect capital from harmful to nature-positive economic actions. Civil society and scientific institutions contribute towards knowledge, innovation and accountability. Local communities bring essential traditional knowledge and regarding natural ecosystem management. It is essential to recognise each of these players as critical partners in the transition journey.

Multi-stakeholder partnerships are therefore not an optional component of sustainability action; they are an essential enabling condition. These partnerships should then become the foundation for building a system of shared objectives, clearly defined responsibilities, transparency and accountability amongst diverse set of stakeholders.

Towards a nature-positive future

It is imperative to move beyond climate and integrate nature within the sustainability conversation. To pivot towards a nature-positive future, stakeholders must place 'nature' at the heart of decision-making and move beyond a "do no harm" approach towards one that actively contributes to towards protection, management and restoration of ecosystems.

Businesses should progressively integrate nature into their core business strategies; financial institutions must move from mapping nature-related risks to financing nature-positive solutions; and governments facilitating enabling policy and institutional mechanisms to incentivise long-term ecological resilience.

As the head of WWF-India, the country's leading conservation organization, Mr. Singh participates in national fora covering biodiversity and aspects of reducing human footprint. Some of the priorities areas of his work as the Secretary General are to provide strategic direction to the conservation work of WWF-India and to add qualitatively to the WWF's contribution to conservation both nationally and globally.

WWF-India advances biodiversity conservation through wildlife and habitat protection, landscape restoration, freshwater ecosystem conservation, business transformation and community stewardship to sustain ecological resilience.

Advancing the circular economy for flexible plastics

How co-funding can accelerate the move to the widespread adoption of circular materials.

Films and flexibles deliver greater material efficiency, reduce product losses and extend shelf life. Yet their complex structures make them difficult to collect and recycle. Building circularity requires better design, stronger collection and greater demand for recycled materials.

Jonathan Moore
Specialist - Packaging
WRAP

Background

Film and flexible materials are a highly resource efficient packaging material that have seen a rapid rate of development over the last 30 years focussed on material efficiency and properties (both physical and preservation related). This has led to significant benefits in terms of reduced product losses through the supply chain, extended shelf life and reduced material use. These developments have also contributed to the challenges of capturing and recycling these materials caused by the use of multiple polymers, barriers, decoration that is challenging to remove and in combination with non-polymeric materials. This is compounded by their low value and the lack of weight to volume when collected. These factors mean that films and flexibles pose one of the greatest challenges globally in building the circular economy.

Globally films and flexible materials are a key focus of initiatives such as the Plastics Pact Network that is leading the drive to creating a circular economy for these materials. The circular economy needs every part of the supply chain to play its part. Designing for circularity guidance that is adopted by the market with the elimination of problematic items improves the purity of the waste stream. Increasing levels of circular materials means greater end market potential and value in the waste stream, that in turn increases collection and investment in capacity. This linked to greater citizen engagement and regulatory support helps drive the circular model.

The India context

The Indian market uses a high proportion of flexible materials (approximately 70%) in consumer packaging, a significant proportion of this material does not have a recyclable structure. A limited amount of larger PE or PP mono-material plastic films are collected for recycling. However, contamination from non-polyolefin materials can contaminate this stream. For flexible packaging that is multi-polymer, or multi-material (including layers such as PET or fibre) this is not recycled due to its complexity, low value, and lack of viable end-markets. The lack of recycling and end markets of these materials poses a significant environmental challenge for India and leads to a loss of valuable resources for the Indian economy.

The global scenario

Globally the challenge of non-recyclable formats has seen significant investment by film producers and packaging convertors to develop recyclable versions, and we are now at the stage where most non-recyclable structures have viable alternatives. Although these new structures are not always at scale, have a cost impact or may not be available yet in all markets.

Considerable progress has been made by brands and retailers in moving from problematic materials to more

Accelerating recyclable flexible packaging requires collaboration across brands, converters and recyclers. Through the India Plastics Pact, CII and WRAP supported six co-funded solutions to demonstrate recyclable formats and accelerate the circular economy.

recyclable polyolefin-based flexible packaging. This has been driven partly by global and national policy pressures and partly through voluntary business action.

Accelerating action

Brands and retailers have very busy new product development departments that focus on many areas including new product development, new packaging development, rebranding, regulatory updates and regulatory compliance. The move to recyclable materials sits in this workspace but can often be wating for approval, factory time, resources or business approval. By demonstrating to the market that new recyclable formats across a variety of packaged products can be placed on the market we can derisk the development for other businesses, thereby accelerating the move to the circular economy.

