1 OCTOBER 2024

PARIVARTAN 2.0

Climate-Tech Summit: Strengthening Urban Resilience

India Habitat Centre | New Delhi, India

EVENT REPORT

Introduction to
PARIVARTAN 2.0

Parivartan is a signature initiative focused on urban resilience and climate-tech solutions. Conceptualised and organised by the Centre for Global Affairs and Public Policy (CGAPP), the summit is designed to address the pressing challenges cities face due to climate change, rapid urbanisation, and the growing impact of globalisation. By bringing together a wide array of stakeholders, from policymakers and civic leaders to startups, philanthropies, and corporates, Parivartan provides a dynamic platform for collaboration and innovation to shape the future of urban sustainability.

The second edition of Parivartan took place in New Delhi, India, and expanded its scope beyond the previous edition, exploring the broader themes of urban resilience. With cities projected to house two-thirds of the world's population by 2050 and contributing over 70% of global greenhouse gas emissions, the summit emphasised the urgency of resilient urban planning, particularly in rapidly urbanising countries like India. Here, cities are often expanding without comprehensive master plans, exacerbating vulnerabilities to climate risks and urban infrastructure strain.

Building on the success of the inaugural edition in June 2023, which focused on sustainable supply chains within the manufacturing sector, Parivartan 2.0 introduced three key supertracks: Circular Economy, Urban Resilience, and Green Skills. These supertracks framed the discussions and helped explore innovative solutions to make cities more adaptable to the complex challenges they face.

Through this evolving platform, Parivartan continues to advance critical dialogues and foster partnerships aimed at transforming cities into hubs of sustainability and climate resilience.

EVENT AGENDA

TIME & TOPIC

9:30- 10:00 AM

Refreshments and Registrations

10:00- 10:15 AM

Welcome Address:

- Opening Remarks
- Context Setting

10:15- 11:15 AM

Resilient Cities -Identify challenges, opportunities, and recommendations

A discourse between decision makers and Civic leaders from various states and cities, knowledge partners, and climate- tech startups.

(Silver Oak)

Legal and Compliances for Startups

India Juris

A session focussing on addressing the legal, policy and compliance constraints faced by the startups.

Yashika Bhalla- Advocate, Senior Associate, India Juris

(Magnolia)

11:15- 11:30 AM

Solution Showcase -

Mapping and presentation by ***CGAPP***

Startup Exhibition

Break

11:30 AM- 13:00 PM

Networking with Decision Makers

A tailored session linking government stakeholders with solution providers, followed by open networking.

(Silver Oak)

Startup Sprouts: Nurturing New Ideas

We Incubate

Carbon date among budding entrepreneurs and incubators.

(Magnolia)

Lunch Break

14:00 PM- 17:00 PM

Entrepreneur Express: Pitch your ideas *Samvedanam*

Experience a dynamic pitch session where handpicked climate- tech startups get to pitch in front of a stellar cast of funds and angel investors.

(Silver Oak 1)

14:00 PM- 15:30 PM

Resilient Kerala-Digital Public Infrastructure for Agile Planning and Governance

Dr. M Satish Kumar, Qeens University Belfast and Chairman KUPC
Dr. Sharmila Mary Joseph, Pr Secy LSGD, Government of Kerala
Prof. K T Ravindran, Eminent Architect and Urban planner
Prof. Ashok Kumar , Dean SPA ,New Delhi
Dr. Debolina Kundu, Director NIUA
Tikender Panwar, Former Deputy Mayor of Shimla and Urban Affairs expert
Shri M.K.Varghese, Mayor of Thrissur Municipal Corporation
Dr. Md Foroz, NIT Calicut
Dr. Ajith Kaliyath, Urban Chair Prof KILA
Krishanu Ranwan, Founder, PPN

(Magnolia)

14:00 PM- 15:30 PM

Exploring Alternative Construction Material

Amwoodo
Brigade Reap and Rainmatter Foundation

An exploratory conversation about the innovative construction material and the ecosystem evolving around it.Deep dive into the challenges faced by the innovators and users.

Moderator:
Abhay Garg- Brigade REAP

Panellists:
Agni Mitra- Founder, Amwoodo
Ziaur- Co-Founder, Paving Plus
Kunjpreet Arora- Founder, Angirus
Shriti Pandey- Founder, Strawcture
Sanchit Singhal- Managing Director, Lubon Infrachem Pvt Ltd
Mounica Kavya- Senior Consultant, Delhi Govt
Atul Kundalia- General Manager, Engineering, Max Estates
Mayank Chourasiya- Co-CEO, Arentherm

(Silver Oak 2)

High Tea

17:00 PM- 18:00 PM

Green Skill Workshop

IYCN and Climate Reality

A session focused on talent recruitment for startups, NGOs, and Urban Local Bodies with the unveiling of a framework.

Session Facilitators
Ashish Pahwa- Former President, IYCN
Dr.Sakshi Grover- The Climate Reality Project India & South Asia

(Silver Oak 1)

16:00 PM- 18:00 PM

CSO Meet

Fitsol

A dynamic networking session designed to bring together Chief Sustainability Officers and innovative startups. This unique event aims to foster collaboration, leveraging the strengths of both sectors to address common goals and challenges.

Vinod Thusu- Lead Sustainability, Hero MotoCorp Limited.
Anuj Kumar Bhatiya- Chief Strategy Advisor, Smartgram
Sapna Bhawnani- VP Communications and CSR APAC, Alstom group
Sandeep Shrivastava- CSO, Indorama
Munish Bhatia- Co-Founder, India Accelerator and Impact Labs
Vikas Kalra- CBO, Fitsol

(Silver Oak 2)

16:00 PM- 18:00 PM

CSR Meet

Multi-stakeholders' Conference towards mainstreaming climate tech solutions in cities.

Civic Leaders, Corporates, Philanthropies, Startups, NGOs and others

(Magnolia)

Closing

ON-GROUND IMPACT IN NUMBERS

Event

100+ Startups

20+ Investors

30+ NGOs

30+ Speakers

UNPRECEDENTED ONLINE REACH:

11,000+ Views on a single Instagram post

21,000 Accounts Engaged through Instagram content

12,584 Organic Impressions on LinkedIn posts

SESSIONS AND KEY DISCUSSIONS

A. RESILIENT CITIES

IDENTIFYING CHALLENGES, OPPORTUNITIES, AND RECOMMENDATIONS

Venue

Silver Oak

Time

10:15 AM - 11:15 AM

A. RESILIENT CITIES –

IDENTIFYING CHALLENGES, OPPORTUNITIES, AND RECOMMENDATIONS

Participants

Mr. Ravinder,
Chief Executive Officer, Bareilly Cantonment

Mr. Tikender Singh Panwar,
Former Deputy Mayor of Shimla and Member of the Kerala Urban Commission

Mr. M. K. Varghese,
Mayor of Thrissur

Dr. Beena Philip,
Mayor of Kozhikode

Ms. Neha Avasthi,
Chairperson, Nagarpalika of Sitapur

Mr. Shantanu Pratap Singh,
Director, CGAPP (Moderator)

This session delved into the challenges and opportunities of building resilient cities in India. It explored various approaches to urban resilience, touching on infrastructure upgrades, disaster management, and waste management systems. The speakers also discussed how climate change impacts Indian cities and provided recommendations for improving urban infrastructure to withstand these risks.

