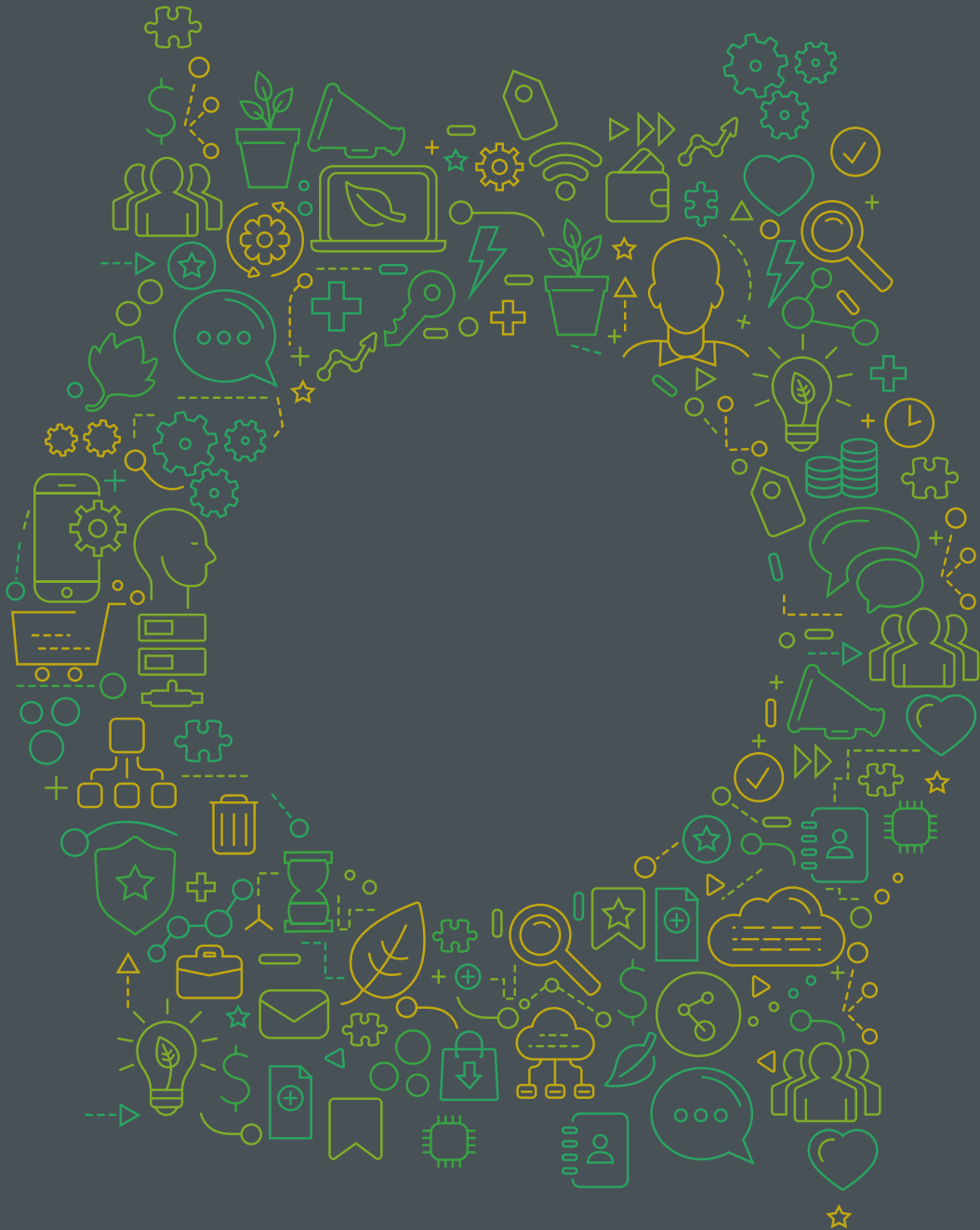


iFOREST

INTERNATIONAL
FORUM
FOR ENVIRONMENT,
SUSTAINABILITY
& TECHNOLOGY





ANNUAL REPORT

2023-24



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Message from the Board

The year 2023-24 has been a pivotal period for iFOREST, marked by significant developments and achievements. We expanded our programmes, ventured into new states, and made infrastructural advancements to support our growing team and research capabilities. Most importantly, the impact of our work is increasingly being recognized and documented.

During this year, we launched two new programmes: Urban Transition and Industrial Decarbonization, along with initial work on Air Pollution and Geoengineering. The Urban Transition programme is designed to build resilience and promote just transitions. We were proud to release one of the country's first research reports on the just transition of the mobility sector, with a focus on Maharashtra.

In Industrial Decarbonization, we initiated a comprehensive study on the Urea sector, the largest greenhouse gas emitter from agriculture and allied activities. Our upcoming report will offer a clear roadmap to address the overuse of Urea and support the decarbonization of its production process.

Our work on Air Pollution focused on identifying the key contributors to particulate matter (PM2.5) pollution. We published a PM2.5 inventory for India and Delhi-NCR, conclusively demonstrating that solid fuels like biomass and coal are the primary sources. This underscores the need to reduce emissions from these sources in order to improve air quality in India.

In the emerging field of Geoengineering, we addressed the potential and risks of Solar Radiation Modification (SRM), a technology aimed at cooling the planet. Our report on SRM, launched during a side event at the Meeting of Parties to the Montreal Protocol in Nairobi, advocated for a global regulatory framework for SRM. This pioneering report paves the way for further research and governance on this crucial issue.

Geographically, we expanded our efforts into Assam and Maharashtra. In Assam, our focus has been on renewable energy, while in Maharashtra, we have concentrated on just transition and mobility transformation. We are committed to strengthening our engagement in both states in the coming years.

In addition to these new initiatives, we continued to make significant strides in the just transition space, reinforcing our role as a leading global organization advancing this agenda. We also made notable progress in our work on biomedical waste management.

Recognizing the need to support our growing team, we relocated to a new office in Noida, which offers enhanced infrastructure and research facilities. Additionally, we established a project office in Bhubaneswar to further our work in Odisha.

Our work is gaining wider recognition, especially in areas such as Single Use Plastics (SUP), where our research has informed the Central Pollution Control Board's guidelines for measuring compliance with the SUP ban. In Maharashtra, our efforts on just transition have led to a formal request from the state government to assist in developing its just transition policy. Similarly, our work in Odisha has attracted interest and investment in the renewable energy sector.

Overall, in 2023-24, iFOREST made significant contributions toward supporting the sustainable development of the country, and we look forward to continuing this important work in the years ahead.



