

Event Report

PARIVARTAN

Transforming Green Growth

Climate-tech summit for accelerating supply chain sustainability

June 27, 2023 | World MSME Day
India Habitat Centre, New Delhi

Organized by



Introduction

Parivartan was organized as part of ISC's sustainable manufacturing project titled "Accelerating Clean, Equitable (ACE) Manufacturing" in India. The project is aimed at the decarbonization of the Indian manufacturing sector, especially the Small and Medium Enterprises (SMEs) which form the backbone of India's economic activity and cannot be overlooked if India is to meet its emission reduction targets. Since social equity is at the heart of ISC's work, the ACE project also naturally has a lens of equitable action and focuses not on decarbonization but *equitable decarbonization* of the Indian SMEs. Being highly energy-intensive, SMEs are increasingly facing environmental challenges like waste generation, carbon emissions, pollution, and resource depletion. This necessitates a paradigm shift towards sustainable manufacturing practices. Additionally, social challenges like gender inequity and unsatisfactory working conditions are hindering the full growth potential of SMEs as nearly half the workforce resource (i.e., women) remains untapped. Therefore, a cohesive action involving both social and environmental issues is the need of hour, for an equitable and sustainable growth of the SMEs.

Such an action would require strong liaising between stakeholders from varied fields, hence why a multidisciplinary approach is the most suitable way forward for a holistic development of India's SMEs. The imperative for **Parivartan** stemmed from this pressing requirement to instigate equitable and sustainable manufacturing practices in India and provide a common platform for intersectional conversation. Therefore, the Institute for Sustainable Communities (ISC) and the Centre for Global Affairs and Public Policy (GCAPP) organized *Parivartan¹- A Climate Tech Summit* for supply chain sustainability, to spearhead equitable and sustainable change in the Indian manufacturing sector by proactively tackling the pressing social and environmental issues. Parivartan, a one-day event held on June 27th, 2023, on world MSME day, in New Delhi, India, convened influential stakeholders including large companies having MSMEs as their supply chains, Industrial associations, MSME owners and managers, financial institutions, investors and funders, clean technology start-ups, research think-tanks and academia, ESG specialists, and government bodies. The event sought to expedite the adoption of sustainable practices and curtail the industry's environmental footprint by focusing on the interdisciplinary themes of climate finance, clean technology, and sustainable practices, with a lens of equity.

The event unfolded through three thematic super tracks of *circular economy*, *decarbonization*, and *technology innovation*. A diverse array of interactive sessions, including roundtables, panel discussions, and unique networking sessions unveiled innovative solutions, exemplary practices, and emergent technologies that hold the potential to revolutionize Indian manufacturing and usher in an equitable, and a sustainable transformation.

¹ *Sanskrit: to bring transformation.*

Agenda

Time	Program Structure			
9:15 -10:00 am	Registration and Refreshments			
10:00- 11:15 am	Opening Plenary Indian Manufacturing Sector- A Global Exemplar of Sustainable Supply Chains			
Themes				
	Roundtable Conference	Panel/Interactive Sessions		Cluster Set-up
11:30-1:00 pm	Theme: Industrial and supply chain (MSME) decarbonization <i>Anchor: TIFAC (GoI)</i>	Theme: E Mobility <i>Anchor: Redseer Strategy Consultants</i>		Theme: Driving circularity for solid waste <i>Anchor: KPMG</i>
1:15 - 2:30 pm	Lunch			
2:30- 4:00 pm	Theme: Market-Based Mechanisms for Equitable Decarbonization <i>Anchor: ISC & CGAPP</i>	Theme: Supply Chain Resource Efficiency (Waste-Water) <i>Anchor: FluxGen</i>	Theme: Sustainable Supply Chains <i>Anchor: Mahindra</i>	Theme: Innovation through Clean Tech <i>Anchor: CGAPP & India Accelerator</i>
4:00 - 4:15	Tea/Coffee Break			
4:15- 5:30	Theme: Innovation for MSME Sector Decarbonization (Ideas to Scale) <i>Anchor: Social Alpha</i>	Theme: CleanTech & Food Systems <i>Anchor: FarMart</i>		Carbon Dating for Start-Ups, Investors, & Sustainability Practitioners <i>Anchor: Samvedanam and SusMafia</i>

Thematic Sessions

Plenary

Indian Manufacturing Sector: A Global Exemplar of Sustainable Supply Chains

The Opening Plenary set the stage for an inspiring exploration of the Indian manufacturing sector's transformation toward sustainable supply chains. The opening session, held under the theme "*A Global Exemplar of Sustainable Supply Chains*", brought together visionaries, policymakers, and industry leaders to unravel the path towards a greener future. It underscored the importance of collaboration, innovation, and government support in driving the transition. The panel, moderated by Mr. Jarnail Singh, the Deputy Director at the MacArthur Foundation, included distinguished speakers:

- H.E. Freddy Svane, Ambassador at the Royal Danish Embassy,
- Mr. Sudhir Garg, Retired Joint Secretary, Ministry of Micro, Small, and Medium Enterprises (MoMSME),
- Ms. Smita Rakesh, Partner at Social Alpha,
- Mr. Suresh Kumar Kotla, Founding Director & Senior Advisor, ISC, and
- Mr. Anindya Sengupta, Director, CGAPP,

The panelists contributed to the discussion focused on Micro, Small, and Medium Enterprises (MSMEs) and their vital role in the industry.

The session commenced with an opening speech by Mr. Suresh Kotla, the Director of the Institute of Sustainable Communities (ISC). He provided an insightful introduction to ISC's mission and highlighted their inspiring endeavors in promoting sustainability and environmental stewardship with a lens of equity. Mr. Jarnail moderated the session amongst panelists asking insightful questions that brought out rich discussions.

Mr. Sudhir Garg highlighted MSMEs' unique strengths and potential to drive sustainability and innovation. He emphasized the importance of positive actions and the natural inclination of MSMEs towards environmental conservation. Sharing inspiring examples, he underlined the need for collaboration between startups and MSMEs to achieve holistic and sustainable solutions.

H.E. Freddy Svane shared Denmark's experience of reinventing itself from a fossil-based economy to a sustainable economy and emphasized the pivotal role of MSMEs in achieving sustainable development goals, both in India and globally. He stressed the importance of context-specific technologies and the need for immediate government action to support MSMEs in their transition toward sustainability.