It commenced with an opening address by Ms. Jasmine Kaur, Senior Fellow at the Centre for Global Affairs and Public Policy (CGAPP). She extended gratitude to CGAPP's event partner, Pindaar, and its sponsors, Fitsol, Longstraw Carbon, Vera, and Amwoodo, acknowledging them as successful startups in the sustainability sector.

Mr. Ravinder shared insights into how the Bareilly Cantonment operates as a self-sustaining urban entity. He highlighted the need for infrastructure upgrades such as a SCADA-enabled water supply and modernised ICU facilities in the Cantonment. He also addressed the importance of financing public projects and the integration of startups to modernise urban services like waste management and sanitation.

Mr. Tikender Singh Panwar emphasised the climate-related vulnerabilities of Indian cities. He stressed on the vulnerabilities of peri-urban areas and advocated for climate-risk-informed planning. Mr. Panwar pointed to the need for resilient infrastructure and emphasised that urbanisation in India is driven more by poverty and migration rather and not industrialisation, which makes planning all the more challenging.

A **World Bank** report estimated the need for **$840 billion to provide basic infrastructure** in India and highlighted the need for policymakers to focus on creating infrastructure that can withstand climate risks.

Mr. M. K. Varghese discussed Kerala's ambitious zero-waste initiatives and outlined the state's efforts in establishing a comprehensive door-to-door waste collection system. He also emphasised the adoption of bio-conversion technologies to handle organic waste efficiently. The state has established **240 door-to-door waste collection centres** and **source segregation** systems, along with **composting plants** and plans for **sewage treatment plants (STPs)** starting next year.

Dr. Beena outlined the city's pressing challenges, from limited land availability and dense population to climate-related issues like frequent flooding. Kozhikode's space constraints, bordered by the coast and wetlands, restrict urban expansion and contribute to severe flooding, especially in low-lying areas that are below sea level. The Conolly Canal is a key drainage channel that often backflows during high tides and worsens flood risks. While ongoing efforts to improve stormwater drainage and expand sewage treatment plants (STPs) are essential to address the issue their materialisation is constrained by space issues. Waste management has seen progress with initiatives like the Harithakarma Sena, a team of green technicians who collect and process plastic waste regularly. However, a dedicated local treatment plant is needed to sustainably manage and process this waste, reducing dependence on private agencies.

Ms. Neha Avasthi talked about the work she did in Sitapur. She mentioned the **"Nala Safai Abhiyaan,"** a pre-monsoon activity part of the Swachh Bharat Urban initiative, which the Nagarpalika of Sitapur has converted into a community-driven initiative aimed at cleaning drains to mitigate local flooding. She also highlighted her city's achievement in ranking first in Swachh Survekshan despite facing financial constraints.

KEY DISCUSSION POINTS

> **Mr. Shantanu Pratap Singh, Director of CGAPP, introduced the startups across various sectors. He stated that the innovative solutions must be aligned with real-world challenges, especially in areas such as waste collection, climate risk mitigation, and carbon credits.**

STARTUPS & SOLUTIONS PRESENTED

Longstraw Carbon

Longstraw Carbon

Sector: Carbon Credits

Solution: Specialises in carbon sequestration by planting bamboo on fallow land. They collect and manage carbon credits, selling them to companies with large emissions (e.g., cement, steel, and aviation industries). Longstraw Carbon is already working with Lucknow Cantonment and plans to expand its model to various projects across India.

Sector: Sustainable Construction & Plastic Waste Processing

Solution: Paving Plus converts plastic waste into sustainable construction materials such as paver bricks and blocks. They cater to not only individual households but also to institutional and industrial parks.

PAVING+

Paving Plus

WeVOIS

WeVOIS Labs Private Limited

Sector: Waste Collection & Management

Solution: Implements IoT-based waste collection systems with real-time data tracking. Their solution integrates route mapping and geo-fencing to monitor waste collection and processing. WeVOIS Labs also works on deploying automatic sweeping machines and provides real-time data to government bodies.

Sector: Biogas Plant Efficiency

Solution: Provides real-time monitoring and data-oriented solutions that optimise the operations of biogas plants and help them increase efficiency and commercial sustainability. BioSarthi also offers ecosystem support by connecting biogas plants with operational partners.

BioSarthi

3R Zero Waste

Sector: Solid Waste Management

Solution: Active in Gurugram and Manesar, processing 30-40 MT of waste annually. They introduced a gamified app called "Gold Coin," where users earn "Karma Coins" for sustainable actions, aiming to bring CSR organisations on board for further expansion.

Sector: Robotic Waste Management

Solution: Cosmic Healers' "Gobbler Pro" robot uses suction tubes to clean litter, particularly focusing on CSR-financed projects. The company provides robot-based solutions to handle large-scale waste management tasks.

Cosmic Healers

Bandicoot by GenRobotics

Sector: Robotic Sewer Cleaning

Solution: The "Bandicoot" robot automates the cleaning of sewer manholes. It removes the need for manual scavenging thereby creates a safer environment for sanitation workers.

Sector: Integrated Household Waste Management

Solution: A consortium of startups offering integrated waste collection, management, and processing solutions for households. Their service excludes construction and demolition (C&D) waste and hazardous waste but provides end-to-end waste management for other sectors.

ReUpyog Private Limited

Eco-Orbit Solutions

Sector: Waste Identification & Segregation

Solution: Uses AI-based software to identify and segregate waste through image recognition technology. They are working on automated robots to optimise waste segregation processes.

Plastic Fischer

Sector: Marine Litter and River Cleaning

Solution: Offers customised, low-tech solutions to collect ocean-bound trash and plastic. They are operational in states like Odisha, focusing on river and waterbody cleaning.

Sector: Water Body Cleaning

Solution: A robot equipped with advanced sensors that collects surface trash from water bodies while also monitoring water quality in real time.