Raghunath Anant Mashelkar

Chairperson



Chandra Bhushan

CEO & President

ABOUT US

About Us

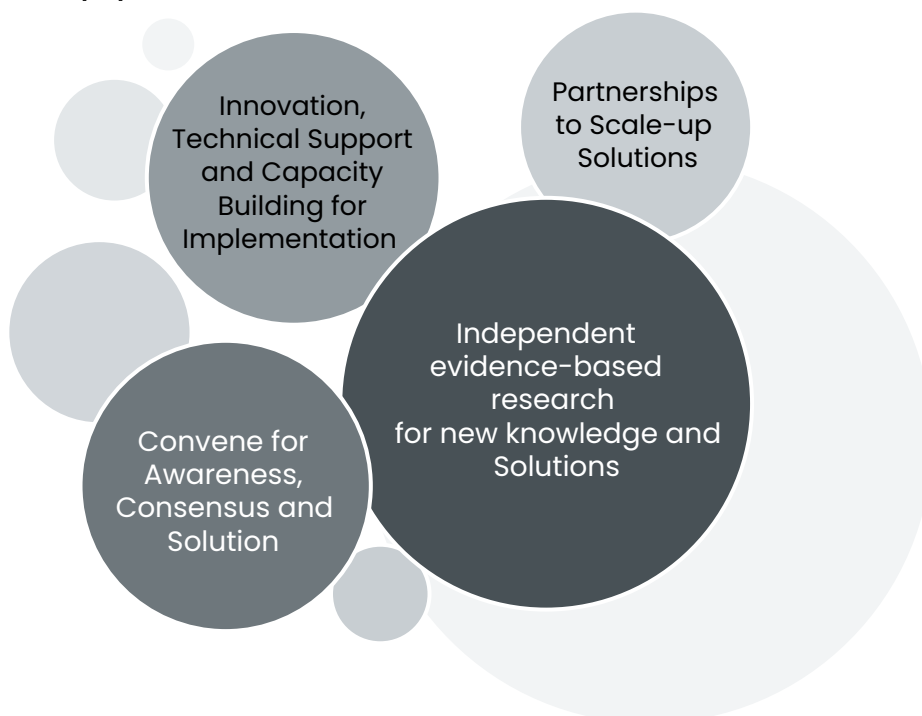
The International Forum for Environment, Sustainability and Technology (iFOREST) is an independent non-profit research and innovation organisation which was established in 2019 to identify, promote and scale-up solutions for pressing Environmental development challenges in India. Our work is guided by a commitment to sustainability and equity, ensuring that our solutions are socially just and environmentally responsible.

iFOREST's work is rooted in regional priorities to accelerate environmental actions at the sub-national level and to improve national policies and plans to support it. At our core, we are a regional organisation with a national focus and an international reach. Our mission is to address the unique needs of regions by leveraging our resources and expertise to scale up national action and make a global impact. We use our regional knowledge to inform national policies and plans and strengthen international collaboration. To achieve our goals, we conduct independent evidence-based research, develop new knowledge and innovative solutions, convene stakeholders to increase awareness and build consensus, and partner with think tanks, civil society, government agencies, philanthropies and industry to scale up solutions.

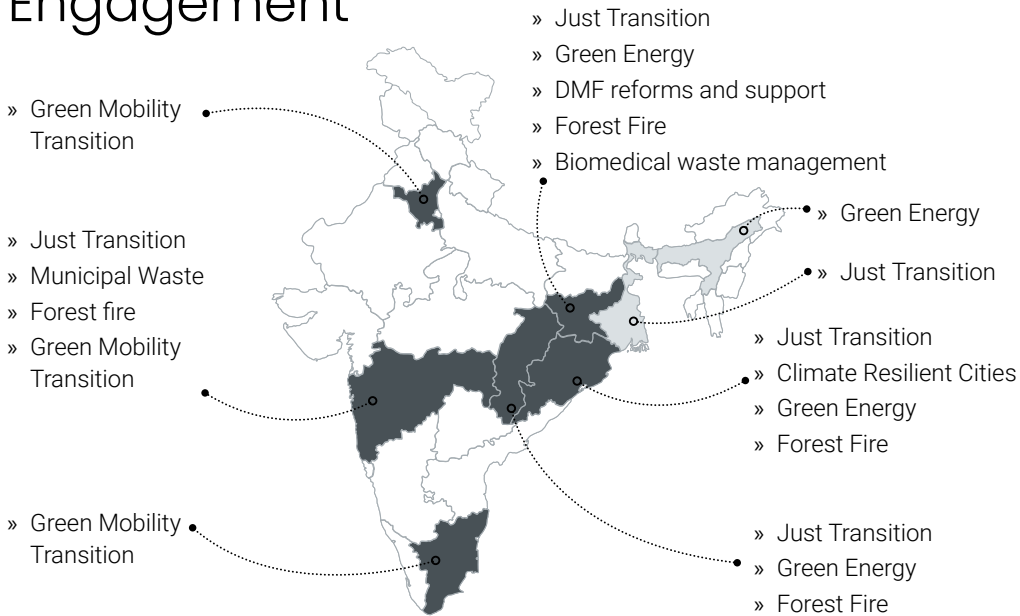
Mission

We are working for a sustainable future by generating and disseminating knowledge and by developing, supporting and mainstreaming policies, strategies, technologies and solutions that are environmentally sound, economically prudent and socially just.

Our Approach



Regional Engagement



Strategic Priorities

Addressing environmental challenges necessitates transitioning the current economy to a green economy. But this transition will not be possible or sustainable if it happens at the expense of job loss, social instability and increased poverty. Therefore, a just transition, which considers the social, economic, and environmental implications of the green transformation, is essential to garner the support of all stakeholders and establish a robust green economy. At iFOREST, our primary objective is to facilitate this just transition. All our programmes are geared towards building a green economy in India and the global South through an approach that holistically integrates environmental sustainability and social justice into economic development.

Programmes



Green Energy and Industry

- » Green Energy in 'Non-RE' states
- » DRE for livelihoods
- » Industrial Decarbonisation



Just Transition

- » Just Energy Transition



Urban Transition

- » Climate Resilient Cities
- » Green Mobility Transition



Natural Resource Management

- » Forest Fire
- » Climate-resilient Agriculture



Waste & Pollution

- » Clean Air Action Plan
- » Municipal Waste & Methane
- » Single-Use Plastic & EPR



Strengthening Environmental Governance

- » Climate Law & Institutions
- » International Climate Governance
- » Domestic Environmental Governance & Institutions

THIS YEAR'S FINEST MOMENTS

This Year's Finest Moments

*iFOREST at
COP28, Dubai*



*'Just Energy Transition
in Maharashtra' Report
Release, Mumbai*

*iFOREST's Side
Event at 35th
Montreal Protocol
Meeting, Nairobi*



*G20 Sherpa Dr Amitabh
Kant at our National ICE
to EV Meeting on Transition in
Automobile Sector, Delhi*



Dr R Mashelkar
Speaking at
our State Level
Meeting on Just
Transition of
the Automobile
Sector, Pune