Ms. Smita Rakesh, representing Social Alpha, an early-stage startup, highlighted the intersection of health, livelihoods, and green energy within the MSME sector. She emphasized the importance of problem identification and co-ownership, calling for increased investments in high-risk, innovative solutions. Rakesh also raised concerns about the complex nature of government schemes and the need for a unified platform for MSME solutions.

One of the key highlights of the discussion was on the theme of this year's G20 summit in India, "*Vasudhaiva Kutumbakam*", which translates to "*The Whole Earth being one family*". The participants delved deep into the concept, emphasizing the need for global unity and collaboration to achieve sustainable supply chains and address environmental challenges. The session also shed light on the Green Hydrogen Mission, a significant initiative to reduce fossil fuel imports by Rs. 1 lakh crore and achieve an ambitious target of 50 million Metric Tons (MMT) of carbon emissions reduction per annum by 2030. The participants acknowledged the potential of this mission to revolutionize the manufacturing sector and pave the way for a greener and more sustainable future.

The session concluded with Mr. Suresh Kumar reiterating the significance of inclusive and equitable sustainable development. He reminded the audience of the responsibility to create a sustainable future for the coming generations, leaving them a planet better than we inherited. In conclusion, the Opening Plenary set a strong foundation for further discussions and actions to make the Indian manufacturing sector a global exemplar of sustainable supply chains. The event brought together passionate individuals dedicated to building a greener and more sustainable future, and their collective efforts will undoubtedly shape the industry's trajectory in the years to come.

ISC and CGAPP launched two E-Directories, a CleanTech Directory and a Circular Economy Directory to strengthen market linkages between CleanTech providers and MSMEs and facilitate the decarbonization of MSMEs.

Key Takeaways

1. The panel emphasized the focus on MSMEs as drivers of change and youth involvement.
2. Prioritizing untapped areas and promoting the achievement of Sustainable Development Goals (SDGs) were highlighted.
3. Government schemes need to be more people-friendly, and digital redressal mechanisms could address issues digitally illiterate individuals face.
4. The Green Hydrogen Mission presents a significant opportunity for carbon emissions reduction and sustainable supply chains in India.



Roundtable: Industrial Supply Chain (MSME) Decarbonization

TIFAC

Participants

- Mr. Mukesh Mathur, CEO, TIFAC
- Dr. Satyendra Kumar, Co-Founder, Director, & CTO, Saurya Eneritech
- Mr. Himanshu Sharma, Investment Associate, Theia Ventures
- Mr. Hervé Breton, Deputy Country Director, AFD
- Mr. Raja Shomugam, CEO, Warsaw International & Ex-President of Tirupur Export Association
- Mr. Prosanto Pal, Associate Director, Industrial Energy, Efficiency, TERI
- Mr. Pankaj Kumar, Managing Director, Luxusfur India Private Limited
- Mr. Mukesh Gulati, Executive Director, Foundation of MSME
- Dr. Ashok Kumar, Additional Director General, BEE
- Mr. Ankur Rawal, Program Associate, CEEW
- Mr. Rajiv Kumar, General Manager, SIDBI
- Mr. Pradeep Srivastava, Executive Director, TIFAC

The panel discussion anchored by Technology Forecasting, Information and Assessment Council (TIFAC) highlighted the challenges and opportunities in enabling the transfer of green technology within MSME clusters. Each panelist provided valuable insights on decarbonizing industrial supply chains and enabling the transfer of green technology within MSME clusters. The panel discussed the challenges that the small and cottage industries face in decarbonization including limited awareness, outdated technology usage, educational background, and difficulty in penetration. They identified replicability within clusters as a hurdle due to the involvement of multiple actors that may not prioritize decarbonization. The panel proposed a cluster approach as an effective strategy to address these challenges. This approach involves MSMEs adopting decarbonization technologies, highlighting the benefits, and implementing them within a 4–5-year model. They emphasized the importance of starting small, building relationships with stakeholders, and gradually scaling up technology adoption as a key pathway to success in MSME clusters.

Financial support was recognized as a critical factor in facilitating MSMEs' adoption of green technologies. They highlighted the role of loans and financing options in assisting MSMEs in transitioning towards sustainable practices. Institutions like SIDBI were acknowledged for their active efforts in supporting energy efficiency initiatives and providing financing options for MSMEs. The panel also emphasized the need for sector-specific solutions and highlighted the importance of research and development (R&D) and collaboration in enabling decarbonization in industries such as clay-brick, DRI, BRI, and textile dye. They emphasized exploring futuristic technologies and alternative materials to reduce energy-intensive processes and achieve decarbonization goals.

Stakeholder engagement emerged as a key element in the transition towards green technology adoption. The panel emphasized the importance of multi-level stakeholder engagement, policy development, and collaboration with the startup ecosystem as vital components of successful decarbonization efforts. They highlighted the need to engage with farmers and provide them with advisory and technological support to offset carbon emissions. Measurement of decarbonization efforts was discussed, focusing on determining how and by whom it should be measured. The panel drew parallels to the transition from landline to mobile in the telecom industry and emphasized the need for a systematic and gradual shift towards green technologies. They identified bureaucratic procedures and the need for connections and verifications as challenges in this process.

Additionally, the panel highlighted the importance of reputation creation and management for MSMEs. They noted that while exporters often receive visibility and recognition, MSMEs face challenges in establishing their reputations. Building a positive reputation and gaining recognition for their sustainability efforts were identified as crucial for MSMEs to thrive in the changing business landscape.

Key Takeaways

1. Challenges in decarbonization for MSMEs include limited awareness, outdated technology, educational background, and difficulty in penetration.
2. A cluster approach, highlighting the benefits and adopting decarbonization technologies can enable the transfer of green technology within MSME clusters.
3. For MSMEs to adopt decarbonization technologies, financial support, including loans and other financing options are of vital importance.
4. Sector-specific solutions and research and development (R&D) are necessary to address different industries' decarbonization requirements.
5. Stakeholder engagement, policy development, and collaboration with the startup ecosystem are essential for achieving decarbonization goals.
6. Measurement of decarbonization efforts needs to be determined to track progress effectively.
7. Reputation creation and management are important for MSMEs to gain visibility and recognition for their sustainability efforts.