Aqua Skimmer by Eunoia Innovations

Climate-B Ventures Private Limited

Sector: Climate Risk Management

Solution: Utilises high-resolution satellite and drone data to assess hydrological vulnerabilities and provide geospatial mapping for cities facing flood risks. The company designs risk mitigation solutions using these insights.

KEY TECHNOLOGIES DISCUSSED

- IoT-based waste collection systems
- Robotics for waste management and water body cleaning
- AI-based waste identification
- Nature-based solutions for waterbody rejuvenation
- Carbon sequestration through bamboo plantations
- Gamification of waste management with CSR integration

CHALLENGES ADDRESSED BY DECISION MAKERS

Kerala:
Flood management and waste collection during monsoons.

Uttar Pradesh:
Urban waste segregation and biogas plant efficiency.

Hill States:
Water body cleaning and landslide mitigation.

Delhi:
Air pollution, carbon credits, and sewer cleaning.

The session concluded with closing remarks from the Advisor to the Chief Minister of Delhi. He emphasised the critical need for collaboration between startups and civic bodies to tackle urban challenges effectively.

B. NETWORKING WITH DECISION MAKERS

A tailored session linking government stakeholders with solution providers, followed by open networking.

Venue

Silver Oak

Time

11:30 AM - 01:00PM

B. NETWORKING WITH DECISION MAKERS

The Networking with Decision Makers session provided a platform for bringing together decision-makers from various governments and solution providers from diverse sectors such as waste management, water body rejuvenation, carbon credits and climate risk mitigation. The objective of the session was to help startups understand the problems faced by municipalities and states while pitching their innovative solutions to address these challenges. The session also had an open networking segment, which allowed stakeholders to collaborate with each other.

SESSION FORMAT

The session was divided into four tables representing different states:

Kerala

Uttar Pradesh

Hill States

Delhi

Decision-makers from these states were seated at their respective tables, and participating startups rotated between the states and between decision-makers. The government officials informed the startups' representatives about the challenges and problems of their regions, and the startups provided solutions tailored to these problems.

KEY TAKEAWAYS:

- **Connection Between Stakeholders:** Establishing connections between decision-makers and solution providers (startups) is crucial for addressing urban challenges effectively.
- **Alignment of Solutions:** Solutions must align with the issues of the real world that municipalities face in their day-to-day to ensure their relevance and applicability.
- **Collaboration Importance:** A collaboration between startups and civic bodies is essential for the effective implementation of sustainability initiatives.
- **Role of CSR Funding:** Corporate Social Responsibility (CSR) funding plays a significant role in advancing innovative solutions to urban problems.
- **Need for Continued Networking:** Ongoing networking and discussions are vital for exploring potential partnerships and enhancing the deployment of solutions.

Legal and Compliances for Startups

A session focusing on addressing the legal, policy and compliance constraints faced by the startups.

Venue

Magnolia

Time

10:15 AM - 11:15 AM

LEGAL AND COMPLIANCES FOR STARTUPS

Session Facilitator:
Ms. Yashika Bhalla,
Senior Associate, India Juris

Ms Yashika Bhalla led the session and offered a clear and practical roadmap to the legal and compliance obligations necessary for startups to adhere to. The focus was on the FOUR "W" PARAMETERS of compliance—Why, What, When, and Ways—which provided a structured approach for startups to build strong governance systems.

Ms. Bhalla stated that compliance should not be seen as just a legal obligation but as a strategic tool that is important for building investor confidence. It also mitigates risks and ensures long-term sustainability. When startups adopt effective compliance practices, it not only helps them with funding but also minimises the possibility of legal disputes. Further, it also enables startups to build a reputation for ethical conduct, which is a prerequisite for their long-term success.

During the session, the following points were emphasised:

- The importance of defining clear roles for founders;
- Establishing a proper board of directors; and
- Creating founder agreements and shareholder agreements to maintain transparency and avoid future conflicts.

A robust compliance regime should include regularly holding board meetings, having control over financial records, and strictly adhering to Indian regulatory requirements such as the Companies Act 2013. Ms. Bhalla also provided a detailed checklist for startups to follow, which includes founder agreements, intellectual property protection, non-disclosure agreements, and employment contracts.

A practical timeline for compliance activities was laid out by Ms. Bhalla, which covered monthly, quarterly, and annual tasks, such as filing tax returns (GST, TDS, ESI, EPF), maintaining financial records, and submitting regulatory forms (MGT-7, AOC-4).

KEY TAKEAWAYS:

- **Investor Confidence and Risk Mitigation:** Strong compliance practices enhance investors' trust in startups, which in turn improves their funding prospects and reduces their potential for legal and financial risks.
- **Building Governance Systems:** Startups should implement structured governance by clearly defining roles, establishing a board, conducting regular evaluations, and ensuring transparency with stakeholders.
- **Business Structure and Agreements:** Selecting the appropriate legal structure (LLP, Pvt. Ltd., OPC) and creating comprehensive founder and shareholder agreements are critical to ensuring operational clarity and preventing disputes.
- **Ongoing Compliance Requirements:** Startups must meet specific monthly, quarterly, and annual compliance deadlines to stay in line with regulations and ensure smooth operations.

Startup Sprouts: Nurturing New Ideas

Carbon date among budding entrepreneurs and incubators.

Venue

Magnolia

Time

11:30 AM - 01:00 PM

STARTUP SPROUTS: NURTURING NEW IDEAS

The session "Startup Sprouts: Nurturing New Ideas" was moderated by Mr. Sonu Bajaj and Mr. Abhishek Chauhan who are Co-Founders of We Incubate. We Incubate is a startup incubator based in Chandigarh and is committed to fostering entrepreneurial growth across Tri-City and Punjab. The session created a dynamic platform for early-stage startups to connect with prominent incubators through a speed-dating format. Mr. Bajaj opened the session by outlining its structure, where startups rotated between different incubators for one-on-one, ten-minute pitching sessions.

The incubators participating in the session represented a diverse range of sectors, including prop-tech, climate tech, social impact, and defence technology. Notable incubators included Mr. Abhay Garg from Brigade REAP, who focuses on prop-tech startups; Mr. Vineet Khurana from Chandigarh Angels Network, a sector-agnostic investor; Mr. Satinder from iRise IISER Mohali, who works with tech-based and social impact ventures; and Mr. Kapil Kanekar from Innoscale Global Foundation, specialising in defence and sustainability startups.

Angirus, Healing Arc, BioSarthi, SWAN Livelihood, ReUpyog, Devic Earth, and Zero Carbon One were some of the startups that pitched their innovative ideas to the incubators. Their pitches presented solutions to pressing issues in sectors such as sustainability, health care, carbon reduction, etc. Each startup had the opportunity to present its value proposition, explain its business model, and discuss potential next steps with the incubators.