To support the transition to mono-material recyclable films in plastic packaging, the Confederation of Indian Industry (CII), through the India Plastics Pact (IPP) initiative, and with support from WRAP, developed a co-funded initiative to drive the move to circular materials.

In May 2024, CII issued a call inviting technofinancial bids from interested companies to participate in a co-funded project (Solutions for recyclable flexible packaging), under IPP initiative. The application encouraged a consortium consisting of a brand, converter, and recycler, to apply. The lead applicant of each consortium had to be an India Plastics Pact signatory.

Multiple applications were received, following a thorough evaluation by a jury panel, and six submissions were selected to proceed. These covered the range of challenges found with non-recyclable films such as:

- Incorporation with fibre
- Print encapsulated between layers
- Inclusion of non-polyolefin films (PET)

The key element of this project is not only the development and trialling of recyclable materials on the market but the publication and promotion of the work to demonstrate to other businesses the potential these structures have. This promotion should derisk the move for other businesses thereby accelerating the move to recyclable structures, improving the purity of the waste stream and driving the circular economy.

The report will be available shortly via the Indian Plastics Pact website *www.indiaplasticspact.org.*

Author

Jonathan Moore is a chemistry graduate from the University of Birmingham with over 20 years of experience in the plastic packaging industry in both quality and technical roles. Jonathan is a Plastics Specialist for the UK Packaging Pact at WRAP where he provides technical support and advice to the membership and global initiatives.

About WRAP

WRAP is a global environmental action NGO transforming our broken product and food systems to create Circular Living. For the benefit of the climate, nature, and people.

Mobilising finance for biodiversity conservation through access and benefit sharing

Creating business opportunities while conserving nature

For businesses, the Biological Diversity Act offers more than a compliance framework. It provides a pathway to secure long-term access to biological resources that underpin their supply chains.

Turning biodiversity conservation into inclusive growth through fair benefit sharing and sustainable development.

Virendra R Tiwari
IFS (Retd), Chairperson
National Biodiversity Authority

Biodiversity underpins the foundation of human health, well-being and sustainable economic prosperity. It underpins food systems, medicines, clean water, climate resilience and countless ecosystem services that sustain livelihoods and development. As one of the world's 17 megadiverse countries, India holds a responsibility to conserve and sustainably manage its rich biological wealth while harnessing it as a driver of inclusive growth.

Governments, businesses and communities worldwide are seeking ways to accelerate the nature transition. A central challenge remains: how can economic growth, biodiversity conservation and social well-being advance together rather than in competition? India's Biological Diversity Act, 2002 provides a practical response.

The Biological Diversity (BD) Act, 2002, together with the Biological Diversity Rules and the Access and Benefit Sharing Regulations, serves as the principal legal instruments that operationalise Access and Benefit Sharing in India. By establishing a clear regulatory framework for the utilisation of biological resources and associated traditional knowledge, this legal architecture provides certainty to users while ensuring that benefits flow back to the custodians of biodiversity, thereby converting conservation obligations into a structured mechanism for equitable development.

By operationalising the principle of Access and Benefit Sharing, the BD Act has shifted biodiversity conservation from a regulatory function to a framework for nature-positive development. It enables businesses, researchers and institutions to access and utilise biological resources legally, while ensuring that a fair and equitable share of the benefits is ploughed back to local communities, farmers and traditional knowledge holders who serve as conserves of biodiversity.

This approach creates clear incentives for companies to invest in sustainable sourcing, biodiversity stewardship and resilient supply chains. Conservation is increasingly recognised not as a cost, but as a strategic investment that secures access to biological resources and strengthens long-term business resilience. At the same time, local communities receive tangible economic benefits, establishing a cycle

in which conservation, livelihood generation and economic growth reinforce one another.

The BD Act recognises and treats biological resources, i.e., medicinal plants, agricultural seeds, livestock genetic resources, and microorganisms, including their genetic materials, as economic assets. Companies that utilise these resources commercially contribute a share of the benefits derived from their use. These funds are channeled to Biodiversity Management Committees, farmers, traditional knowledge holders, forest departments and conservation institutions. Since the framework became operational, the NBA has realised more than INR 266 crore through ABS and, as of 10/08/2026, disbursed around INR 182.00 crore to beneficiaries across the country. Biodiversity Management Committees at the local level play a central role in the ABS system. Funds channelled to BMCs support community-led conservation, documentation of traditional knowledge and livelihood activities, ensuring that benefits reach the grassroots custodians of biodiversity.