Odisha Wind Energy Summit, Bhubaneswar

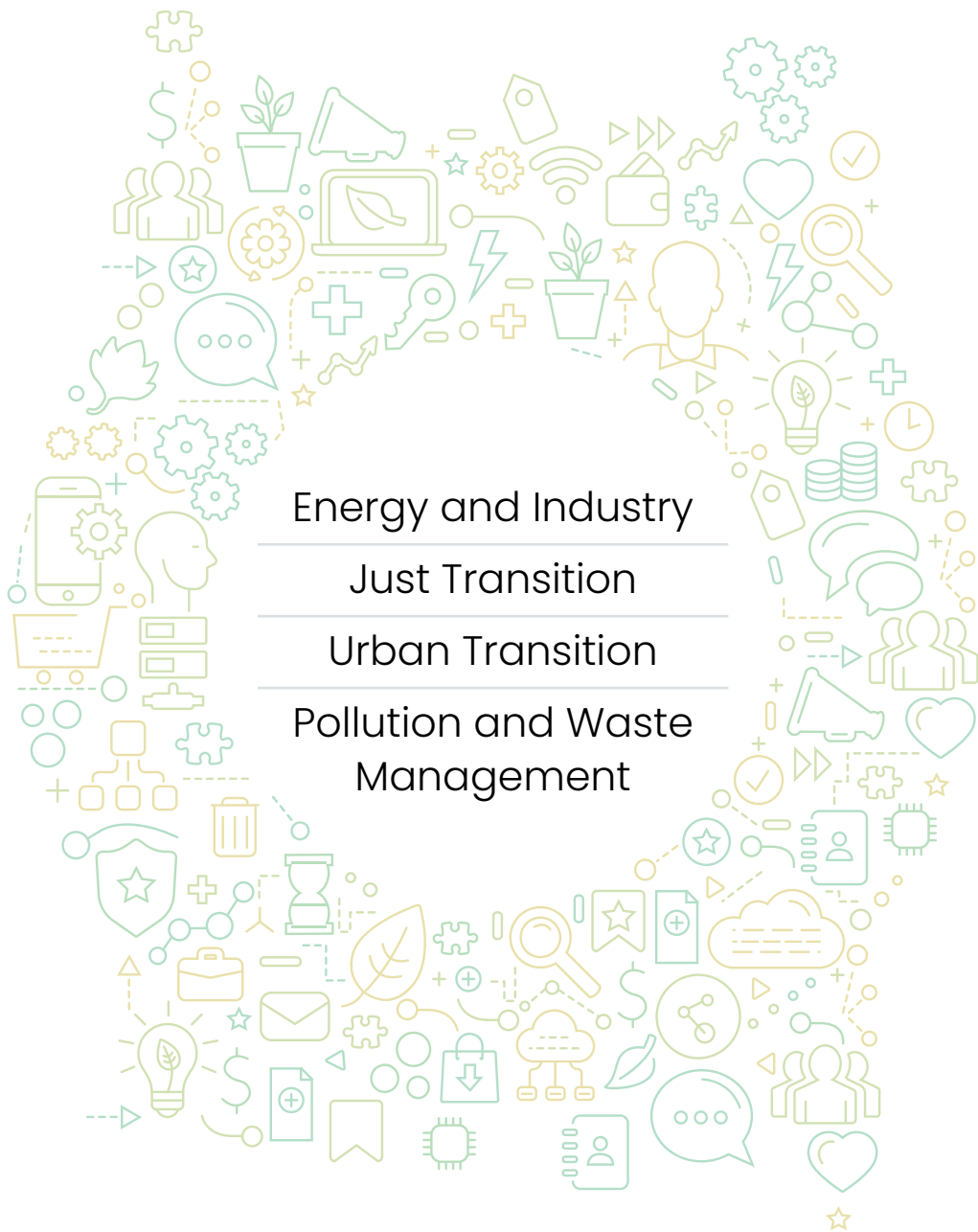


Report Release Event on 'Decommissioning of Thermal Power Plants', Delhi



PROGRAMMES

PROGRAMMES



1. Energy and Industry

Clean Energy Programme

In 2023-24, the Clean Energy Programme at iFOREST continued to focus on the development of renewable energy (RE) in 'low-RE' states – especially in the eastern region. The team carried out research and policy engagement on this subject at two levels – national and state.

At the national level, a wide range of approaches have been adopted to target the programmatic objective of developing regionally-balanced RE capacity. This includes research on inter-state procurement of power, national energy transition policies, and a deep dive into the institutional capacity of sub-national agencies.

At the same time, the Clean Energy Programme has progressed its engagement with the state-level institutions in Odisha to support implementation of Odisha Renewable Energy Policy – 2022, institutional advisory to the nodal agency and strengthening the organisational capabilities. In line with this, the team has expanded, and a new office has been set up in Bhubaneswar to work closely with the state nodal agencies.



“The eastern region states of India are progressively working towards strengthening their Renewable Energy contribution. However, there are capacity gaps that need to be addressed. iFOREST remains committed facilitating action to ensure that renewables develops in a regionally balanced manner.”

- Mandvi Singh
Programme Director

National-level research and engagement

In 2023-24, the Clean Energy Programme conducted research on the decommissioning of the old thermal power plants, explored the causes and effects of the regional disparity in the installed capacity of RE in India, while also strengthening national frameworks for energy transition. Alongside this, the team leveraged national and sub-national platforms to disseminate findings and put forth an agenda for the equitable development of clean energy in the country.

The team released two publications regarding the decommissioning of thermal power plants (TPPs). The first, a report, maps the costs of decommissioning, sources of funding utilised in other markets (both domestic and foreign), and existing provisions to aid this process in India. Financing the Decommissioning of Thermal Power Plants in India: Modes and Mechanisms (2023) concludes with recommendations for regulatory bodies – keeping in mind the Central Electricity Regulatory Commission's (CERC) request for comments on the subject.


Alongside this, the Clean Energy Programme also released Environmental Considerations in Decommissioning Thermal Power Plants (2023). The policy brief was developed in response to the draft environmental guidelines for decommissioning put forth by the Central Pollution Control Board (CPCB). As such, it includes a primer on the draft guidelines and an overview of associated acts, rules and notifications. Critically, the brief puts forth a set of recommendations, foremost among which is the need to carry out environmental impact assessments (EIAs) for plants being shut down.

Report Release and Conference on Decommissioning TPPs in India: Environmental, Social and Financial Aspects, Delhi



These publications were presented together at a report release and conference in New Delhi in September 2023. The meeting featured participation from national regulatory bodies such as CERC and CPCB, thermal energy generation companies such as NTPC Limited, NLC India Limited, and MAHAGENCO, representatives of labour unions such as Bhartiya Mazdoor Sangh and INTUC, and other key stakeholders including the World Bank, Prayas (Energy Group), and the IEA. The discussions affirmed the need for an institutional framework for decommissioning which brings together all the key stakeholders under one umbrella.

Prior to this, in July, the Clean Energy team anchored a discussion among senior officials from the states of Assam, Bihar, Jharkhand and Odisha on the side event on “Just and Inclusive Energy Transition: Planning and Financing State Action” at the Clean Energy Ministerial (CEM) held in Goa. The aim of the discussion was to deliberate on the key policy and financial issues for planning and implementing a just and inclusive energy transition in the Eastern region, including the development of RE.




Just and Inclusive Energy Transition: Planning and Financing State Action

Side event at the
CEM-14/MI-8
Clean Energy Ministerial
INDIA 2023

July 19, 2023 | 1:15 PM to 2:45 PM
Salao 3, Hotel Grand Hyatt, Goa


PANELISTS
In alphabetical order




Bibhu Bhuyan
Managing Director, Assam Power Generation Corporation Limited




Gagan Bihari Swain
Director, GRIDCO Limited, Odisha



Jitendra Kumar Singh
Secretary, Department of Industries, Jharkhand




Mahendra Kumar
Director, Bihar Renewable Energy Development Agency



Mandvi Singh
Programme Director – Energy, IFOREST

MODERATOR



Chandra Bhushan
President and CEO, IFOREST

CEM 14 Side Event on Just and Inclusive Energy Transition: Planning and Financing State Action, Goa



Workshop: Enhancing the Role of REDA in the Next Phase of RE Growth, Bhubaneswar

Continuing with the state-engagement, iFOREST in August organised a two-day workshop, 'Enhancing the Role of REDAs in the Next Phase of Renewable Energy Growth', in coordination with the Department of Energy, Government of Odisha. Renewable Energy Development Agencies (REDAs) are nodal agencies for RE at the state level, thereby playing a crucial role in facilitating investments in the sector.