The session was highly interactive wherein the startups received immediate feedback and suggestions for refinement from the incubators. In addition to the pitches, the startups and incubators engaged in meaningful conversations. They discussed challenges, opportunities, and potential avenues for collaboration. The session proved to be a good platform for networking and idea exchange. It gave early-stage startups an opportunity to receive guidance, funding, and partnership opportunities from the incubators.

KEY TAKEAWAYS:

- **Direct Incubator Access:** Startups could pitch directly to incubators from diverse sectors, in turn gaining exposure to potential investors and collaborators.
- **Focused Pitching Format:** As the time for the pitching session was only 10 minutes, presentations were brief and to the point, allowing startups to clearly communicate their business models, challenges, and solutions.
- **Valuable Feedback:** Incubators provided their feedback to startups, guiding them to make their strategies more suitable for investment or partnership.
- **Networking and Future Collaborations:** The session facilitated a strong networking environment, with many startups and incubators engaging in follow-up discussions for possible collaborations and investments.
- **Entrepreneurial Ecosystem Support:** The event reinforced the importance of a collaborative ecosystem where early-stage startups can thrive by connecting with seasoned investors, incubators, and mentors for long-term support and growth.

Entrepreneur Express: Pitch your ideas

Experience a dynamic pitch session where handpicked climate- tech startups get to pitch in front of a stellar cast of funds and angel investors.

Venue

Silver Oak 1

Time

02:00 PM - 05:00 PM

ENTREPRENEUR EXPRESS: PITCH YOUR IDEAS

During the **Entrepreneur Express** session, startups from different sectors pitched their business ideas to a panel of investors. Key pitches included **WAYA**, a D2C e-bike manufacturer targeting resorts and campuses; **IRAALOOM**, a women-led artisanal enterprise supporting rural women through AI-backed transparency; **CLEAN WATER**, which rejuvenates water bodies through government partnerships; **REVERSE (Rudraya Wastech Private Limited)**, a tech platform focused on reusing packaging materials; **ZIPTRAX CLEANTECH**, recycling lithium-ion batteries; **PAVING PLUS**, converting plastic waste into sustainable construction materials; and **STRAWCTURE ECO**, producing carbon-negative eco-friendly interior products with international success. The session fostered engaging discussions around business models, market challenges, and scalability, offering insights for both the startups and the investors.

KEY TAKEAWAYS:

- **Design and Market Fit Matter:** Given the price sensitive nature of the market, investors' feedback to **WAYA** about the e-bike design highlighted the importance of aligning product aesthetics with customer expectations.
- **Leveraging Technology for Transparency: IRAALOOM's** use of AI for tracking production impact reflects that consumers are more demanding of transparency and that the process for ethical production will have to be transparent too.
- **Unique Business Models Can Be Game Changers: CLEAN WATER's** innovative B2G model, leasing and rejuvenating water bodies, demonstrates how startups can create win-win situations for both the public and private sectors.
- **Collaboration and Partnerships Fuel Growth: REVERSE's** partnerships with waste recyclers and a vendor model for its operations underline the significance of strategic collaborations for scaling.
- **Sustainability as a Market Driver: ZIPTRAX CLEANTECH, PAVING PLUS, and STRAWCTURE ECO** showcased how sustainability initiatives—whether in recycling or eco-friendly construction—are increasingly becoming core business opportunities with potential for social impact and international reach.
- **Overcoming Industry Barriers: STRAWCTURE ECO's** efforts to break into the traditionally rigid construction industry reflect the need for price competitiveness and gaining the trust of key decision-makers like architects.

These takeaways underscore the critical balance between innovation, market positioning, and strategic execution for startups aiming to attract investment and drive long-term growth.

Roundtable on Towards Climate Resilient Cities in Kerala

Venue

Magnolia

Time

02:00 PM - 03:30 PM

TOWARDS RESILIENT KERALA – MAINSTREAMING TECHNOLOGY AND DATA FOR AGILE URBAN PLANNING & GOVERNANCE

Speakers

Dr. M. Satish Kumar,
Senior Associate Professor and Director of Internationalisation at the School of Natural and Built Environment, Queen's University Belfast (joined virtually)

Mr. M. K. Varghese,
Hon'ble Mayor of Thrissur

Dr. Sharmila Mary Joseph,
IAS, Principal Secretary, LSGD, Government of Kerala

Prof. K. T. Ravindran,
Eminent Architect and Urban Designer

Mr. Tikender Singh Panwar,
Former Deputy Mayor of Shimla and Member of the Kerala Urban Commission

Dr. Debolina Kundu,
Director, National Institute of Urban Affairs

Dr. Mohammad Firoz,
Associate Professor and Head of the Department of Architecture & Planning, National Institute of Technology, Calicut

Mr. Krishanu Ranwan,
Founder, Public Policy Network

Mr. K Satish Nambudiripad,
Advisor, CGAPP and keen Kerala watcher (Session Coordinator)

Mr. Varghese Kandamkulathy

The session focused on integrating technology and data for effective urban planning in Kerala to combat the impacts of climate change. Dr. Sharmila Mary Joseph opened with insights on Kerala's vulnerability to natural disasters due to its unique geography. She highlighted the need for innovative, people-centric policies aligned with projected urbanisation rates of 90% by 2050.

Dr. Sharmila stressed the urgency of creative policies to manage rapid urbanisation, while Prof. M. Satish Kumar highlighted the importance of making city data accessible for urban planning. He emphasised the need for user-friendly data from the Disaster Management Authority to help inform tax collection and building by-laws.

The 2011 Census revealed that only **47% of the urbanised area in Kerela** was accounted for. The remaining **53% of the urbanised area** was not included in the planning frameworks. This discrepancy poses a huge problem to Kerala's urban planning.

The session discussed the importance of data-driven urban planning in addressing the climate crisis. It advocated for ward-level data to inform cities' Master Plans. Furthermore, challenges related to fund devolution to Urban Local Bodies under the 16th Finance Commission were raised, calling for clarity on owed funds and conditions for access.

Prof. Kumar suggested using the Disaster Climate Action Tool (D-CAT) for risk-related planning and proposed adopting Himachal Pradesh's models for geospatial planning in Kerala. He also called for a "Future Cities Catalyst" framework to leverage technology for sustainable growth, stressing collaboration between academia and industry.

Discussions revealed that Kerala currently requires approximately ₹20 crore for climate financing, highlighting the need for more robust funding sources. Dr. Jayant Ratti showcased an AI-powered urban services monitoring system using public vehicle cameras, which raised ethical concerns about privacy.