The system generates nature-positive outcomes with notable efficiency. Instead of relying solely on public expenditure for conservation, the ABS mechanism creates a continuous flow of resources from commercial users of biodiversity to conservation and community development. In FY 2025–26 alone, the NBA realised INR 21.26 crore, with contributions from the seeds, AYUSH, pharmaceuticals, nutraceuticals, biotechnology, cosmetics and food processing sectors. Growing participation from sectors reflects increasing industry recognition of ABS as a pathway for legal and sustainable access to biological resources.

For businesses, the BD Act offers more than a compliance framework. It provides a pathway to secure long-term access to biological resources that underpin their supply chains. Industries dependent on medicinal plants, herbal ingredients, seeds, and agricultural biodiversity face increasing risks from biodiversity loss, habitat degradation, and resource scarcity. Through the ABS, companies contribute directly to the conservation and sustainable management of these resources, helping ensure their future availability.

The Red Sanders experience demonstrates how biodiversity conservation can generate shared economic value. Red Sanders (Pterocarpus santalinus), endemic to the Eastern Ghats of India, has long been a high-value biological resource. The NBA has released more than INR 104 crore to Andhra Pradesh state government for Red Sanders conservation, protection and benefit sharing. In January 2026, the NBA disbursed INR 45 lakh to Red Sanders farmers, demonstrating how conservation-linked incentives can create dual income opportunities.

The BD Act is also reshaping innovation ecosystems. The NBA's first patent-linked ABS disbursement of INR 43.22 lakh established a model that allows businesses to access biological resources and associated knowledge while ensuring equitable benefit sharing. Such arrangements strengthen partnerships between industry, researchers and local communities.

ABS amounts collected are reinvested in conservation itself. The NBA has supported research projects, biodiversity management institutions, forest departments and district-level conservation programme using ABS funds. Conservation is increasingly becoming self-sustaining and supported through economic activity.

Access and Benefit Sharing advances Target 13 of India's National Biodiversity Strategy and Action Plan (NBSAP) 2024–2030 by operationalizing the fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge. It also contributes directly to Target 19 (Resource Mobilization) of the NBSAP, which calls for substantially increasing financial resources from all sources, public, private, domestic and international, to implement the national plan and related state and local plans. By generating continuous, non-budgetary funds from commercial users of biodiversity and directing them to communities and conservation, the ABS mechanism strengthens domestic resource mobilisation and supports the innovative financing approaches envisaged under the target.

India's Biological Diversity Act therefore is a practical model for advancing the sustainability transition. It enables companies to secure biological resources, strengthen supply-chain resilience, access innovation opportunities and supports community development, transforming biodiversity from a constraint into a strategic asset. In an era that requires solutions of speed, scale and systemic impact, India's ABS framework demonstrates how biodiversity conservation can become a catalyst for inclusive economic growth while advancing national commitments under the Kunming-Montreal Global Biodiversity Framework.

Author

Shri Virendra Tiwari began his career at the Indian Forest Service in 1990. Before taking charge as Chairperson of NBA in 2025, he served as the Director - Wildlife Institute of India (WII) between 2023 and 2025. He was Principal Chief Conservator of Forests (PCCF), Maharashtra and spent almost a decade working in the State Secretariat handling policy matters on forestry, wildlife and biodiversity. Apart from his contributions in the Mangrove Cell in Mumbai, he has actively worked in territorial, wildlife, working plan, budget and planning wings of the State. He successfully lead the UNDP-GCF Project "Enhancing Climate Resilience of Coastal Communities in India"; Declaration of Thane Creek as a Ramsar Site.

Building business resilience through nature

Restoring wetlands and water bodies can strengthen agricultural resilience, reduce pressure on shared water resources and protect the ecological foundations on which communities and businesses depend.

Building resilient, future-ready value chains through nature conservation, water security and sustainable agriculture, while strengthening farmer prosperity, ecosystem health and long-term business continuity for a climate-resilient future.