Delegates from eight states participated in the event in Bhubaneswar, including representatives from states leading in the installed RE capacity as well as 'low-RE' states. The workshop served as a platform for knowledge sharing and discussion on new strategies for scaling up RE and challenges faced at the institutional, state, and national levels. The deliberations highlighted the need for re-alignment of central policymaking, the adoption of a comparative advantage approach by state policymakers, and the strengthening of institutional capacity (at the REDA level).

In line with the workshop's discussions on organisational strengthening, the Clean Energy team is currently undertaking research on the institutional capacity of REDAs in India. The study draws on interviews with senior executives and secondary data regarding human resources, finances, organisational structure, and more, at sampled state nodal agencies to identify areas of improvement for REDAs in 'low-RE' states. The report is currently being finalised and will be released soon.

Meanwhile, the team also researched the effect of national policymaking on the regional development of clean energy capacity. The 'Impact of ISTS Waiver on Economics of Renewable Energy Procurement' is a forthcoming discussion paper by the Clean Energy team at iFOREST. The study finds that while the national-level subsidy on electricity transmission has enabled distribution companies (discoms) and open-access/ captive consumers to purchase RE inter-state at affordable rates from 'RE-rich' states, it has also disincentivised capacity development in 'low-RE' states. Key to this discussion is the differential between the levelized cost of electricity (LCOE) generation (of solar) in 'RE-rich' and 'low-RE' states – which is found to be as low as Rs 0.02/kWh (one percent of the cost) in some cases.

While the REDA study and ISTS discussion paper are yet to be released, early findings from each were presented at a stakeholder dialogue in Assam.

State-level research and engagement

ODISHA

iFOREST had signed an MoU with GRIDCO Ltd. and OREDA in December 2022 to provide technical and capacity building support to nodal agencies for implementation of OREP, 2022. To deliver on these engagements, a state-level team has been established in Bhubaneswar. In 2023-24, the Clean Energy programme's Odisha team has been involved in a number of investment facilitation and policy advisory activities.

In October, iFOREST co-organised a workshop on the 'Odisha Energy Transition' in Bhubaneswar. The workshop was held to incorporate inputs from key stakeholders including industry leaders and energy sector experts for the state's energy transition planning. Participants at the meeting reiterated the need for interdepartmental coordination, sector plans (guided by detailed resource assessments), and an anchoring body to track and oversee the transition.

In November, iFOREST also co-organised the 'Odisha Wind Energy Summit – Investor Roundtable' in Bhubaneswar. The summit served to facilitate investment in the Wind energy sector (generation and manufacturing) in Odisha. It featured participation from leading RE developers, including ReNew Power, and Suzlon, and industry associations such as the Indian Wind Turbine Manufacturers Association

*Odisha Energy
Transition Workshop,
Bhubaneswar*



*Odisha Wind Energy
Summit – Investor
Roundtable,
Bhubaneswar*



(IWTMA), and Wind Independent Power Producers Association (WIPPA). At the meeting, the National Institute of Wind Energy (NIWE) presented plans for on-ground assessment of potential, identifying four viable locations for wind farms. The event featured an investment proposal of cumulatively Rs. 49.4 billion, corresponding to an installed capacity of 575 MW from different developers.

In 2023-24, the Clean Energy team in Odisha also undertook research and policy advisory roles as part of the engagement with the Department of Energy, Government of Odisha. Currently, the team is carrying out a study on the viability of pump storage plants in Odisha. Prior to this, they submitted a proposal for a solar rooftop scheme and provided inputs on the draft hydrogen policy and floating solar framework. In addition, an ongoing component of the engagement has been assistance in the tendering of projects and plants, in line with targets specified in the OREP, 2022.

Moving forward, the Clean Energy Programme intends to widen the engagement in Odisha – such as RE for captive generation – while also expanding the national level research into new domains – energy efficiency – and continuing the engagement with national and sub-national stakeholders to support energy security and efficiency, and regionally equitable RE growth.

ASSAM

In March 2024, iFOREST organised 'Enabling Renewable Energy Growth in Assam', a report release and stakeholder dialogue that was supported by the Assam Energy Development Agency (AEDA), Department of Science, Technology and Climate Change, Government of Assam. Here the Clean Energy team presented 3 reports on the 'Impact of ISTS Waiver on Economics of Solar Power Procurement in Assam', 'Enabling Renewable Energy Growth in Assam' and 'Assam Renewable Energy Potential Reassessment: Focus of Solar, Wind and Biomass'.

The 'Impact of ISTS Waiver on Economics of Solar Power Procurement in Assam' factsheet drew on the methodology of the forthcoming discussion paper to estimate the costs of procurement of electricity (generated from solar) by discoms and open access/ captive consumers in Assam. It found that electricity generated intra-state would be cheaper than inter-state alternatives if not for the ISTS waiver.

'Enabling Renewable Energy Growth in Assam' is a discussion paper that analyses the ongoing transition to clean energy in the state. Since the notification of the Assam Renewable Energy Policy (AREP), 2022, the development of nearly 2 GW of projects has been initiated. At the same time, there is a need for adjustments in policy (such as the aligning of targets with projected energy demand), and institutional strengthening of the two nodal agencies – APDCL and AEDA – to act as investment facilitators.



Report Release and Stakeholder Dialogue: Enabling Renewable Energy Growth in Assam

Lastly, 'Assam Renewable Energy Potential Reassessment: Focus of Solar, Wind and Biomass', is a re-examination of the clean energy capacity of the state, ten years after MNRE's nationwide assessment in 2014. In the wind segment, only ten sites were found to be feasible for wind energy installations due to terrain and elevation conditions. However, a substantial potential for solar and biomass is found in the state. In the solar segment, the study utilises updated wasteland data and higher levels of utilisation to find roughly 30 GW of capacity across ground-mounted, floating, and rooftop sub-segments. Similarly, the state is estimated to have 2.4 GW of biomass potential, based on crop residue surplus data from ISRO's Jaivoorja portal.

Industrial Decarbonisation

Industrial decarbonization is a part of the clean energy vertical at iFOREST. In the year 2023-24, the research project undertaken by the team was "Net Zero Pathway for Nitrogenous Fertilizer: Urea". Urea plays a very important role in Indian agriculture, as it is the most popular fertilizer among farmers because of its high nitrogen content and subsidized cost. On the other hand, urea is energy intensive and also emits large amounts of Greenhouse Gases (GHG) in the manufacturing process as well as during the application of the same in the fields. Reducing these emissions from urea is imperative to achieve the net zero goal of India by 2070.

iFOREST worked on both the supply and demand side of urea to minimize GHG emissions. The team, in collaboration with industry experts, did a detailed techno-economic study of all 36 urea manufacturing units in India. A decarbonization pathway is identified for each of the units by transitioning the energy requirement from Natural gas to renewable energy. Technology interventions considered are Green Hydrogen using electrolysis, Air separation unit and carbon capture. Year-wise financial modelling is done for all the units to find out when it will be economical to shift to green technology.

Due to its subsidized cost, urea is overused and misused in many parts of India. iFOREST did a urea demand projection of India till 2050 by developing two different scenarios, Optimal and Business as usual, and compared the same with the projections done by the Fertilizer Association of India and Food and Agriculture Organization. This is done to show how urea consumption can be controlled and accordingly the GHG emissions.