Prof. K.T. Ravindran identified critical urban planning issues such as the need for improved governance and consideration of biodiversity in development. The session concluded with a metaphor about honeybees, underscoring the fragile balance between development, environmental sustainability, and technology, followed by a vote of thanks from Prof. Kumar.

KEY TAKEAWAYS:

- **Urgent Policy Innovation:** The need for innovative urban policies is important for Kerala's limited land availability and increasing demand for sustainable habitats.
- **Data Management:** Efficient data management and user-friendly access to city data are vital for informed urban planning.
- **Climate Resilience:** Emphasis on data-driven urban planning is critical for mitigating the effects of climate change, with a focus on ward-level data.
- **Financial Challenges:** Addressing the devolution of funds and enhancing local fiscal authority are necessary for achieving urban development goals.
- **Risk-Related Planning:** Adoption of tools like D-CAT can help ULBs manage disaster risks more effectively.
- **Technology Integration:** An overarching framework for urban innovation is essential for fostering sustainable urban growth and managing data effectively.
- **Ethical Considerations:** The use of AI technology in monitoring urban services raises important ethical and privacy concerns that must be addressed.
- **Collaborative Planning:** Bottom-up planning approaches and partnerships among various stakeholders will foster holistic urban development.
- **Resilience in Governance:** Commitment from municipal leaders is critical for lasting improvements in urban governance and service delivery.

Exploring Alternative Construction Material

An exploratory conversation about the innovative construction material and the ecosystem evolving around it.Deep dive into the challenges faced by the innovators and users.

Venue

Silver Oak 2

Time

02:00 PM - 03:30 PM

EXPLORING ALTERNATIVE CONSTRUCTION MATERIAL

Moderator

Mr. Abhay Garg,
Founder, Brigade REAP

Panellists

Mr. Agni Mitra,
Founder, Amwoodo

Mr. Ziaur Rehman,
Co-Founder, Paving PLUS

Ms. Kunjpreet Arora,
Founder, Angirus

Ms. Shriti Pandey,
Founder, Strawcture Eco

Mr. Sanchit Singhal,
Managing Director, Lubon Infra Chem Private Limited

Ms. Mounica Kavya,
Senior Consultant, Delhi Government

Mr. Atul Kundaliya,
General Manager, Engineering, Max Estates Limited

Mr. Mayank Chourasiya,
Co-CEO, Arentherm

The Exploring Alternative Construction Materials session offered a vital forum for talking about the difficulties, developments, and prospects of sustainable building materials. A varied panel of experts considered the viability of using alternative materials instead of standard construction methods throughout the session, which was conducted by Mr. Abhay Garg.

Mr. Agni Mitra, the founder of Amwoodo, gave a description of his company's journey from manufacturing fast-moving consumer goods (FMCG) to producing sustainable bamboo-based materials. He emphasised the increasing demand for bamboo products, estimating a market requirement of around ₹4 crore per month. He also mentioned the difficulty faced in establishing a robust supply chain of bamboo in India which is a key aspect for scaling the production. He showcased several innovative applications of bamboo, including fire-resistant panels and sustainable flooring options, and responded to audience inquiries regarding the material's durability and fire resistance.

One of the most advantageous properties of bamboo is its rapid growth. Certain species grow as fast as upto one to three feet per day. Bamboo is a highly sustainable resource. However, an effective supply chain must be established and should be supported by both private stakeholders and government bodies.

The panellists each voiced their unique perspectives on sustainable materials. Ms. Shriti Pandey introduced her company. Strawcture Eco specialises in producing engineered panels made from straw. She presented them as eco-friendly alternatives to conventional materials like medium-density fiberboard (MDF) and plasterboard. She put forward the environmental benefits of using agricultural waste material in construction, giving an example that it not only reduces waste but also lowers the carbon footprint of building materials.

A major challenge in the alternative construction material space in India is the lack of specific codes and standards. Due to this, alternative material producers need to make sure their products meet the same testing standards as those for tradition materials suc as plywood and MDF.

Ms. Kunjpreet Arora explained how her company Angirus has taken an initiative in recycling plastic waste in to construction materials. She shared that this effort enables plastic to not only steer away from landfills, but also provides a sustainable option for construction requirements.

Mr. Ziaur Rehman shared insights from Paving Plus, focusing on the development of road construction materials sourced from recycled plastic. This approach addresses plastic waste and contributes to cost-effective road infrastructure.

Mr. Atul Kundaliya highlighted the importance of integrating sustainable technologies into real estate projects. He noted that while customers are increasingly interested in sustainability, core materials like cement, steel, and bricks are essential in construction. He also highlighted that sustainable practices typically add at least 20% in costs, a factor customers should consider. Ms. Mounica Kavya advocated for the role of better research capabilities while planning for sustainable infrastructure. She placed emphasis on the importance of data and analysis in the implementation of the alternatives. Mr. Mayank Chourasiya was of the view that along with sustainability, consideration should also be given to aesthetics. He stated that design choices that enhance visual appeal should also be paid attention to along with ecological considerations.

Mr. Sanchit Singhal, presented his company's focus on construction chemicals, particularly in waterproofing and flooring solutions, with an emphasis on sustainable practices. When Mr. Abhay Garg raised concerns about the sustainability of chemicals due to effluents, Mr. Singhal clarified that sustainability depends on using high-quality materials and following correct processes, noting that improper practices with low-quality chemicals undermine sustainability.

Throughout the session, the panellists collectively acknowledged that the path to widespread adoption of alternative materials is laden with challenges, particularly concerning supply chain bottlenecks and regulatory hurdles. They called for increased collaboration among private companies, government bodies, and NGOs to facilitate growth in the sustainable materials sector. The discussion also underscored the necessity of government support in the form of incentives and streamlined regulations to encourage investment and innovation.

The session concluded on a hopeful note, with panellists expressing optimism about the future of alternative construction materials. They were of the view that overcoming existing challenges through collaborative efforts and continued innovation is essential for realising the potential of these materials in reshaping the construction landscape.