Panel: Accelerating India's Transition to Net-zero Mobility

Redseer Strategy Consultants

Panelists

- Mukesh Kumar, Associate Partner, Red Seer
- Aditya Kapoor, Head Supply & Electrification, Uber
- Vikash Mishra, Founder and CEO, MoEVing (Moderator)
- Punit Goyal, Co-founder, Blu Smart
- Vijay Kumar, Co-Founder, Tsuyo

This session, anchored by Redseer Consultancy, provided valuable insights into the challenges and opportunities of India's transition to e-mobility. It highlighted the importance of creating an ecosystem that supports Electric Vehicle (EV) adoption through localized manufacturing, affordable financing, and charging infrastructure. By addressing misconceptions and investing in the necessary infrastructure, India can accelerate its transition to e-mobility and contribute to a sustainable future.

The session focused on India's transition to e-mobility. Mr. Kumar's presentation provided a comprehensive overview of the evolution and growth of EVs in India. He emphasized the significance of achieving "Net-Zero Targets" to combat climate change and highlighted the impact of vehicular emissions on the Indian government. Kumar discussed the key factors driving the adoption of EVs, including lower operational costs, ownership advantages, and rising fuel prices. To showcase the feasibility and benefits of EV adoption, he shared success stories from Norway, China, and the US. During his presentation, Kumar addressed common misconceptions about EVs that hinder their widespread adoption. He debunked concerns related to battery charging, range anxiety, charging facility availability, performance, and battery life. By providing evidence and insights, Kumar aimed to dispel these myths and encourage a more informed perspective on EVs. He also emphasized the diverse applications of EVs in personal and shared mobility, local logistics, and commercial transportation, highlighting their versatility and potential for various sectors. A key focus of the presentation was the need for a reinvented EV ecosystem in India. Kumar highlighted the importance of localized manufacturing to meet the increasing demand for EVs. He also stressed the significance of affordable financing options to make EV ownership accessible to a wider population. Adaptable charging infrastructure was another crucial aspect discussed, emphasizing the need for a comprehensive network of charging stations that caters to different use cases and ensures convenience for EV users. Additionally, Kumar emphasized the importance of accessible retail channels to make EVs readily available to consumers across the country.

Following the presentation, a panel discussion moderated by Vikash Mishra provided further insights into the e-mobility sector. Aditya Kapoor from Uber highlighted Uber Green as a consumer-facing initiative that promotes EV adoption. He emphasized the need for increased availability of EVs to meet the growing demand for clean and sustainable transportation solutions. Punit Goyal from Blu Smart discussed the company's innovative schedule-based ride service model and the importance of efficient

charging operations to support the scalability of EVs. Vijay Kumar from Tsuyo emphasized the need to build a robust manufacturing ecosystem to meet the demand created by companies like Uber and Blu Smart. He also highlighted the significance of investing in charging infrastructure to ensure the widespread adoption of EVs.

Key Takeaways

1. India's transition to e-mobility is crucial for combating climate change and achieving sustainability.
2. EV adoption is driven by lower operational costs and rising fuel prices, with success stories from other countries showcasing the benefits of EVs.
3. Misconceptions about EVs, such as range anxiety and charging facility availability, need to be addressed to encourage wider adoption.
4. A reinvented EV ecosystem is essential, including localized manufacturing, affordable financing, adaptable charging infrastructure, and accessible retail channels.
5. Increased availability of EVs, innovative charging operations, and the development of the manufacturing ecosystem are key for sustainable growth.
6. Investment in charging infrastructure is critical to support the growing number of EVs on the roads.



Panel: Driving Circularity for Solid Waste

Powered by KPMG

Panelists

- Mr. Saket Kumar, Technical Director
- Mr. Akshay Rout, Senior fellow at Niti Aayog, Team Leader at NTMU for Capacity Building in Water and Sanitation by UNICEF
- Mr. Rishabh Bhasin, Project director, Recykal
- Mr. Akshay Deshpande, Co-founder, Switcheko
- Mr. Rohit Maskara, Project Manager, Centre for Environment Education
- Mr. Rajbir Singh, Executive Director, EarthRon Management Services Pvt Ltd.

A panel discussion was held by KPMG that delved into plastic waste management, the need for robust recycling, regulations for waste management, incentivizing source segregation, and other important enablers for adopting circular economy practices in India. The session initiated with a discussion on plans and policies ruled out by the Government of India in regard to solid waste management, their framework and potential, and discourse about future plans relating to public finance, wastewater management, resource allocation, and funding in the rural and urban areas for handling of waste generation.

The significance of policy making and implementation, and role of technology in waste management was highlighted. The role of technology in waste management was especially emphasized with the need for collaboration between policy makers, implementers, regulators, and private enterprises. Panelists talked about the challenges and hurdles in promoting concepts like circularity and sustainability, with a focus on the lack of robust recycling systems and limited policy attention for bulk plastic generators considering the urgency for plastic recycling.

In the session various solutions were delved upon like promoting circularity in waste management through lifestyle changes, responsible disposal, and the formalization of the informal waste management system. The need for holistic waste management approaches, including recycling and the circular economy initiatives, and the need for a design-stage implementation of circularity in product development were given prominence. Addressing issues related to Extended Producer Responsibility (EPR), greenwashing, and the recognition and support of rag pickers were major action pointers that were thought to create a positive change in solid waste management. Government support and promotion of startups in the circular economy, addressing hurdles faced by MSMEs, and the use of incentives and funding to boost the circularity sector were also some solutions that came out of the discussion. Experts accentuated on the economic potential of recycling dry waste and generating revenue from compost. It was stated within the discussion that the core of a healthy economy is the 3 Rs: *Reduce, Reuse, Recycle*.

The importance of training green technicians training and incentivizing positive waste management actions through tax reductions was discussed. Deposit refund scheme for industrial waste management was also discussed and initiatives like The Zero Waste Foundation's initiatives in the biomedical field for solid waste management and similar inspiring initiatives in other regions were lauded upon.

The session held a detailed conversation between experts on Swachh Bharat Abhiyan and stressed on the need for sanitation and clean washroom facilities for everyone, stressing on the need to solve public defecation and the barriers and hurdles that come along with it. The impact of the pandemic on sustainability and the need to address the loopholes in providing proper sanitation in India were highlighted.