In the final step demand and manufacturing of urea are put together and the decarbonization pathway of the urea industry is portrayed. The report for the same is under finalization and is expected to be released soon.

2. Just Transition

Building upon the progress achieved in the preceding year, the Just Transition team continued to spearhead initiatives in 2023-24 to facilitate India's transition towards a sustainable, equitable future. Through strategic endeavours and collaborative efforts, the team has made significant strides in a range of activities, including national and international meetings, events, and the publication of insightful reports within the environmental sector.

International level engagements

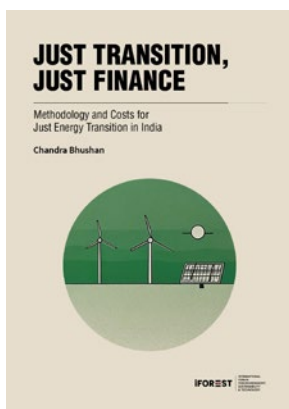
To highlight the pressing need for energy transition finance, iFOREST hosted a Global Report Launch and Webinar on January 9th, 2024, for the release of the report titled "Just Transition, Just Finance: Methodology and Costs for Just Energy Transition in India".

The report was developed to recognize the need for an empirical basis to determine the cost of just energy transition, which can help countries develop transition plans, make necessary investments, and foster global partnerships for securing finances.



"This year, taking the opportunity of India's leadership in the G20 Presidency, we have strengthened the agenda of just transition from the perspective of Global South countries. We have outlined principles and guidelines for a Just and inclusive energy transition that reflects these countries' unique transition challenges and required solutions."

- Srestha Banerjee
Programme Director



Global Report Launch and Webinar: Just Transition, Just Finance

National level engagements

In February 2024, iFOREST conducted a comprehensive assessment of the challenges and opportunities associated with a just energy transition in Maharashtra over the next three decades. In collaboration with the Department of Environment & Climate Change, Government of Maharashtra, iFOREST released the report on 'Just Energy Transition in Maharashtra: An Opportunity for Green Growth and Green Jobs'.

Report launch on 'Just Energy Transition in Maharashtra: An Opportunity for Green Growth and Green Jobs', Mumbai



Report Launch- Unlocking DMF Funds for Supporting DRE in Jharkhand



The assessment covers all fossil fuel sectors, the electricity sector, and various fossil fuel-dependent industries to support a comprehensive strategy for the transition. The report emphasizes the opportunities of the green transition, which can be supported through the right policy levers and private and public investments. The event saw diverse stakeholder participation from the government, private sector, industries, associations, and academia.

In a proactive stride towards sustainable development, iFOREST released a report on “Unlocking DMF funds for supporting DRE in Jharkhand” and organized a stakeholder meeting to discuss the opportunities for utilizing District Mineral Funds Trust (DMFT) funds to improve livelihood and job opportunities in mining-dependent districts of Jharkhand. The meeting served as a nexus for prominent figures, policymakers, and experts to delve into the strategic utilization of District Mineral Foundation (DMF) funds, with a focal point on Jharkhand’s sustainable future.

In addition to the above engagements on livelihood, iFOREST released a report on “Regulatory Framework for Enabling a Just and Inclusive Transition of Fossil Fuel Workers (2023). The report outlined a regulatory framework for ensuring a just transition of the fossil fuel workforce, highlighting the



Report Launch on 'Reform of Coal Mine Closure Guidelines to Support a Comprehensive Closure Framework Based on Just Transition Principles', Kolkata

guiding principles, necessary policy reforms, and institutional mechanisms. The report was developed in the context of the coal mining and coal-based thermal power sectors, which have huge formal and informal dependence and are central to meeting India's clean energy and net zero goals. Further, to discuss the reform agenda suggested in the report, two meetings were held in Kolkata and Delhi with worker representatives, civil society organizations, researchers and industry representatives.

Continuing the momentum, the release of the report on the "Reform of coal mine closure guidelines to support a comprehensive mine closure framework based on just transition principles" in Kolkata in 2023 marked a significant milestone in the ongoing efforts of iFOREST to develop a comprehensive mine closure framework rooted in just transition principles. Joined by representatives from Coal India Limited (CIL), including the Chairman cum Managing Director, Technical Director, Project and Planning Director, Director Personal, Director Land, and Head Environment, along with senior officials from CIL subsidiaries, the meeting brought together over 60 stakeholders from the coal mining industry and external experts. The report outlines key reforms necessary to inform government and industry stakeholders about developing such a framework, aligning with the vision envisaged by the Ministry of Coal.

Environmental and social impact assessment

Another important work the team undertook this year was Environmental and Social Impact Assessment (ESIA) study to evaluate the potential environmental and social impacts associated with the closure and repurposing of the thermal power plant units. The study was based on extensive primary and secondary research, involving surveys, FGDs, interviews through a collaborative process with the local community and the plant officials. The study develops a framework for undertaking similar studies in future and will play a vital role in the development of strategies and measure for environment and social management, aimed at minimising any adverse effects on the local environment and ensuring well-being of the workforce and communities in such areas.

3. Urban Transition

The year 2023-24 marked an exciting period for iFOREST with the launch of its Urban Transition Programme. The strategic priority for the team for the first year was 'mobility transition'. Electric vehicles (EV) are growing rapidly and have dominated the 2-wheeler and the 3-wheeler segment in India. But this technology shift has major implications on the industry structure, business models, skills and jobs, among others. However, there was no comprehensive knowledge and literature to understand this impact.

The Urban Transition team's dedicated efforts over a period of 12 months resulted in the generation of new and comprehensive knowledge in the automobile sector. The iFOREST team developed a compendium comprising seven detailed reports, providing a thorough understanding of the impact of transitioning from Internal Combustion Engines (ICE) to Electric Vehicles (EVs) on various aspects of the auto industry. These reports covered auto parts and components, auto component manufacturers, auto clusters, and the workforce. Additionally, the team formulated the first Just Transition Framework for the automobile sector, considering four key transition pillars beyond automobile manufacturing.

Substantial research was conducted at the sub-national level within three auto clusters representing the northern, western, and southern regions of the country. These clusters provided demographic representation, workforce diversity and varied industry (component manufacturers). Our on-ground research showed that Micro, Small and Medium Enterprises (MSMEs) are significantly affected by the transition. And hence, targetted interventions at cluster level and MSME level will charter the future course of transition from ICE to EVs.



“EVs are important for decarbonizing the transport sector. However, a shift from ICE to EV will have a disruptive effect on the industry and the workforce. Hence, there is a need to plan and navigate the course of action for workforce transition with the support of the government, industry, and academia.”

- Atika Wadhwa
Chief of Staff and
Programme Director

Report Release and Conference: ICE to EV: Challenges, Opportunities and the Roadmap for Just Transition in India's Automobile Sector, Delhi



The team carried out engagement and convening at the national and the state level. The report “ICE to EV: Challenges, Opportunities, and Roadmap for Just Transition in India’s Automobile Sector” was unveiled in March 2024 at a national event in New Delhi, marking a significant milestone in our journey. The event was attended by various stakeholders, including government officials, industry players, auto cluster representatives, skilling agencies, and think. The key recommendations made by the iFOREST team aimed to inform government and industry stakeholders about the development of targeted and actionable transition plans for the workforce and MSMEs, aligning with the Ministry of Heavy Industries’ vision for EV adoption. The active participation and valuable insights shared by the attendees underscored the importance of our collective efforts in this transition.