KEY TAKEAWAYS:

- **Emerging Innovations:** The session highlighted innovative materials like bamboo, straw panels, and recycled plastic products as viable alternatives to traditional construction materials.
- **Supply Chain Challenges:** Panellists discussed the difficulties in establishing efficient supply chains for sustainable materials, particularly in India.
- **Government Support:** The need for government incentives, such as subsidies and streamlined regulations, was emphasised to support the scaling of sustainable practices.
- **Collaboration is Key:** There was a collective acknowledgement that collaboration among various stakeholders—private companies, government, and NGOs—is crucial for driving growth in the sustainable materials sector.
- **Importance of R&D:** The panellists stressed the need for continuous research and development to improve the performance and acceptance of alternative materials in the construction industry.
- **Balancing Cost and Sustainability:** The discussion highlighted the challenge of balancing the costs of sustainable materials with the need for high-quality construction, underscoring the importance of innovation to make these materials more competitive.
- **Real-World Applications:** Success stories, such as Amwoodo's bamboo products and Angirus's recycled plastics, showcased the practical applications and benefits of using sustainable materials in real-world projects.
- **Future Outlook:** The session concluded with a positive outlook on the future of alternative materials, contingent on overcoming existing challenges and leveraging collaborative efforts for innovation and scalability.

Green Skill Workshop

A session focused on talent recruitment for startups, NGOs, and Urban Local Bodies with the unveiling of a framework.

Venue

Silver Oak 1

Time

05:00 PM - 06:00 PM

GREEN SKILL WORKSHOP

Session Facilitators

Mr. Ashish Pahwa
Former President, Indian Youth Climate Network (IYCN)

Dr. Sakshi Grover
The Climate Reality Project India & South Asia

Mr. Ashish Pahwa opened the workshop by emphasising Indian Youth Climate Network (IYCN's) critical role in fostering opportunities for young climate entrepreneurs. He shared ICYN's journey and talked about its transition from an advocacy-focused entity to an action-oriented platform. He discussed how they connect startups with vital networks to promote sustainable growth in the climate-tech space.

He provided a comprehensive overview of IYCN's inception and evolution, highlighting its transformation into a leading organisation supporting youth-led climate solutions. Mr. Pahwa detailed the targeted support IYCN offers to young entrepreneurs, including mentorship programs, capacity-building workshops, and networking opportunities that enhance visibility and credibility in the sector.

He stated IYCN's commitment to developing a robust skills ecosystem for the climate-tech sector through skill development initiatives tailored specifically to youth. Mr. Pahwa addressed the systemic barriers hindering youth access to green jobs, noting that the rapid growth of the climate-tech sector has created a significant skills gap. He outlined IYCN's initiatives aimed at bridging this gap, such as hands-on learning experiences and collaborations with startups.

Dr. Sakshi Grover then gave an overview of The Climate Reality Project, which focuses on spreading climate change education and engaging youth in grassroots activism. She highlighted the importance of green skills in achieving net-zero targets and discussed the critical areas of expertise needed, such as renewable energy management, climate risk analysis, and circular economy practices.

Dr. Grover showcased several successful youth-led startups supported by the Climate Reality Project that focus on sustainable urban planning, renewable energy solutions, and waste management initiatives. She emphasised fostering innovation through education and advocacy to equip young entrepreneurs with both technical competencies and a solid understanding of climate policies.

Finally, she presented data forecasting a substantial increase in green job opportunities in India across sectors like **renewable energy, sustainable agriculture, electric mobility, and waste management.** Dr. Grover urged attendees to seize these emerging opportunities, highlighting the potential for the climate-tech sector to become a significant economic driver in India over the coming decades.

As the session concluded, both facilitators stressed the importance of having a collaborative system in place among startups, educational institutions, and civic bodies. It'd be helpful in creating a comprehensive training program capturing the unique needs of the green economy.

KEY TAKEAWAYS:

- **Youth Empowerment in Climate Tech:** IYCN and Climate Reality are committed to developing skills and providing opportunities for young entrepreneurs in climate-related sectors through mentorship, training, and networking.
- **Bridging the Skills Gap:** Both facilitators talked about the importance of addressing the skills gap in the green economy to equip youth with the practical and technical knowledge needed for the growing demand in climate-tech jobs.
- **Emerging Opportunities:** The session pointed to key areas for green jobs, such as renewable energy, electric mobility, and sustainable agriculture, with a positive outlook for employment growth in these sectors.
- **Call for Collaboration:** Collaboration between startups, educational institutions, and civic bodies was deemed crucial for creating a structured approach to building a robust green skills ecosystem.
- **Youth Leadership:** The session concluded by encouraging youth to take charge in developing and implementing green technologies, with support from platforms like IYCN and Climate Reality.

CSO Meet

A dynamic networking session designed to bring together Chief Sustainability Officers and innovative startups. This unique event aims to foster collaboration, leveraging the strengths of both sectors to address common goals and challenges.

Venue

Silver Oak 2

Time

04:00 PM - 06:00 PM

CSO MEET

Moderator

Mr. Vikas Kalra,
CBO, Fitsol

Panellists

Mr. Anuj Kumar Bhatia,
Chief Strategy Advisor, Smartgram

Mr. Vinod Thusu,
Lead Sustainability, Hero Motocorp Limited

Mr. Asim Sharma,
Senior Expert, WWF India

Ms. Gunika Grover,
Lead, Impact Lab Ecosystem

In this session, key themes surrounding sustainability in corporate sectors and the role of grassroots initiatives were discussed. Mr. Vinod Thusu outlined India's sustainability commitments.

India's sustainability commitments

- **Net Zero Goal by 2070**
- India has made significant progress by reducing emissions by 33% compared to 2005 levels and generating 202 GW of renewable energy, aiming for 500 GW by 2030.

He highlighted the importance of corporate sustainability regulations, such as the Business Responsibility and Sustainability Reporting (BRSR) initiative and the Extended Producer Responsibility (EPR) framework. He also emphasised Hero Motocorp's voluntary goals, which include achieving carbon-neutral operations by 2030 and ensuring 100% zero waste to landfill by 2025.

Mr. Vinod elaborated on the barriers to decarbonisation and resource efficiency, advocating for a holistic energy management approach that focuses on system-level efficiency rather than merely equipment improvements. He also discussed effective water management practices, which follow NITI Aayog's 3M approach—Map, Measure, Monitor—aimed at recycling and replenishing water resources. Furthermore, he described the company's waste management strategies, which prioritise waste avoidance and innovative recycling processes.

Mr. Anuj Kumar Bhatia brought attention to the social aspects of sustainability, urging that discussions should extend beyond corporate boardrooms to involve grassroots communities. He highlighted the challenges faced by MSMEs and rural populations in perceiving climate action and decarbonisation as relevant to their lives. Mr. Bhatia proposed a bottom-up approach that incorporates local governance and traditional practices in climate initiatives.

Ms. Gunika Grover presented the role of startups in advancing sustainability innovations, particularly in areas like greenhouse gas tracking and AI-driven waste reduction solutions. She emphasised the need for public-private partnerships to scale these innovations, suggesting that generative AI can significantly enhance predictive analysis and resource optimization in sustainability efforts.