Key Takeaways

1. In urban India, there is a lack of people participating in managing the solid waste. While urban India is more tilted towards the technology advancement for waste management, rural India is more inclined towards people participation. For the success of circularity, the two need to be established hand-in-hand.
2. India has a good mechanism and technology for collection of solid waste but lacks a good mechanism for recycling it. There are approx. 200 categories of plastics out of which only 70 can be recycled and in India only 2 of these categories can be recycled so far.
3. The conversation around circularity must go beyond plastics, and include E-waste, glass, and metal as well. Similarly, India must not be restricted only to industries but include households for circular waste management.
4. The informal sector of rag pickers must be formalized as they play an important role in managing solid waste. It was suggested that rag pickers be referred to as '*safai sathis*' or '*safai mitras*'.
5. Awareness and knowing the importance of behavioral change are steppingstones towards circularity of solid waste.
6. Monetary or tax benefits to people for their successful participation in waste management could be a step in the positive direction.



Roundtable: Market-Based Mechanisms for Equitable Decarbonization

Powered by ISC & CGAPP

Participants

- Devyani Hari, Director, Centre for Responsible Business
- Vivek K. Singh, Assistant Director, Centre for Responsible Business
- Vaibhav Singh, Executive Director, PWC
- Pallavi Ahuja, Manager, Systems Transformation, WMB Coalition
- Amrita Saib, Senior Manager, EY
- Pinky Roy, Social and Environmental Validation Specialist, H&M
- Gayatri Varun, Founder & CEO, Green Heritage
- Abhishek K Srivastva, Director, ENEN Green Services

A closed-door roundtable discussion was held on Market-based Mechanisms (MBMs) for Equitable Decarbonization, which focused on leveraging market forces to enhance gender equity in India's net-zero transition. The roundtable discussion brought together experts and visionary industry leaders to delve into the intricacies of MBMs, such as labels and standards, and their role in driving gender equitable decarbonization.

The session was initiated with a presentation on advancing gender equity in decarbonization. The presentation put forth a picture of the lack of women engagement with clean technology and sustainable development, especially in context to the Indian manufacturing sector. The presentation highlighted that the gender dimension is largely missing within the action plans for decarbonization, even when increasing women's participation holds benefits for both the nations and individual organizations alike. Although there are challenges to adopting a gender inclusive approach to decarbonization, there are a plethora of opportunities that can be leveraged through a gender equitable decarbonization, including lucrative business models for manufacturing business, increased work efficiency, productivity, and creativity, and economic incentives amongst others. Market-based mechanisms like a label or a standard was suggested as a potential solution to integrate gender equity within decarbonization. Labels, in particular, were identified as a market-based mechanism that enables businesses to adopt and showcase gender-equitable value chains, allowing consumers to make more conscious choices.

The presentation was followed by a stakeholder consultation with a mixed group of climate specialists, gender experts, innovators in clean technology, representatives from large companies, and policy influencers, pertaining to the efficacy and viability of introducing a label and/or a standard for a gender equitable decarbonization.

Key Takeaways

1. Labels can serve as a strong incentive for businesses, as they not only promote inclusivity but also enhance their reputation and attract a wider customer base, especially in the current landscape of rise in customers making conscious decisions.
2. There are around 800 standards/ labels existing presently, therefore, adding a whole new standard may not be the best approach, however, what could work is to integrate gender-based standards into overarching zero-emission frameworks.
3. It is important that the implementation of such labels/ standards should align with local legislation and suit specific regional contexts.
4. Establishment of such a label must follow robust data collection, and a detailed framework that explains gender equity and has indicators that provide ways of effectively measuring it. Sector-specific analysis and gender-segregated datasets must be collected, before a new standard is put in place.
5. It is important to be aware of the negative aspects of such an approach. Such labels/standards could create disincentives to hiring women, for example, maternity leave mandates have discouraged employers from hiring women, and women are being paid less. Similarly, 'gender washing' similar to greenwashing would have to be tackled.
6. Mandates or a compliance market, rather than a voluntary market would work well for a label/ standard of this design as global brand reputation and legal mandate are the driving force for large companies. Large companies can mandate their supply chains for adoption of gender equitable green labels.
7. Financiers are the most important players/stakeholders in any such initiative. Financial incentives and investor-driven motivation for MSMEs would play an important role in increasing adoption of gender equity labels.
8. Government and women-led associations must be involved in any such effort and are important stakeholders for this initiative.
9. Sensitization of business is important before launching the label, to avoid loopholes. It is important to remember that even policies with good intentions can have detrimental effects if they are not communicated or implemented well. There is a need to build acceptance with reason, of a gender-equity label among all stakeholders first.
10. There needs to be an ecosystem approach in initiating and moving forwards with a new label such as this.
 - a. Civil society groups must be consulted and convinced of such changes because prevailing cultural norms regarding gender are strong.
 - b. Form a coalition of stakeholders to develop the idea further.
11. In establishing such labels, one must think of transitioning from female-based legislation to gender-neutral legislation, which ensures equal opportunities and benefits for all employees regardless of their gender. This shift towards gender-neutral policies can foster a more inclusive and fairer workplace, contributing to long-term sustainability.

12. Lastly, it is important to know what women want, what sectors they want to work in and under what conditions. These should form the basis for the framework of the label standard and its piloting.



Workshop: Supply Chain Resource Efficiency in Wastewater

FluxGen

The supply chain resource efficiency session, specifically focusing on wastewater, was organized by FluxGen, a cleantech startup. Unlike a panel or a roundtable discussion, this session adopted a workshop format, encouraging active participation and insights from the audience. With NITI Aayog reporting approximately 21 cities in India running out of groundwater, the workshop aimed to address the pressing issue of water scarcity. The audience stressed adopting a sustainable mindset towards groundwater usage and emphasized prioritizing water treatment as the primary goal, followed by effective water monitoring. The importance of considering water as a valuable commodity to promote responsible usage was also highlighted. The workshop emphasized the topmost priority of rainwater harvesting and the significance of transparent data on groundwater. Throughout the workshop, the audience engaged in discussions prompted by thought-provoking questions regarding the potential of wastewater as a resource amidst increasing water demand and scarcity of freshwater sources. The questions explored in the workshop were:

1. How much wastewater is generated in India in MLD (Million Liter per Day)?
2. Can wastewater be used as a resource in the face of increasing water demand and scarcity of freshwater sources?
3. Is the current wastewater treatment and management infrastructure sufficient within Indian industries to address the issue comprehensively?
4. What is the historical trend in wastewater management? Are things improving or deteriorating based on increased demand?
5. What is the impact of not working on innovative trends in wastewater treatment? Consider the costs of not treating more smartly and simply compared to the cost of treatment and the effect on revenue and return on investment (ROI).
6. Is there scope for innovation and new technologies to impact and change the landscape of decision-making in wastewater management? Are there sufficient incentivization opportunities in India?
7. Does India have a definite future for "Smart Metering" and "Smart Wastewater Management"?
8. What are the most significant challenges for MSMEs/startups engaged in the industrial wastewater arena?
9. What are the significant risks and opportunities for MSMEs and startups operating in wastewater treatment and management until 2030?