K K Sharma
Whole Time Director & EHS Head
DCM Shriram Ltd

At DCM Shriram, responsible growth is anchored in the resilience of the natural systems that sustain our operations and value chains. In agriculture-linked businesses, water security, soil health and ecosystem stability directly influence farm productivity, farmer prosperity and business continuity. Landscape-level stewardship is, therefore, integral to building resilient, future-ready value chains. Wetlands, ponds, tanks, rivers and groundwater recharge systems constitute critical natural infrastructure. They recharge aquifers, buffer floods, improve water quality, support biodiversity and reduce vulnerability to erratic rainfall. Conserving these ecosystems is not an environmental add-on for DCM Shriram; it is a strategic business imperative.

As climate- and nature-related risks intensify, our approach is guided by speed, scale and systems thinking. Restoring wetlands and water bodies can strengthen agricultural resilience, reduce pressure on shared water resources and protect the ecological foundations on which communities and businesses depend.

To make our interventions more targeted and science-led, we engage with industry coalitions such as CII and nature-focused organisations such as WWF. These collaborations are helping us move beyond standalone projects towards a structured, landscape-level approach-one that brings together water conservation, green-cover enhancement, sustainable agricultural practices and community participation.

One of our flagship interventions is Meetha Sona Pariyojana, a sustainable sugarcane cultivation programme promoting improved agronomic practices, soil health management and water-use efficiency. DCM Shriram works with more than 2,50,000 sugarcane growers across Uttar Pradesh, providing soil-health testing, access to improved cane varieties, farm advisories and sustainable crop-protection solutions. Meetha Sona demonstrates how resource efficiency can become a business multiplier: farmers benefit from improved productivity and resilience, while the Company strengthens the reliability and sustainability of its raw-material base.

Complementing this farmer-focused work is Khushali Paryavaran, our environmental sustainability initiative focused on water conservation, afforestation and community-led, nature-based solutions. Guided by the principle that “Every Drop Counts” and aligned with SDG 6, the programme supports the construction and rejuvenation of water-harvesting and groundwater-recharge structures. During FY 2025–26, these interventions created more than 3,90,400 cubic metres of surface-water storage capacity. Fifty Jal Samitis were also formed to strengthen community ownership and long-term management of water resources.

Our wetland-conservation work has included ecosystems associated with the Sai River, which are important to the resilience of the agricultural landscapes surrounding our operations

Restoring wetlands, expanding biodiversity and empowering communities to build resilient agricultural landscapes and sustainable value chains.

and supply chain. Freshwater wetlands and community water bodies have been rejuvenated through measures such as desilting, bund strengthening and the removal of invasive species. These efforts are reinforced by afforestation and biodiversity restoration.

During FY 2025–26, 24,700 saplings were planted under dense plantation, while over 7,56,000 mangrove saplings were planted in coastal areas. Cumulatively, DCM Shriram has planted approximately one million mangroves in Gujarat over the past three years.

The benefits extend well beyond water availability. Restored wetlands provide habitats for aquatic species, birds and native vegetation, including the Sarus Crane, which is closely associated with healthy wetland-agriculture landscapes.

For local communities, these ecosystems provide a buffer against rainfall variability, groundwater depletion and seasonal water stress. For DCM Shriram, they help protect the natural-resource base that underpins resilient agricultural value chains.

Community ownership remains essential to sustaining this progress. Through Sai Utsav and other awareness initiatives, we engage students, young people, fisherfolk, local communities, technical experts and conservation partners. Nature walks, guided visits, expert sessions, community dialogues and public campaigns help build local stewardship so that restored ecosystems continue to be protected and valued.

Aligned with the 21st Global Sustainability Summit theme, "Accelerating the Sustainability Transition: Speed | Scale | Systems," DCM Shriram's experience shows how business action can create enduring impact when rooted in landscape-level thinking.

By connecting water-efficient agriculture, wetland rejuvenation, river conservation, afforestation, partnerships and community stewardship, we are advancing a model in which business resilience, farmer prosperity and ecosystem restoration reinforce one another.

Author

Since 2017, Mr Sharma has been working as Whole Time Director-EHS at DCM Shriram Ltd. He is also the Chairman of the Risk Management Committee at DCM Shriram. He is actively driving ESG initiatives and reporting (as per GRI Standards). He has been instrumental in the implementation of Integrated Management System certification; latest effluent treatment technologies; fire protection installations and best waste management practices including EPR obligations for plastic waste recycling. He is a CII certified Sustainability Assessor and recipient of the Best Debut Assessor award. He is actively driving ESG initiatives, nature positive actions, and substitutability reporting (as per GRI Standards).