Mr. Asim Sharma focused on financing sustainability projects, explaining WWF's initiatives in funding climate adaptation projects in agriculture, forestry, and water management. He stressed the importance of working with developmental banks to support large-scale sustainability efforts that prioritise biodiversity conservation.

The panellists identified various barriers to decarbonization, including high infrastructure costs and insufficient policy clarity, while advocating for the involvement of panchayats and local communities in climate action. The discussion also addressed emissions concerns, with Mr. Vinod explaining the automotive industry's shift towards water-based solvents and innovative painting technologies to reduce VOC emissions.

Audience engagement revealed the funding challenges faced by climate tech startups. Ms. Gunika noted that alternative funding channels, including government grants and impact investors, are increasingly supporting climate-related innovations. Mr. Vinod added that corporates like Hero Motocorp are integrating innovative solutions from startups into their operations to drive sustainability.

The session concluded with the panellists emphasising the necessity for collaboration across sectors—corporate, government, and grassroots communities—to achieve sustainability goals. The importance of innovation, policy reform, and community engagement in driving long-term social and environmental impact was highlighted.

KEY TAKEAWAYS:

- **Corporate Sustainability Progress:** Companies in India are actively working towards achieving sustainability goals, including the Net Zero target by 2070, with significant reductions in emissions and an increase in renewable energy capacity. Regulations like the BRSR and EPR are pushing corporations to adopt sustainable practices across their value chains.

- **Barriers to Decarbonisation:** High infrastructure costs and a lack of awareness among MSMEs and local communities present significant challenges to decarbonisation efforts. The need for policy clarity and support at grassroots levels was emphasised.

- **Community Engagement:** Engaging local governance and community functionaries is crucial for integrating sustainability into everyday life, especially in rural areas. A bottom-up approach to climate action can help simplify and localise sustainability initiatives.

- **Innovative Solutions from Startups:** Startups play a vital role in driving sustainability innovation, utilising technologies such as AI for waste reduction and climate resilience. Public-private partnerships are essential for scaling these solutions.

- **Funding for Sustainability Projects:** Financial support for climate adaptation projects in sectors like agriculture and forestry is critical. Collaborations with developmental banks can enhance funding opportunities for large-scale sustainability initiatives.

- **Policy Recommendations:** The involvement of panchayats and local communities in climate action is essential, along with collaboration between ministries and private sectors, to foster resource efficiency and sustainable practices.

- **Advancements in Emissions Management:** The automotive industry is making strides in reducing VOC emissions through innovative technologies, while tyre manufacturers are focusing on reducing natural rubber use and developing energy-efficient products.

- **Investment Challenges in Climate Tech:** Climate tech startups face significant funding challenges due to the capital-intensive nature of their work. However, emerging funding avenues such as impact investors and government grants are increasingly available to support these ventures.

- **Collaboration Across Sectors:** Achieving sustainability goals requires collaboration across corporate, governmental, and grassroots levels, highlighting the importance of innovation, policy reform, and community involvement for long-term impact.

CSR Meet

Multi-stakeholders' Conference towards mainstreaming climate tech solutions in cities.
Civic Leaders, Corporates, Philanthropies, Startups, NGOs and others.

Venue

Magnolia

Time

04:00 PM - 06:00 PM

CSR MEET

The CSR Meet was a multi-stakeholder conference aimed at mainstreaming climate-tech solutions in urban environments. This session saw CSR Heads, Philanthropies, Startups, NGOs, and Academic Institutions coming together to build partnerships for implementing climate-focused solutions in cities.

The participants included representatives from the **Rotary Foundation (India), Reliance Foundation, World Wildlife Fund, University of Kashmir, and IIT Ropar, among other prominent foundations.** Representatives introduced themselves and their organisations, sharing insights into their ongoing efforts and objectives aimed at advancing social and environmental progress. After the introductions, participants were divided into thematic groups focusing on key areas such as **road safety, waste management, water management, education and skilling, health, and livelihood.**

The format of the session was designed to maximise interaction and cross-pollination of ideas. Representatives from the foundations engaged with NGOs and startups by rotating across different thematic tables every 20 minutes. This setup ensured that each participant had the opportunity to connect with others working on similar themes, creating a vibrant space for collaboration, idea-sharing, and the potential for future partnerships.

In conclusion, the CSR Meet served as a strategic networking platform, thereby fostering meaningful conversations among stakeholders who are keen to integrate climate tech solutions into urban development projects.

KEY TAKEAWAYS:

- **Diverse Participation:** A wide range of participants from corporates and philanthropic foundations, as well as startups and NGOs, showcasing the need for multi-sectoral collaboration to address urban climate challenges.
- **Thematic Networking:** The division of participants into six thematic groups—road safety, waste management, water management, education and skilling, health, and livelihood—allowed for targeted discussions, helping the participants find common ground and explore areas of mutual interest.
- **Rotational Interaction:** The innovative table rotation format facilitated in-depth discussions and meaningful networking opportunities. Foundations interacted with multiple NGOs and startups within a short period, broadening their perspectives and fostering potential collaborations across sectors.
- **Focus on Urban Resilience:** The emphasis on climate tech solutions reflected the growing need to address urban challenges such as waste, water, and resource management through technological innovations and strategic partnerships.
- **Opportunities for Future Collaboration:** The event created an environment where participants could initiate relationships that have the potential to grow into long-term collaborations, promoting the integration of sustainable technologies and practices into urban development projects.

This conference highlighted the importance of collective action and shared responsibility in tackling urban sustainability challenges, laying the groundwork for future initiatives that can bring impactful climate tech solutions to cities.