The event was inaugurated by Mr Amitabh Kant, G20 Sherpa, and Mr Hanif Qureshi, Additional Secretary, Ministry of Heavy Industries. It featured focused sessions on the transition’s impact on large enterprises, MSMEs, regional clusters, and the workforce.

The iFOREST team shared its modelling projections at the national convening which indicated that India is poised for a significant EV penetration in total vehicle manufacturing over the next 10-12 years. Hence, planning for this transition should be a focal agenda. Stakeholders, including the Automotive Component Manufacturers Association of India, Automotive Skill Development Council, OEMs, MSMEs, and labour unions, engaged interactively to discuss the next steps towards this transition.



Panel Discussion on the Impact of Transition on Large Enterprises at the National Level Event, Delhi



Report Release and Conference on Navigating the Shift: Just Transition Roadmap for Maharashtra's Automobile Sector, Pune

Conversations initiated in New Delhi continued with subsequent focused convenings in Pune, Maharashtra, and Chennai, Tamil Nadu, India's two most significant auto clusters.

In early April, a multistakeholder meeting was held in Pune to release a report titled 'Navigating the Shift: Just Transition Roadmap for Maharashtra's Automobile Sector'. The event brought together eminent individuals from the state, including scientists, economists, government officials, and industry leaders. Discussions aimed to develop a strategy and comprehensive roadmap for a just transition of the automobile sector to ensure positive environmental and socio-economic outcomes. Representatives from institutions such as the Gokhale Institute of Politics and Economics, Maratha Chamber of Commerce and Industry, ARAI, Department of Environment and Climate Change, Tata Motors, and School of Automobile Engineering, Symbiosis Skills and Professional University contributed to meaningful and relevant discussions.

Our convening in Chennai received an encouraging response, with support and participation from Guidance Tamil Nadu, Tamil Nadu EV Task Force, Confederation of Indian Industry (CII), leading OEMs, think tanks, component manufacturers, skill institutes, academic institutes, and others. Discussions revolved around targeted policy and regulatory interventions to ensure preparedness for this transition, recognising its socio-economic and environmental implications.

Roundtable Discussion on Just Transition Roadmap for Tamil Nadu's Automobile Sector, Chennai



Report Release: Just Transition Roadmap for Tamil Nadu's Automobile Sector, Chennai



4. Pollution and Waste Management

Our programme focuses on managing waste and pollution through better governance, data-driven decision-making, the use of smart and affordable monitoring technologies, and improved capacity of stakeholders. We also strongly focus on citizens' awareness and engagement on lifestyle changes to minimise waste generation and maximise reuse of resources.

Bio-medical waste (BMW) management, especially from small health care facilities (HCF), was our primary focus in 2023-24. As part of the initiative, iFOREST, in collaboration with the World Health Organisation (WHO), set up two pilot demonstration projects in small healthcare facilities to demonstrate the effective mechanism of BMW disposal from these facilities. The pilot has been developed as a model facility to demonstrate how small HCF can improve waste segregation, safe handling and disposal by implementing end-to-end treatment in compliance with regulatory guidelines. The pilot will act as a capacity-building centre for other small HCFs.

Our work in plastic waste management this year has been particularly innovative, focusing on plastic packaging. In a groundbreaking collaboration with the United Nation Environment Programme (UNEP) India, we conducted a study to explore the circularity potential in the plastic packaging sector in India and how Extended Producer Responsibility (EPR) implementation can be enhanced. This study, employing scenario analysis to forecast future plastic packaging requirements, is the first of its kind to evaluate potential effects on greenhouse gas (GHG) emissions, the economy, and employment within the plastic industry. It also provides a roadmap for enhancing circularity in plastic packaging in India, marking a significant step forward in our environmental initiatives.



“The capacity constraints of the implementing agencies at the district and state levels need to be identified and addressed so that the single-use plastic ban can be effectively implemented.”

– Rahul Kumar
Programme Lead



Launch of the BMW Pilot, Wazirpur

In 2022-23, we developed a national-level compliance assurance methodology to assist regulatory authorities in assessing compliance with the Single-Use Plastic (SUP) ban imposed by the Government of India. We are proud to share that our work has been recognised by the Central Pollution Control Board (CPCB). The methodology we developed has been used to draft the Standard Operating Procedure (SOP) for the characterisation and assessment of plastic waste generation by the CPCB, with some modifications. This recognition underscores our commitment to environmental initiatives and our credibility in the field.

The team has continued its engagement with the regulators and the citizen groups through its ground-level work in both BMW and plastic waste management.

Capacity Building

Our organisation empowers various stakeholders through enhanced understanding and sensitivity towards the issues and people they interact with. We aim to improve informed engagement within their areas and scopes of work by building capacities. We expanded our 'Learning Centre' portal in the past year, introducing new training programs for diverse groups, including Renewable Energy Development Authorities (REDA) and Biomedical Waste Management (BMW). We also continued our collaboration with district administration and environmental regulators. We conducted 11 training programs and several workshops on BMW management, including specialised training for State Pollution Control Board officials from Odisha, Assam, Jharkhand and Rajasthan. Further, an exclusive training programme for Odisha Renewable Energy Development Authority (OREDA) officials was introduced this year, which focused on equipping participants with advanced technical knowledge and fostering managerial competencies.

*Training for
OREDA Officials,
Bhubaneswar*



*Demonstration on
Spill Management
at the Training
Programme in
Jamshedpur and
Cuttack*





Officials from the District Administration Attending Online Training on BMW, Alwar



Participant Interaction at BMW Training Programme, Guwahati

The 'Safe Handling and Disposal of BMW from HCFs', a collaboration between iFOREST and The World Health Organization (WHO), involved a series of offline and online training programmes. These aimed to boost the capacity of the frontline health care facility staff, district administration staff, and officials of the State Pollution Control Boards (SPCB) involved in managing and implementing the BMW Rules.

Under the initiative, we conducted 9 offline training courses (three in collaboration with Pollution Control Board, Assam two in partnership with Odisha SPCB, and four with the Department of Health in Jharkhand and Rajasthan) and two online trainings in collaboration with the Rajasthan SPCB. Six hundred participants from various stakeholder groups were trained in BMW management and handling.

Additionally, we developed a comprehensive training manual for REDA officials following a detailed training need assessment. This manual focuses on enhancing skills in project planning, execution, and risk management, ultimately facilitating the seamless integration of renewable energy initiatives. The training and curriculum development were in line with the MoU with OREDA

ENGAGEMENT AND OUTREACH

Engagement and Outreach



iFOREST at MOP35

iFOREST at COP28

Other International
Engagements

Opinion Pieces

Annual Planning
Retreat

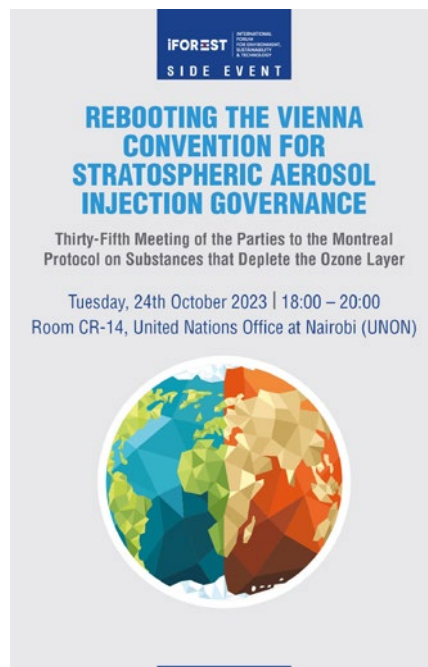
iFOREST at MOP35

iFOREST organised a side event on “Rebooting the Vienna Convention for Stratospheric Aerosol Injection Governance” at the thirty fifth Meeting of the Parties (MOP35) in Nairobi, Kenya. The event was held in the United Nations office on 25th October 2023.