Overall, the workshop provided a platform for active participation, knowledge sharing, and idea generation toward achieving efficient and sustainable water management practices in India by 2030.

Key Takeaways

1. These questions stimulated discussions and gathered insights from the audience regarding the current state of wastewater management, potential improvements, challenges faced by stakeholders, and opportunities for innovation and growth in the sector.
2. The workshop evaluated the sufficiency and adequacy of the current wastewater treatment and management infrastructure within Indian industries and examined the historical trend in water management practices.
3. The workshop explored the scope for innovation and new technologies to impact and reshape decision-making processes, considering the availability of sufficient incentivization in India.
4. The potential future of "Smart Metering" and "Smart Wastewater Management" in India was contemplated.
5. Challenges and opportunities for MSMEs and startups engaged in the industrial wastewater arena were identified and analyzed.



Panel: Sustainable Supply Chains

Powered by Mahindra & Mahindra

Panelists

- Ms. Kiran Sarkar, Head - M&M AFS Sustainability (Moderator)
- Mr. G Harihar, Manager Business Development, Mahindra Solarize Private Limited
- Mr. Ram Sekar, Founder & Director, Canfan Private Ltd.
- Mr. Prahlad Tewari, Vice President, Environmental Management Centre Pvt. Ltd.
- Ms. Dhairya Jain, Manager, Sustainability Solutions, Recykal
- Mr. Mandar Joshi, General Manager & Lead - EHS, Gabriel India
- Dr Venkatachalam Anbumozhi, Director Research Strategy and Innovation, ASEAN & East Asia

Mahindra & Mahindra held a panel discussion for improvement and enhancement of the sustainability of their supply chains. The session began with introductions and an overview of the agenda. In the beginning, Mahindra's supply chain policies were discussed, with a specific focus on electric vehicle (EV) supply chains, supplier code of conduct, and the importance of enhancing buyer-supplier relationships. Mahindra elaborated on their supply chain policy that sets out the minimum standards that their suppliers are expected to abide by, the legal and regulatory compliances, health and safety compliance, their business ethics, and the environmental standards they diligently follow.

Mr. Harihar gave a presentation on Mahindra Solarize, providing an overview of the company, its market landscape, and the different segments it serves, including residential rooftops, solar water pumps for farmers, and commercial and industrial applications, particularly for MSMEs. Net metering, net billing, and the payback period for solar projects were discussed, along with a case study showcasing energy savings and the process flow from quote to plant installation. Mahindra Solarize's vision and mission was discussed at length.

Mr. Ram C. Sekar gave a presentation on energy efficiency opportunities through brushless direct current (BLDC) technology, focusing on air circulators. The advantages for MSMEs in adopting BLDC technology were highlighted. The efficiency comparison between BLDC and induction motors was discussed, along with their respective advantages and disadvantages in different applications. Potential MSMEs that could benefit from energy-efficient BLDC technologies were identified, and their integration into Indian Railways' energy efficiency action plan was explored. A detailed discussion was carried out on various challenges faced in implementing green energy solutions by the MSMEs, market linkages being a major one.

Further, the panel reviewed circular economy initiatives, statistics on material consumption, European Commission's Green Deals, and the concept of extended producer responsibility, particularly in reducing packaging waste. Business models related to clean energy and food waste were discussed, highlighting the role of Municipal Corporations (MCGs). Three supply chain policies were elaborated in detail:

1. Code of Conduct,
2. Green Supply Chain and,
3. Conflict Minerals.

Supply chain capacity building was discussed in detail with training revolving around essentials of sustainability, workshops on zero waste to Landfill, renewable energy, especially solar energy, and business value of sustainability.

Diversity and Inclusion were discussed at length. The workshop progressed with discussing the importance of ESG and its scope, clean technology and its scope, growth in circularity and human rights assessment, in context to Mahindra's supply chain. Mahindra's Airzon's role in promoting green energy in air circulators was introduced, emphasizing the importance of energy-efficient technologies for supply chain sustainability.

Key Takeaways

1. Mahindra & Mahindra is taking active steps towards introducing and promoting sustainability amongst its supply chain.
2. Mahindra Solarize aims to provide green energy solutions in the distributed energy space and promote green technology and sustainable solutions within MSMEs in their supply chain.
3. BLDC fans have huge scope for reducing energy consumption and increasing energy efficiency amongst MSMEs.
4. Mahindra reflected on their three supply chain policies:
 - Code of Conduct,
 - Green Supply Chain and
 - Conflict Minerals
5. Airzone, an energy efficient air circulator technology, was introduced for MSMEs.



Roundtable: Innovation Through CleanTech

GCAPP and Indian Accelerator

Participants

- Mr. Sanjay Sarma, Partner, Indian Accelerator
- Mr. Vijay Bawra, Senior Director, T-Hub
- Mr. Vishal Budhia, Founder, SteamHouse
- Mr. Avnish Kumar, Founder and CEO, LivNSense
- Mr. I. Kadek Dian Sutrisna, Persero Indonesia
- Mr. Chintan Shah, Director, IREDA

The roundtable session on Industrial Supply Chain Decarbonization focused on exploring cleantech for achieving equitable decarbonization in industrial supply chains. Panelists discussed innovative strategies, technologies, and financial tools to facilitate the transition to low-carbon practices in industrial areas. The panelists highlighted the importance of addressing challenges in industrial areas, promoting sustainable financing, utilizing AI platforms, supporting startups, and ensuring bankability in renewable energy projects. The potential of biofuels and biogas was acknowledged, but challenges like market access and pricing must be overcome. These strategies allow industrial supply chains to achieve equitable decarbonization and contribute to a cleaner and more sustainable future.