IMPACT

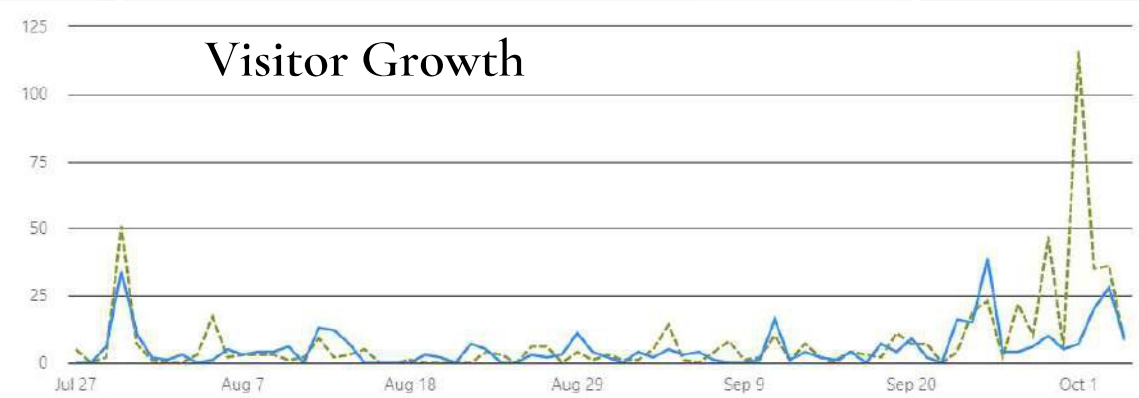
PARIVARTAN 2.0

Parivartan 2.0 made a tremendous impact in creating a vibrant ecosystem of over 100 startups, more than 20 investors, and 30 NGOs. Over 30 speakers from different parts of India joined to share their expertise in the climate-tech space. The summit emerged as a nationwide forum for collaboration, knowledge exchange, and solution-driven discussions. Startups received the unique opportunity to pitch their cutting-edge climate-tech solutions and innovations. Further, investors and NGOs explored potential synergies to address the urgent challenges of urban resilience. This broad participation showcased Parivartan 2.0's ability to convene diverse stakeholders. It highlighted its potential to bridge the gap between solution providers and potential funders or collaborators, all aligned towards a common goal of enhancing climate resilience in cities.

The geographic diversity of the speakers and startups brought forward a wide range of insights and innovative ideas that reflected the diversity of India's climate challenges. From waste management to energy-efficient infrastructure, the solutions presented at the summit demonstrated the scale of innovation required to address urban resilience across the country.

Beyond the on-ground interactions, Parivartan 2.0 also saw a significant boost in its digital footprint, particularly on LinkedIn, where an engaging social media strategy drove a marked increase in followers. This digital growth reflects the event's expanding influence and the rising awareness of critical themes like urban resilience, climate-tech innovations, and sustainable development. The enhanced digital presence positioned Parivartan as a leading forum, not just for physical discussions but also for shaping the future of resilient urban ecosystems across digital platforms.

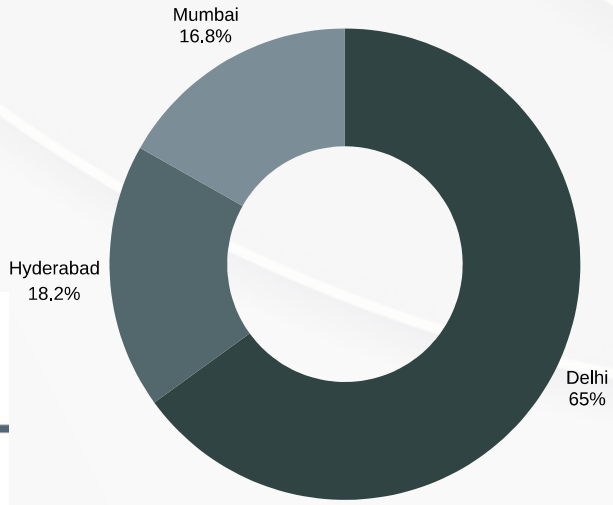
PERFORMANCE OVERVIEW



The LinkedIn page has experienced a steady increase in visitors over the reporting period, with a sharp increase in engagement on the day of the event. This indicates that the live updates campaign resulted positively.

Follower Growth & Demographics

Follower numbers have shown a significant upward trend, particularly in the Delhi region. The majority of new followers are from Delhi. This geographic concentration suggests that our content is resonating particularly well with audiences in our targeted area.



TESTIMONIALS

Nitin Srivastava

Founder,
Greengine Environmental
Technologies Private Limited

"The event was an incredible platform. I truly appreciate how it effectively Parivartan bridged the gap between startups and solution provides and governments' requirements and initiatives. The discussions were insightful, and it was inspiring to see such collaborative efforts toward driving sustainable solutions. The dedication to creating this space for meaningful dialogue and action is commendable, and I'm grateful for the opportunity to be a part of it. Looking forward to staying connected and seeing the 'Parivartan' this summit will bring!"

"The event was absolutely fantastic, providing a wonderful opportunity for startups. I sincerely appreciate CGAPP's dedication and their effort that went into organising such an outstanding event. It was a valuable experience for all participants, offering great networking opportunities, insightful learnings, and meaningful connections."

Georgin Joseph

Director,
Sustainol Solutions
Private Limited

WAY FORWARD

Parivartan 2.0 has set the stage for a future where clean-tech and climate-tech innovations play a central role in addressing some of India's most pressing national challenges. Startups focusing on these sectors are the need of the hour for a country as large and diverse as India, where climate change and extreme weather events are increasingly threatening lives and livelihoods. By nurturing these startups, India can tackle these immediate challenges and drive a new wave of innovation that raises the bar for the entire startup ecosystem. The vibrancy brought by successful clean-tech and climate-tech enterprises will be crucial in accelerating scalable solutions to critical environmental issues.

Establishing and building businesses in the clean-tech and climate-tech space may be a hurculeann task, but holds great potential for long-term impact. Success will not be measured by the number of startups emerging in this field, but by the scale and depth of the problems they solve. Parivartan 2.0 laid the groundwork for this future. It promoted a partnership between stakeholders, i.e., policymakers, civic leaders, startups, incubators, philanthropies, corporates, academia, and NGOs, while ensuring that innovative solutions are developed, supported, and implemented on a national scale. This collaborative approach will be monumental in transforming India's climate resilience and positioning it as a global leader in sustainable innovation.

Moreover, the true impact of Parivartan 2.0 will begin to materialise after the event as stakeholders engage in deeper, long-term collaborations. By continuing to connect and exchange expertise, these stakeholders will be able to bridge the gap between the problems identified and the solutions proposed during the summit. This post-event engagement is crucial to driving the large-scale adoption of climate-tech innovations.

Given the success of Parivartan 2.0, the summit is bound to expand to future editions. Each edition will address specific themes and challenges related to sustainability, urban resilience, and clean-tech. These editions will further nurture partnerships and continue to create pathways for scalable solutions, ensuring that 'Parivartan' remains at the forefront of driving sustainable urban transformation in India.

CENTRE FOR GLOBAL AFFAIRS & PUBLIC POLICY

CGAPP

ABOUT THE ORGANISERS

Centre for Global Affairs and Public Policy – CGAPP is a non-profit, independent organisation set up in 2021 to facilitate interdisciplinary research on governance, 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 organisation intends to collaborate with national and international research organisations to promote greater exchange and dissemination of ideas on issues of common concern.