Who carries the risk? de-risking India's green hydrogen opportunity

India's green hydrogen scale-up is increasingly constrained by bankability rather than technology. Accelerating FIDs will require robust demand-side instruments, long-term offtake contracts, concessional finance, enabling infrastructure and internationally aligned certification frameworks that reduce market, revenue, regulatory and cross-border trade risks across the hydrogen value chain

Green hydrogen is an industrial opportunity that can strengthen India's energy security, economic resilience and clean-fuel exports while cutting emissions from hard-to-abate sectors.

Yash Kashyap
India lead
Mission Possible Partnership and
the Industrial Transition Accelerator

Green hydrogen is not really a climate project; it is an industrial one. Made by splitting water with renewable electricity, it can replace the fossil fuels and feedstocks behind much of heavy industry and transport, including fertilisers, refining, steel, power, shipping and aviation. The case rests on four gains: energy security, economic resilience, export earnings from clean-fuels trade, and lower emissions from heavy industry, which produces close to a third of global greenhouse gases. For India, all four converge. What stands between the opportunity and the outcome is not ambition. It is investment risk; and who carries it.

The demand is real and emerging. Fertiliser plants and refineries already run on hydrogen and ammonia, almost all of it fossil-based; India imports some 2.4 million tonnes of ammonia a year, roughly an eighth of what it uses. Japan and Korea are blending ammonia into coal plants. Shipping and aviation, two of the hardest sectors to clean up, are settling on green ammonia, e-methanol and biofuels.

Policy is catching up: the International Maritime Organization is negotiating a Net-Zero Framework, the EU's FuelEU Maritime rules already bind, and India has proposed a 1% sustainable aviation fuel mandate on international flights from 2027, rising to 5% by 2030.

The gap between pipeline and FID

India has 42 commercial-scale green ammonia projects - some 27–30 million tonnes a year of announced capacity, clustered in Odisha, Andhra Pradesh, Gujarat and Karnataka - plus nine green methanol projects totalling 2.5–3 million tonnes (ITA Analysis).

The pipeline grew 30% in six months, faster than many peers. But announcements are not investments. Mission Possible Partnership's Global Project Tracker records 161 projects operational or past final investment decision globally, against more than 800 still in development, with just 19 reaching FID in the last six months.

The gap is starkest across the New Industrial Sunbelt: renewables-rich emerging economies hold 39% of the global pipeline but only 12% of projects past FID. India recorded just 2 FIDs in the last 12 months. That is a risk-allocation problem before it is a technology or a policy one.

The instruments already working

Dependable demand and predictable revenue matter most, and government is stepping in. SECI's first green ammonia tender awarded 724,000 tonnes a year across seven developers at roughly ₹50–65 a kilogram, and a 500,000-tonne green methanol tender with a three-year producer incentive is in the works.

Harmonised certification and shared risk are critical to unlocking investment and positioning India as a competitive hub for green hydrogen exports.

SECI has also agreed to run joint auctions with Germany under the H2Global mechanism, with the Netherlands and Japan expected to follow, plugging Indian producers into international premium demand pools.

Private offtake follows the same logic: AM Green has a binding 500,000-tonne deal with Uniper and a term sheet with Yara; ACME and L&T have struck ammonia deals with Japanese buyers backed by contract-for-difference support; and ACME has a 100,000-tonne methanol deal with Mitsubishi Gas Chemical. Each converts a merchant-market gamble into a bankable revenue line.
Behind all of it sits the "green premium" (the extra cost of clean fuels over fossil equivalents) which no buyer will carry alone. Closing that gap needs tailored de-risking instruments, market-making mechanisms and long-term binding offtake. Designing them cannot be left to producers: infrastructure companies, buyers and downstream users such as FMCG firms each carry a different slice of the risk, and it takes the whole value chain at the table to shape solutions for the first wave. Blended, low-cost finance built for first-of-a-kind assets is the other half of the answer, because in an emerging market it is often the cost of capital, not the cost of electrons, that decides an FID.

Standards are a de-risking instrument too

Certification is usually filed under trade policy. It belongs in the risk conversation. Unless product standards are mutually recognised between India and partners like the EU, Japan and South Korea, Indian hydrogen and its derivatives cannot flow smoothly into the export markets that make up most near-term demand, and a project without a certain route to market cannot be financed.