The discussion revolved around the pressing threat of escalating global temperatures, and the discourse around Solar Radiation Modification (SRM) as a countermeasure. The focus was on presenting new analysis and insights from iFOREST’s report on “Governing Solar Radiation Modification under the Vienna Convention” which discussed on how the Vienna Convention for the protection of the Ozone Layer can be leveraged and revitalized to fortify global governance structures around SAI.



Report Release of our Report on 'Solar Radiation Management at MOP35 Side Event, Nairobi



Event Promotional Banner

iFOREST at COP28

iFOREST organised a side event on “Promoting Green Cooling in India and the Global South” at the twenty eighth Conference of Parties (COP28) in Dubai, UAE. The event was held in the Regional Climate Foundations Pavillion on 9th December 2023. The objective of the event was to strengthen the implementation of Cooling Action Plan in India and other Global South countries by sharing insights from India’s initiatives.

Discussion on Green cooling at our COP28 side event, Dubai

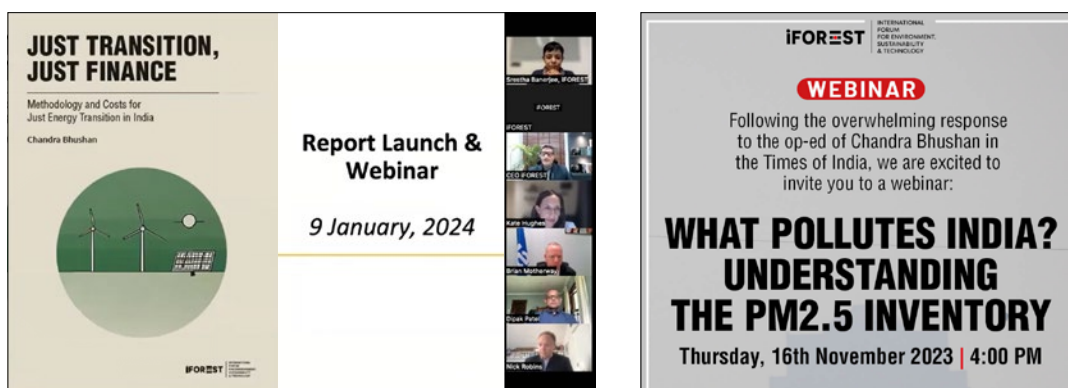


Event Promotional Banner

Other International Engagements

- iFOREST contributed to the G20 deliberations on Just and inclusive energy transition. Mr Chandra Bhushan was the co-chair of the clean energy and green transition task force. He outlined the guidelines and principles of Just energy transition and highlighted the perspective of the global south countries.
- iFOREST participated in the Asia clean energy forum 2023 in Manila that was organised by Asian Development Bank on “Navigating Toward a Carbon-Neutral Future through Clean Energy Solutions.” The event aimed to deliver knowledge, increase awareness, and opportunities for collaboration to a range of clean energy stakeholders and practitioners from across Asia and the Pacific.
- iFOREST at COP 28 was a part of the event “Delivering Just Energy Transition in Asia Pacific” which was organized by the Asian Development Bank. The event facilitated a dialogue among key stakeholders from the public and private sectors to understand the challenges and opportunities and share early lessons in implementing just transition in the region.

Webinar



- iFOREST launched its report **“Just Transition, Just Finance: Methodology and Costs for Just Energy Transition in India”** in a webinar featuring prominent speakers from organizations such as Asian Development Bank, International Energy Agency (IEA), Presidential Climate Commission (South Africa), Council on Energy, Environment and Water (CEEW); and Grantham Research Institute on Climate Change & the Environment.

The report has been developed recognizing the need for an empirical basis to determine the cost of just energy transition, which can help countries to develop just transition plans, make necessary investments, and foster global partnerships for securing finances.

- iFOREST hosted a webinar **“Understanding of the PM 2.5 inventory”** and shedding light on India’s most polluted cities. The study revealed several new and interesting findings – exposing that 48% of the total annual emissions stem from residential biomass, particularly cooking fuels. The study also highlighted the graveness of the situation of air pollution in rural parts of India and revealing that the air pollution in rural areas is similar to that in urban areas. Recommendations from the webinar included addressing residential fuel usage, the urgent need to eliminate crop residue burning, and advocating for a transition towards green and shared mobility solutions.

Opinion Pieces

Heatwaves & Cool Heads

We shouldn't panic about summer extremes, because there are well-understood solutions. The trick is to implement them smartly

Chanda Bhushan
Dear Sir,
I write to you from Lucknow, hoping you could answer some of my queries.

As we recently headed towards the heatwaves, I am writing to you about the heatwaves. I have noticed that the heatwaves are not only affecting the rural areas but also the urban areas. I believe it is critical to improve the heat management with the right knowledge and perspective. I believe it is critical to improve the heat management with the right knowledge and perspective.

As I am getting up to write this monthly column, I received the heatwave news. From a region where we usually receive about 1000 mm of rain, we are now facing a situation where the temperature is rising. I believe it is critical to improve the heat management with the right knowledge and perspective. I believe it is critical to improve the heat management with the right knowledge and perspective.



The recent deaths in Kharigar in Maharashtra were due to a combination of heat and humidity. The temperature was only about 37°C, but the humidity was 50-60%, taking the wet-bulb temperature near 39°C, which is dangerous for manual labour and the vulnerable population outside.

Let us discuss the heatwaves. The heatwaves have increased over the last few years. The temperature is rising, and the humidity is also increasing. This is a dangerous situation for manual labour and the vulnerable population outside.

INDIA'S G-20 PRESIDENCY

What it means for global diplomacy

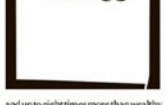
Financial equity, digital inclusivity, and environmental sustainability will define India's presidency

CHANDRA BHUSHAN

In a world marked by the rivalries of great powers and the urgent need for collaborative action, the G-20 has become a stage where realpolitik unfolds in real time. As yet, this forum— which accounts for 65% of global GDP, 75% of trade, and an overwhelming majority of climate-warming pollutants—offers hope for cooperative action to shape the global future. India's G-20 presidency, with its mix of geopolitical challenges and transformative potential, marks an important moment in the forum's history.

The Global South are not just heard but amplified. Beyond dialogue, the call for a fundamental reform to establish a fairer global financial system that benefits all. The stark reality of the current international financial arrangement that puns Africa countries pay four times more interest on loans than the US.

Climate Action & Accountability Under India's guidance, climate action has gained renewed momentum. Emphasising lifecycle impacts on climate, India has underscored the importance of individual responsibility and people-centred solutions. This is especially important considering that the wealthiest 1% of the world's population is responsible for twice as much carbon dioxide emissions as the poorer 50% of the world. Through initiatives like Mission LIFE, India has challenged the deep-rooted world's consumption and pollution habits, pressing for a democratisation of climate action.