Vishal Budhia from Steamhouse emphasized addressing challenges like black smoke and inefficient boilers in industrial areas. He proposed implementing a single large boiler and utilizing agro-waste and municipal waste as energy sources to increase efficiency and reduce fuel consumption.

Mr. I. Kadek Dian Sutrisna from Persero Indonesia discussed the challenges of green financing in infrastructure projects, highlighting initiatives like SDGs Indonesia One and Green Bonds. He stressed the role of mainstream financing avenues in supporting public infrastructure projects and program financing.

Avnish Kumar presented the world's first Green AI platform by LivNsense, focusing on reducing greenhouse gas emissions and improving process efficiency. Real-time data capture and alternative fuel utilization were highlighted as crucial components of the platform.

Vijay Bawra from T-Hub emphasized support for EV startups and collaboration between corporations and startups. He highlighted the role of startups in driving clean transportation adoption and reducing carbon emissions.

Mr. Chintan Shah from IREDA discussed bankability and renewable energy projects, emphasizing sustainability, replicability, and scalability as essential factors. Stable power purchase agreements in solar and wind energy sectors were key to ensuring investor confidence. Shah also discussed the potential of biofuels and biogas, emphasizing the need to address market access and pricing challenges.

Key Takeaways

1. Industrial areas face challenges such as black smoke and inefficient boilers. Solutions include implementing large boilers, utilizing alternative energy sources, and improving air pollution control equipment.
2. Green financing in infrastructure projects faces challenges, but mainstream financing avenues play a crucial role.
3. Support for startups in the EV sector and collaboration between corporates and startups drive innovation and sustainable solutions.
4. The bankability of renewable energy projects relies on sustainability and stable power purchase agreements.
5. Biofuels and biogas have potential in the energy sector, but challenges like market access and pricing must be addressed.
6. Government initiatives, support from NGOs, and mainstream financing are essential for driving decarbonization efforts in industrial supply chains.



Roundtable: Clean technology and food systems

Anchor: FarMart

Participants

- Alekh Sanghera, CEO, FarMart
- Saransh Agarwal, Chief of Staff, ONDC
- Nitisha Bansal, Associate, Matrix Partners
- Pawan Agarwal, CEO, Food Future Foundation
- Mr. Vishal Dev, Director- Sustainable Business, WWF
- Kaushal Bisht, Lead- Partnerships, Varaha

The roundtable discussion was based on a futuristic assumption claiming that “India achieves 100% Food Security in the year 2050”. In this session, organized by FarMart, focusing on the role of clean technology in food systems, six prompts were made, all of which were to be discussed in hindsight with the context that it is 2050 and India has achieved 100% food security. This approach led to a clear understanding of what actions must be initiated today to achieve the 100% food security goals by 2050.

Prompt 1: Role of Agri Tech Startups in achieving 100% food security by 2050

Prompt 2: How did agribusinesses promote biodiversity?

Prompt 3: How did we manage to finance this transition?

Prompt 4: How did Carbon markets evolve to support smallholder farmers?

Prompt 5: How did the food trade change with respect to global vs local and digital vs offline?

Prompt 6: How did India’s food systems evolve to achieve this goal?

Key Takeaways

1. The pivotal role played by agri-tech startups in advancing and developing the agricultural sector was discussed. Mr. Alekh emphasized that the introduction of technology, particularly artificial intelligence (AI) has the potential to contribute over \$600 million to the GDP of the agriculture industry and described agri-tech startups as leading the fourth wave of the technological revolution in various industries.
2. Mr. Saransh Agarwal from ONDC emphasized that solving agricultural challenges requires collaboration among corporations, startups, and the government and stressed the importance of democratizing data to facilitate a revolutionary transformation.
3. Ms. Nitisha Bansal emphasized that startups need to consider sustainability and biodiversity in their models, even if it involves some level of risk. Sustainable models cannot be achieved without addressing biodiversity concerns.
4. In the agricultural sector, financing initiatives such as reducing interest rates for farmers adopting sustainable farming practices, as done by NABARD, can incentivize the adoption of sustainable practices.

5. Mr. Pawan reflected on three significant trends in agri-tech:
 - Precision agriculture and the role of drone technology in enabling efficient farming practices.
 - Blockchain technology in enhancing food safety regulations, ensuring transparency, and building trust in the supply chain.
 - Logistics and demand aggregation to enhance operational efficiency
6. Mr. Vishal emphasized that technology alone cannot drive the promotion of biodiversity by agri-businesses and that social engineering is also necessary for the same.
7. Mr. Kaushal stated that additional expenditures by consumers for sustainable and organic products must actually go towards sustainable practices. This would ensure good source of finance for the sector, with niche customers willing to fund such initiatives.
8. Eco-labeling models to assess the effectiveness of sustainable growth practices were highlighted.
9. Standardization of sustainability practices across sectors was deemed crucial for financial institutions to maintain portfolios of sustainable investments. Establishing common conventions and standards can facilitate the financing of sustainable agriculture.
10. The speakers spoke about the role of carbon markets to support smallholder farmers and emphasized the financial incentives and opportunities such markets create. The important role of smallholders in carbon sequestration and emission reduction and various mechanisms to incentivize and reward their climate-friendly practices, was discussed.
11. The speakers spoke about the shifting equilibrium between the realms of global and local trade, entailing a discernible tilt towards the latter, with the inclination stemming from the escalating consumer demand for farm-fresh, sustainable, and regionally procured agricultural commodities.
12. Emanating as formidable agents of change, digital platforms were duly acknowledged for their catalytic role in facilitating direct linkages between cultivators and end-consumers. The speakers acknowledged the transformational impact of the digital revolution and the increased focus on local trade in shaping the food trade landscape.
13. Significance of promoting local and organic food systems to reduce dependence on long-distance transportation, supporting smallholder farmers, and adopting sustainable, traditional and indigenous agricultural practices was highlighted.
14. The speakers mentioned the importance of robust market linkages, farmer-centric policies, and financial support systems. Additionally, the development of farmers' markets, direct-to-consumer models, and community-supported agriculture initiatives was recognized as a facilitator for achieving 100% food security.