Much of the rulebook is already written, in the EU's RFNBO rules on renewable power sourcing, CO_2 origin and lifecycle accounting. So the urgent work is technical rather than declaratory: engaging on the exact mismatches holding up investment decisions today, such as how India sources its grid electricity and how its Carbon Credit Trading Scheme treats industrial CO_2 against EU criteria.

The openings run the length of the chain: electrolysers and equipment upstream; port-based ammonia and methanol hubs midstream, with Kandla, Tuticorin and Paradip already investing to anchor supply; offtake, trading and structuring downstream; and a services layer where Indian firms can lead the region. None of it is guaranteed. Capital will flow to wherever risk is priced and shared best, and India's task now is to make sure that place is here.

Author

Yash Kashyap is the India Lead at Mission Possible Partnership (MPP), where he spearheads the Industrial Transition Accelerator programme, collaborating with governments, industries, and civil society to accelerate decarbonisation in hard-to-abate sectors. He brings extensive expertise in industrial decarbonisation, sustainable finance, and energy policy. Prior to joining MPP, Yash worked with Climate Policy Initiative and South Pole, contributing to transformative projects in the steel, cement, and climate finance sectors. He holds an MSc in Energy Science and Technology from ETH Zurich and has authored research published in leading climate and energy journals, advancing knowledge on clean industrial transition and sustainable development.

The challenge and the opportunity emerging from transition

The theme for the 21st Global Sustainability Summit is both a diagnosis and a call to action. It recognises that India's sustainability journey has moved from proving intent to creating meaningful impact, and that the next decade will be defined by how fast, how far, and how systemically it can be embedded across the economy.

India's sustainability journey has moved from proving intent to creating meaningful impact. The next decade will be defined by how fast, how far, and how systemically sustainability is embedded across the economy.

Seema Arora
Deputy Director General
Confederation of Indian Industry

For the CII-ITC CESD and its partners, building a consensus for this year's theme took longer than usual. For months, we sat through meetings, every word in the theme weighed for its impact, influence, and gravitas, for stakeholders, for India and for the world. The conclusion was clear: India has already crossed the threshold of awareness. The question is no longer "why sustainability" but "how do we make it mainstream, quickly and durably".

The road ahead can either be paved with difficulties marked by fragmented efforts, slow adoption, and isolated pilots or we can together create a rosy path with a landscape where proven solutions spread rapidly, institutions align, and sustainability becomes the default mode of business. The theme this year has been designed to help India choose the latter.

The theme for the 21st Global Sustainability Summit is both a diagnosis and a call to action. It recognises that India's sustainability journey has moved from proving intent to creating meaningful impact, and that the next decade will be defined by how fast, how far, and how systemically it can be embedded across the economy.

The three enablers: Speed, scale, systems

Speed is about compressing the time between idea and implementation.

In a decade where climate risks, resource constraints, and market expectations are accelerating, speed means:

- Moving from pilots to deployment at pace
- Turning policy signals into business action without long lag times
- Using digital tools, data, and standards to reduce friction in decision-making

For Indian industry, speed is also critical for strengthening competitive advantage. Companies that decarbonise, circularise, and make their operations nature-positive faster will also be able to access capital, markets, and talent more easily. Scale is about taking what works in one company, one cluster, one state, and making it work across sectors and regions. India's diversity is a strength, but it also means solutions must be "adaptable, replicable, and affordable." Scale requires:

- Frameworks and tools that can be used by large corporations and MSMEs
- Platforms that allow knowledge, technologies, and best practices to travel
- Financing mechanisms that de-risk sustainability investments at size

Sustainability has evolved from environmental responsibility to a defining force for business, investment, innovation, and competitiveness. Now, the challenge is to scale that transformation.

Systems thinking recognises that climate risks, resource security, biodiversity loss, and changing market expectations are interconnected. No organisation can make this transition alone. Progress depends as much on “partnerships" as it does on individual "leadership.” For us, Systems means:

- Aligning businesses, governments, financial institutions, technology providers, academia, and communities around shared goals
- Calibrating policies, infrastructure, and incentives that reinforce each other
- Building platforms that can sustain change over time

The next phase

For over two decades, CII-ITC CESD has worked at the intersection of policy, industry, and innovation. We have helped shape frameworks on circular economy, climate resilience, and responsible business. We have trained thousands of professionals, recognised hundreds of sustainability leaders, and advised governments on everything from carbon markets to green hydrogen.