India has revived its presidency during a particularly tumultuous period in world politics. The ongoing conflict between Russia and Ukraine has strained relations between the West and Russia to levels not seen since the Cold War, if not worse. Likewise, Sino-US relations are historically low, and Sino-India ties have hit a nadir. These conflicts, coupled with the lingering economic effects of COVID-19 and the increasing frequency of climate disasters, have started to challenge global cooperation.

India has used its term to emphasise the theoretical need for Digital Public Infrastructure (DPI) as a public good. Within this is the UN's digital payments, COWIN for vaccinations, and Aadhaar for identity verification. India has shown that digital transformation can significantly improve the lives of impoverished populations worldwide. Its significance to share these assets globally has catalysed a DPI system that can democratise digital benefits worldwide. India's presidency has initiated a process to create a world where digital tools benefit the many, not just the few, ensuring inclusivity, equity and progress for all.

India's G-20 presidency will be remembered not just for its momentary milestones but for its audacity to envision and shape a more equitable and sustainable global future. Under India's guidance, the roadmap appears promising, with pathways to financial equity, digital inclusivity, and environmental sustainability shining brightly. And while the road may be long and steep, the implications of India's presidency will undoubtedly last for years to come.

The writer is the CEO of the International Forum for Environment, Sustainability and Technology (IFEST)

Sarkari Brains & Urban Drains

Cities get flooded by heavy rain mostly because authorities don't do a few simple things. Delhi's plight last weekend was thanks to Delhi govt rejecting a drainage plan from IIT

Chanda Bhushan

As I write this column, Delhi is still reeling from the heavy rain that hit the city last weekend. The flooding was a result of a combination of factors, including heavy rain and poor drainage infrastructure. The Delhi government's decision to reject a drainage plan from IIT is a major concern.



The Delhi government has rejected a drainage plan from IIT. This is a major concern because the plan was designed to improve the city's drainage infrastructure. The plan included the construction of new drains and the improvement of existing drains. The Delhi government's decision to reject the plan is a major concern because it will result in continued flooding in the city.

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Global South Takes Centre Stage

India's presidency has done something unprecedented: It has brought the Global South into the spotlight—where the world's majority live—the challenges they face, and the opportunities they offer for a sustainable and prosperous world.

India's G-20 presidency has done something unprecedented: It has brought the Global South into the spotlight—where the world's majority live—the challenges they face, and the opportunities they offer for a sustainable and prosperous world.

GLOF's Sikkim Shocker

Much before the flooding, local & green groups had flagged risks. But mitigation strategies weren't a priority in project planning. GOI must get the message from the mountains

Chanda Bhushan

The year 2023 has witnessed a series of devastating floods in the Himalayas. The Global Flood Outlook (GLOF) report highlights that these floods are a result of a combination of factors, including heavy rain and poor drainage infrastructure. The GLOF report also highlights that the Himalayas are a major source of freshwater for the world, and that the floods have a significant impact on the region's water supply.

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HEINRICH BÖLL STIFTUNG REGIONAL OFFICE NEW DELHI

Net Zero is a win-win

Article The transformative potential of decarbonisation is that it can meet socio-economic goals better than current development pathways.

16 October 2023 by Chandra Bhushan



The writer is the CEO of the International Forum for Environment, Sustainability and Technology (IFEST)

G20 शिखर बैठक में भारत की शांतावर उपलब्धियां दर्ज हो चुकी हैं दुनिया में सहयोग बढ़ाने की पहल

भारत की शांतावर उपलब्धियां दर्ज हो चुकी हैं दुनिया में सहयोग बढ़ाने की पहल। G20 शिखर बैठक में भारत की शांतावर उपलब्धियां दर्ज हो चुकी हैं दुनिया में सहयोग बढ़ाने की पहल। G20 शिखर बैठक में भारत की शांतावर उपलब्धियां दर्ज हो चुकी हैं दुनिया में सहयोग बढ़ाने की पहल।



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THE REAL MAINSTREAM DESPITE SCEPTICISM, UAE HAS DELIVERED A BALANCED PACKAGE ON CLIMATE ACTION AT COP28 A balanced consensus

CHANDRA BHUSHAN
President and CEO, FOREST PAGES, Chennai

It was perhaps unprecedented that an agreement on reducing fossil fuel production and consumption should have happened at the COP28 climate negotiations in Dubai. For some specific, the international community has avoided the direct mention of fossil fuels in climate agreements. The timing of fossil fuel production and consumption should have happened at the COP28 climate negotiations in Dubai. For some specific, the international community has avoided the direct mention of fossil fuels in climate agreements.

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THE REAL MAINSTREAM AS CAN BE SEEN FROM THE CASE OF MAHARASHTRA, PLANNING IS ESSENTIAL FOR A JUST TRANSITION Switching to green power justly

MEGHNA DASHTA, Founder, Climate Change Research Institute, Mumbai

CHANDRA BHUSHAN
President and CEO, FOREST PAGES, Chennai

Food, the state has always been a critical component of the green economy. In Maharashtra, the state government has taken several steps to promote green energy and sustainable development. The state government has taken several steps to promote green energy and sustainable development. The state government has taken several steps to promote green energy and sustainable development.

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OPINION LABOUR Skill India Mission: Short Courses, No Employable Skills and a Lack of Jobs

Suresh Mehta and Dr. Harshil Sharma
23 March 2024 • 5 min read

The Skill India Mission (SIM) is a government initiative aimed at improving the employability of Indian youth. However, the mission has faced significant challenges, including a lack of quality training and a shortage of jobs. The mission has faced significant challenges, including a lack of quality training and a shortage of jobs. The mission has faced significant challenges, including a lack of quality training and a shortage of jobs.

SCI AM Sunlight-Dimming Climate Schemes Need Worldwide Oversight

MARCH 11, 2024 | 5 MIN READ

As the climate crisis intensifies, experiments to "cool the planet" by reflecting solar radiation proliferate. Without proper global and national regulation, they will worsen the crisis.

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भारत में पानी की कमी के साथ द्रुत जल को भी समस्या है, जिसे हल करना बहुत मुश्किल नहीं सही तरीके से दूर हो सकती है पानी की कमी

भारत: कितना संपन्न?

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ANNUAL PLANNING RETREAT

Annual Planning Retreat

iFOREST organised its annual planning retreat, embarking on an exciting journey to the landscapes of Jim Corbett National Park. The retreat was more than just a getaway; it was a blend of official sessions, team-building activities, and unforgettable adventures.

Nestled amidst the greenery of Corbett, our team engaged in insightful discussions and strategic planning during the official sessions – brainstorming ideas, reflecting on our values as an institution, and setting new goals for the upcoming years.

But it wasn't all work and no play! The team also indulged in some friendly competition on the cricket field, showcasing our sporting spirit and camaraderie. Of course, no trip to Corbett would be complete without experiencing its wild side, experiencing the thrilling jungle safari.

The annual retreat was a resounding success, filled with meaningful connections, unforgettable experiences, and a renewed sense of purpose.





iFOREST Team at Jim Corbett National Park



GOVERNING COUNCIL

Governing Council



**Raghunath Anant
Mashelkar**

National Research Professor,
Former Director-General, Council of
Scientific and Industrial Research



Pradeep Dutt

Leadership & Executive Coach



Anjali

Senior Lawyer



Chandra Bhushan

President & CEO
iFOREST



Anil Kumar Roy

Associate Professor
Faculty of Planning
CEPT University

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INTERNATIONAL
FORUM
FOR ENVIRONMENT,
SUSTAINABILITY
& TECHNOLOGY

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