The session successfully brought out insights into how technological innovations, policy interventions, and collaborative efforts can drive positive change in the food sector, ensuring environmental sustainability, food security, and economic development. The adoption of climate-smart techniques, promotion of fair-trade practices, and the preservation of biodiversity were highlighted as key aspects of India's food system evolution.



Panel: Innovations for the MSME sector decarbonization

Powered by Social Alpha

Panelists

- Mr. Sukhmeet Singh (Co-Founder, A2P Energy Solutions)
- Mr. Rakesh Mahajan (MD, Steamax Envirocare)
- Mr. Amit Jain (Head Energy Services, Tata Power Trading Company Ltd.)
- Mr. Munish Bhatia (Co-Founder, Indian Accelerator)

The session on Innovations for the decarbonization of MSME sector highlighted insights from three different perspectives – startups, incubators and MSMEs. The challenges concerning the energy transition and decarbonization were discussed along with the role of innovation and ideas to scale-up. The session also delved into the challenges the MSME sector faces concerning transitioning to clean energy, energy efficiency and monetary savings.

Mr. Jain talked about the big challenges faced by MSMEs. Firstly, there is a striking gap between the skillset of the workers and the technology upgrade. Secondly, when it comes to MSMEs, it is not merely electrical energy, but also thermal energy that needs to be transformed, hence why only electric decarbonization would not be entirely effective for MSMEs. He further stated that the catalysts for decarbonization include three elements – lower funding costs, ease of implementation, and policy (incentives and penalties)

Mr. Sukhmeet discussed the challenges encompassing fuel switching. He stated that energy is a cost-sensitive market, and the large-scale use of coal is due to its cheap pricing, while the pricing of biofuels is very volatile. Thus, there is a need to stabilize alternative fuel prices through government intervention. Additionally, storage facilities for these fuels are important and back-end infrastructure needs to be ensured.

Mr. Rakesh mentioned that the technologies used in MSMEs are out of date and retrofit innovations are the need of the hour. Training and demonstrating new technologies on a scale is of utmost importance. He also stated that MSMEs are driven by cost-savings and must be made aware of the cost-savings opportunities by switching to green fuels such as biomass.

Mr. Munish pointed at the lack of an online platform for MSMEs and/ or startups that can create the necessary ecosystem for the MSMEs and clean tech start-ups to flourish where they can.

- Connect MSMEs with start-ups and vice versa.
- Seek redressal and possible solutions to problems that have been commonly faced by startups and MSMEs and be matched with relevant solutions.
- Get legal support.
- Access to Intellectual Property Rights and Patents.

- Access Government Support Links.
- Access Funding support where banks and NBFCs can also be integrated into such a platform.

Key Takeaways

1. The MSMEs are a 'sunrise sector' and are a highly cost-sensitive sector, as are the startups when they're acquiring customers. Technology expenses should be limited and should not take a toll on the health of the MSME.
2. Technology solutions for decarbonization need to be retrofittable and multiple fuel-based so that costs are minimized; there needs to be a seamless supply chain of biomass; end-to-end chain and after sale services will also be critical in how MSMEs adopt such solutions.
3. Training and demonstration are critical to the adoption of technologies, including consulting from startups.
4. A common platform connecting all stakeholders is also crucial in effective implementation of technologies in MSMEs which can also be used as a fintech.
5. For both startups and MSMEs to work sustainably, there needs to be a robust finance mechanism for both.
6. The positive and negative externalities of government policies need to be thoroughly revised



Networking Session: Carbon-dating for start-ups, investors & sustainability practitioners

Powered by Sustainability Mafia and Samvedanam Consulting

Carbon Dating, the flagship networking event of the Sustainability Mafia, was recently held at Parivartan in association with Samvedanam Consulting and Learning Solutions Private Limited. The event uniquely aimed to foster collaboration among climate startups, investors, and corporations, offering a platform for purposeful conversations and meaningful connections. The event adopted a unique format that facilitated 10-minute interactions between startups and investors/corporates, ensuring that each startup had ample time to pitch their ventures and engage in discussions with interested parties.

The event allowed startups to present their innovative solutions to potential investors, allowing them to showcase their ideas and receive valuable feedback. By dedicating sufficient time to each startup, Carbon Dating Session ensured that the entrepreneurs had the chance to convey their vision effectively and address any questions or concerns from investors.

In addition to the structured pitch sessions, Carbon Dating Session featured an open floor session where startups and investors could continue their discussions and explore potential collaborations. This session provided a platform for further pitching and conversations, allowing for deeper participant engagement. It created an environment conducive to idea sharing, networking, and building partnerships that could drive sustainable solutions forward.

The event attracted 23 startups that brought diverse ideas and innovations focused on tackling climate change and promoting sustainability. These included DigitalPaani, SuperHumanRace, Qudrat, PadCare Labs, Climes.io, FluxGen Technologies, and Smart Joules amongst others. On the investor side, the Carbon Dating Session saw the presence of 11 notable investors including Amazon Sambhav, Blume Ventures, Cactus VP, Social Alpha, and Theia Ventures. Each investor had the opportunity to interact with at least five startups aligned with their specific investment interests, facilitating a successful cross-pollination of ideas and establishing valuable connections.

Carbon Dating served as an essential gathering for the sustainability community, and fostered connections, facilitating meaningful discussions that can drive positive change in the fight against climate change. The event demonstrated the power of collaboration between startups, investors, and corporations in advancing sustainable solutions and building a more resilient future.





Impact

Parivartan was a one of its kind event that brought together a varied group of stakeholders onto the same platform to give bigger perspectives to the existing climate conversations and promote an intersectional approach to developing solutions to the climate crises and challenges at hand. The conversations, potential partnerships/ collaborations, and the rich solution-oriented discussions that came out of the various sessions of the event validated the importance of such gatherings. It painted a bright and promising picture for the scope of multidisciplinary outlook in forming action frameworks for the event helped strengthen the clean technology ecosystem by facilitating international clean tech transfer, and providing an opportunity for networking between national and international cleantech innovators and climate tech investors, thus bridging the gap between the cleantech innovators and financial institutions for increased climate tech deployment. The event also provided an exciting opportunity for startups to pitch their ideas in front of a global audience and meet investors in an unconventional speed dating format to match the right technologies to the right investors. The innovative Carbon-Dating event stimulated a successful cross pollination of 11 investors and 23 start-ups, creating an exciting synergy of partnership between two key players in the decarbonization ecosystem.