If there is one lesson from the past, it is that “sustainability has never stood still.” What began largely as environmental responsibility has evolved into a defining consideration for business, shaping investment decisions, innovation, supply chain resilience, and competitiveness. The questions businesses ask today are very different from those they asked years ago, and that is perhaps the clearest measure of how far this journey has come. But the next phase demands something different. It demands scaled up action; change at scale and systems-level solutions.

The summit theme “Speed. Scale. Systems” is a motto we are going to follow for the next few years. As CESD begins its third decade, this is the challenge and also the opportunity for us. In the next few years, we aim to:

- Move decisively: Compress the time from insight to implementation, using data, digital tools, and streamlined processes
- Take what works and make it work in many more places: Scale successful models from leading companies and clusters to MSMEs, smaller cities, and new sectors
- Build the partnerships that can sustain change over time: Strengthen the ecosystems, including finance, technology, skills, that make sustainability durable

This edition of the Global Sustainability Summit is both a milestone and a launchpad: a moment to reflect on the progress, and a platform to strategise on how to accelerate the next phase of India’s sustainability transition, with speed, at scale, and through systems.

Author

Ms. Seema Arora pioneered the creation of services on Sustainable Development within CII. Her journey with CII began with engaging Indian Industry towards the run up to the Earth Summit in 1992. Seema Arora works with industry to build evidence & the business case for industry to invest in Sustainability and Climate Action. She works with Industry and Government to develop policy instruments and curate collaborative initiatives across sector and stakeholders. She has created and incubated innovative alliances such as India CEO Forum on Clean Air, CII Climate Action Charter, India Plastics Pact, India Business and Biodiversity Initiative, and India Business and Disability Network etc. Her portfolios in CII include Sustainable Development, Climate and Energy Transition, Circular Economy, Diversity, and inclusion. Seema Arora has a bachelor’s degree in engineering from Delhi University. She is a part of the Asian Impact Leaders Network co-created by AVPN & Rockefeller Foundation. She has thirty plus years of experience in the field of Sustainable Development

CII-ITC Centre of Excellence
for Sustainable Development

Confederation of Indian Industry

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Key Initiatives

SAARTH
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ESG
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SUP SINGLE-USE PLASTIC free

CII Cleaner Air Better Life

CLIMATE ACTION SUMMIT 2026
Resilience in Action
Energy security and climate solutions

ECO EDGE
Integrating Sustainability in Value Chains of Companies

CII Circular Economy Conference 2026

ZERO WASTE TO LANDFILL

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CII Climate Action Charter

21ST GLOBAL SUSTAINABILITY SUMMIT

CII SUSTAINABLE PLASTIC PACKAGING AWARDS

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Excellence in Sustainable Business

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Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society through advisory and consultative processes.

For more than 130 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. With its extensive network across the country and the world, CII serves as a reference point for Indian industry and the international business community.

In the journey of India's economic resurgence, CII facilitates the multifaceted contributions of the Indian Industry, charting a path towards a prosperous and sustainable future. With this backdrop, CII has identified "Accelerating Competitiveness: Growth, Resilience, Inclusion, Sustainability, Trust" as its theme for 2026-27, prioritising five key pillars. During the year, CII will align its policy advocacy, institutional initiatives, partnerships, and outreach to support Indian industry in strengthening these five interconnected pillars of competitiveness.

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CII-ITC Centre of Excellence for Sustainable Development

The CII-ITC Centre of Excellence for Sustainable Development (CESD) is the ecosystem creator for sustainable development in India. As a 20-year-old Industry-led institution within CII, the Centre drives sustainable, environmental, inclusive and climate-friendly transformation among stakeholders through research, data-driven digital tools, frameworks, collaborative initiatives and capacity development.

CESD works towards bringing local and global macro challenges to the centre stage; building policy consensus on critical issues; strengthening stakeholders' awareness and representation on policy & regulatory reforms and enabling actions that positively impact the environment, nature and communities.

With a vision to drive transformation towards sustainable development, CESD continues to play a focal role in Government-Industry dialogues on national regulations; articulating stakeholders' discourse on global policies; putting forth Indian Industry's stand on macro-economic issues and accentuating the need for sustainable and inclusive transformation.

CESD focuses on six transformational pathways: Advancing Creation of a Circular Economy; Facilitating an Enabling Ecosystem for ESG Reporting; Accelerating Nature Positive Actions; Enhancing Solutions for Clean Air; Building Climate Resilience and Low-Carbon Economy and Fostering Dialogues, Engagements & Knowledge Exchange.

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