One of the major highlights of Parivartan that will leave a lasting impact on India's sustainability landscape especially in context to the India manufacturing sector is the introduction of the possibility of using decarbonization as a platform to advance social equity, like gender equity, by following an intersectional approach. The amalgamation of gender equity with decarbonization through utilization of tools like market-based mechanisms (example: gender equitable green labels and standards) and other business models, will help advance equitable ecosystems in Indian industries while simultaneously promoting efficient and holistic decarbonization. In the session dedicated to exploring market-based mechanisms for advancing gender equity within India's decarbonization journey, climate experts, gender experts, large businesses, and think tanks came together for the first time to discuss the opportunities, challenges, and benefits that this intersectional approach unlocks. India's energy transition as a nation and that of individual business/ organizations, cannot be successful without encompassing the social aspects. At Parivartan the existing conversations on *decarbonization* were rightfully pivoted towards *equitable decarbonization* of India

Parivartan was a success in its ability to showcase the magnitude of action required and the importance of multilayered integrative synergy between diverse stakeholders for India's successful transition to net-zero. Over 10 sessions on topics ranging from solid waste management, E- mobility, supply chain decarbonization and resource efficiency, cleantech innovations and deployment, to market-based mechanisms for equitable decarbonization were attended and by representatives from large companies having MSMEs as their supply chains, Industrial associations, MSME owners and managers, financial institutions, investors and funders, clean technology start-ups, research think-tanks and academia, ESG specialists, and government bodies. The event brought out the complex interconnected nature of action required to achieve our climate goals and opened pathways for new connections and fresh approaches to it, providing a platform for the same.

At its core, Parivartan propelled an unequivocal intent: to galvanize collective action toward achieving net-zero carbon emissions across Indian MSMEs and large businesses. By centering on interdisciplinary themes such as climate finance, clean technology, and sustainable practices, the event aimed to inspire and mobilize stakeholders to catalyze the widespread adoption of equitable sustainable practices, foster a tangible reduction in environmental impact, and provide a collaborative platform for knowledge-sharing and partnership formation. The event endeavored to bridge diverse sectors, including business, academia, innovation, and finance, forging synergistic alliances and fostering substantive initiatives towards an equitable net-zero transition.

Testimonials

'I feel energized because today we are discussing transforming green growth in India. It is also MSME day, and we know that in all economies across the world, be it the Indian economy or the Danish economy, MSMEs are the backbone, and we have to create a platform to help them so that they can be a part of the green growth. That is the future for them and for all of us!' - **H.E. Freddy Svane, Ambassador at the Royal Danish Embassy**

'Giving recognition to the MSMEs as natural innovators in today's conversation is a highly motivational statement that can generate positive climate action. MSME needs to join hands and work together to optimize climate action' - **Attendee.**

'The biggest challenge to green and sustainable growth of MSMEs in India that needs to be addressed immediately is the lack of widespread availability of clean, advanced technology and the financial support and funding for the uptake of these technologies' - **Pradeep Srivastava, Executive Director, TIFAC**

'It is heartening to hear that the conversations are moving beyond electricity and energy decarbonization, and we are now considering process decarbonization, however, we are still not talking as aggressively about equity and inclusivity in decarbonization as we should be' - **Tejaswini Kulkarni, Attendee**

'MSME and start-ups in India have a big role to play to in the decarbonization of both energy and transport sector, and it will only be possible if we come together for synergized action' - **Puneet Goyal, Co-Founder, BluSmart**

'The Carbon Dating session was very well curated and the matchmaking of startups with investors was exceptional. The elevator pitch format for start-ups was useful for the investors to gauge their skills and capability in a short-span and to even redirect start-ups to other relevant investors' - **Himanshu Sharma & Waroon Chhabra, Theia Ventures**

Way Forward

Parivartan only initiated what must become a regular common practice for achieving climate goals and solutions to climate challenges at hand. It provided a common liaison platform for all stakeholders to come together for meaningful collaboration, share fresh ideas, present expertise on niche beneficial topics for equitable decarbonization, and form a starting point for concerted effort towards achieving net-zero. For an event like Parivartan to leave a lasting impact on the sustainability landscape, it is imperative that conversations are continued after the conclusion of the event and synergized action is propagated.

Facilitation of potential beneficial partnerships to create opportunity for new projects through collaboration is the way forward. Such partnerships could effectively fill gaps in expertise of climate experts and social equity experts to create amalgamated pathways for inclusive and equitable decarbonization, for example, collaborations between gender experts or anthropologists for climate projects and/ or between clean tech providers for projects on women livelihoods etc. Parivartan platform also has the potential for strengthening market linkages and becoming a one stop shop for all sustainability and climate action related challenges for MSMEs.

About the Organizers

Institute for Sustainable Communities (ISC) is an international, non-profit organization that works to support communities by creating, implementing, and scaling equitable climate change solutions for communities at the frontline of the global climate crisis. Our unique, bottom-up approach ensures solutions emerge from within communities, rather than being imposed from the outside. By sharing international best practices and experiences, providing technical expertise and training, and building the capacity of local organizations, we support innovative solutions and sustainable change. Since our founding in 1991 by former Vermont Governor Madeleine M. Kunin and former ISC President George Hamilton, ISC has led transformative, community- driven projects across the globe. Over the years, we have developed an approach that supports a community's ability to meet challenges head on.

MISSION: Our mission is to create equitable, climate change solutions around the world. We do this by forming collaborative, people-focused partnerships that support communities disproportionately impacted by the global climate crises.

Center for Global Affairs and Public Policy – CGAPP (formerly CGSK) is a non- profit, independent organization set up in 2021 to facilitate interdisciplinary research on governance, the economy, and issues of global significance. It purports to generate research on issues related to sustainable development, public policy, evaluation of government interventions, economic policy, trade, and commerce as well as international relations and politics and regional and global dynamics from an Indian perspective. CGAPP brings together a body of prominent academicians, scholars and professionals from diverse disciplinary and professional backgrounds articulating different positions on themes and issues to facilitate constructive policy design and issues and encourage broader awareness about global affairs. Our organization intends to collaborate with national and international research organizations to promote greater exchange and dissemination of ideas on issues of common concern.

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