

# WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2022

**TOWARDS A RESILIENT PLANET:  
ENSURING A SUSTAINABLE AND EQUITABLE FUTURE**

February 16-18, 2022



SUMMIT BULLETIN | DAY 1

## INAUGURAL CEREMONY: AMBITION AND ACTION IN THE CRITICAL DECADE FOR ADDRESSING CLIMATE CHANGE AND REALIZING SUSTAINABLE DEVELOPMENT



Virtual Hall: Gir

### INAUGURAL CEREMONY

**Welcome Address:** Mr Nitin Desai, Chairman, Governing Council, TERI  
**Opening Address:** Shri Bhupender Yadav, Hon'ble Minister for Environment, Forest & Climate Change  
**Keynote Addresses:** H.E. Dr Irfaan Ali, President of the Republic of Guyana; Ms Amina J Mohammed, Deputy Secretary-General, United Nations  
**Inaugural Address by Chief Guest:** Shri Narendra Modi, Hon'ble Prime Minister of India  
**Announcement of Sustainable Development Leadership Award:** Acceptance Speech by Awardee  
**Vote of Thanks:** Dr Vibha Dhawan, Director General, TERI  
**Session Moderator:** Dr Shailly Kedia, Associate Director, Sustainable Development Outreach, TERI



**SHRI NARENDRA MODI**  
Hon'ble Prime Minister of India

“ We have heard people call our planet fragile. But it is not the planet that is fragile. It is us. We are fragile. Our commitments to the planet and towards nature has also been fragile. A lot has been said over the last 50 years since the 1972 Stockholm Conference. Very little has been done. But in India we have walked the talk ”

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The annual flagship summit of The Energy and Resources Institute (TERI) is curated on the theme Towards a Resilient Planet: Ensuring a Sustainable and Equitable Future. The Inaugural Session: Ambition and Action in the Critical Decade for addressing Climate Change and Realizing Sustainable Development was conducted on February 16, 2022. The Hon'ble Prime Minister of India, Shri Narendra Modi delivered the inaugural address for the event. Alongside, the keynote addresses were given by Dr Mohamed Irfaan Ali, Hon'ble President of the Cooperative Republic of Guyana and Ms Amina J Mohammed, Deputy Secretary-General, United Nations. The opening address



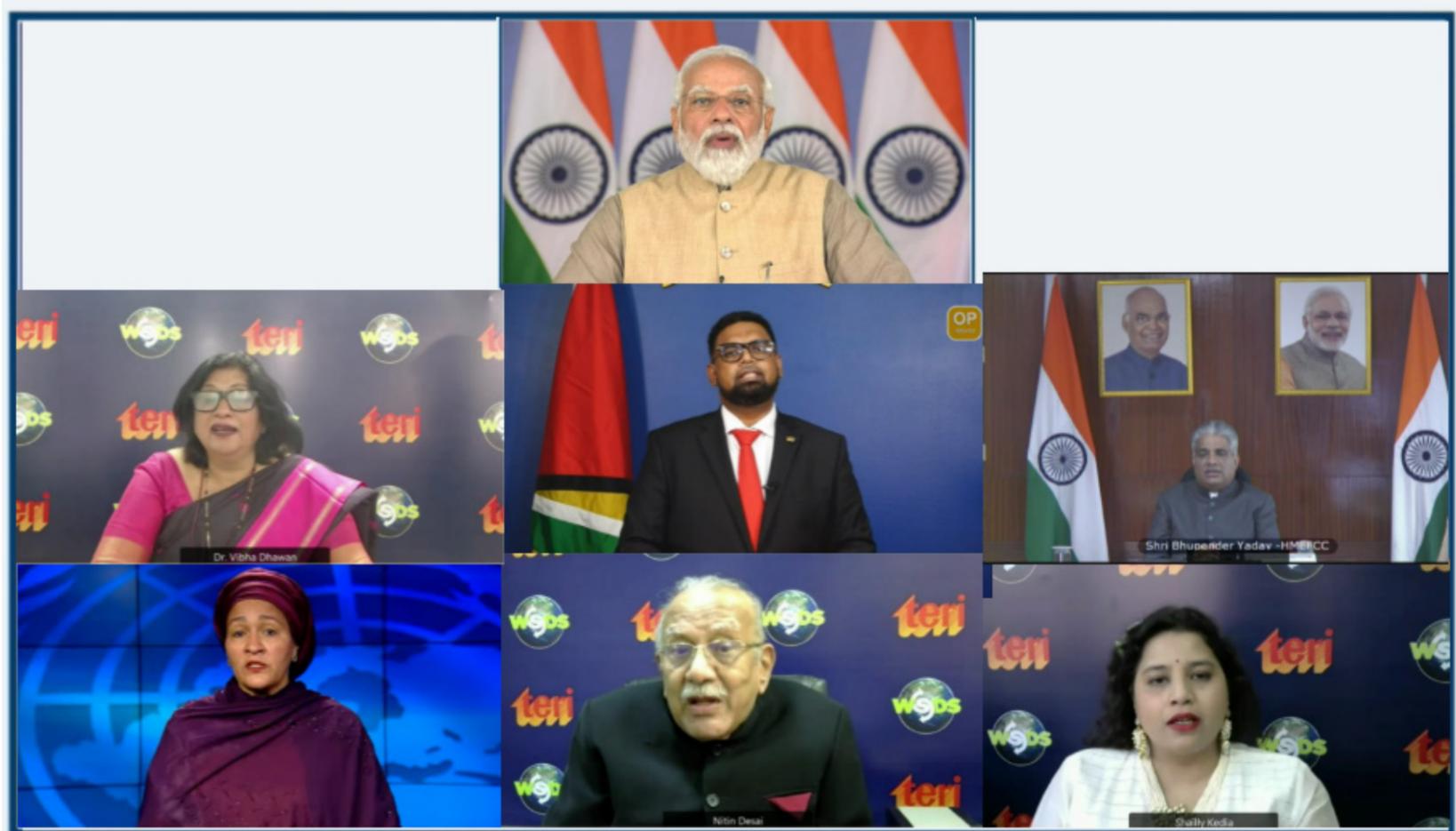
**H.E. DR MOHAMED IRFAAN ALI**  
President of the Cooperative Republic of Guyana

“ It is time for us to think globally, while we double our efforts at local and national actions. ”



**MS AMINA J MOHAMMED**  
Deputy Secretary-General, United Nations

“ Developing countries do not have years to wait and must urgently reduce the vulnerability of people, particularly the poorest. ”



was given by Shri Bhupender Yadav, Hon'ble Minister for Environment, Forest and Climate Change. The event also had the felicitation of the Sustainable Development Leadership Award (SDLA) 2022 to H.E. Mr Michael Rubens Bloomberg, UN Special Envoy for Climate Ambition & Solutions, Founder of Bloomberg LP, Bloomberg Philanthropies.

In his address, Mr Bloomberg applauded the efforts taken by India in its commitments at COP26. He also reaffirmed that we are in this together, and the faster we move, the faster our progress can be. The Sustainable Development Leadership Award (SDLA) 2022 was instituted by TERI in 2005. The award honours global leaders for their contributions in the field of sustainable development and environmental protection. Mr Nitin Desai delivered the welcome address by reaffirming the aim of the summit to connect people from different backgrounds, from varying positions of power to discuss and deliberate in order to formulate effective and practical solutions on sustainable development. Shri Bhupender Yadav emphasized on the need for mindful resource consumption and the requirement to move towards sustainable lifestyles. The process of development and environmental protection must go hand in hand and development must not cause destruction of our resources. H.E. Dr Mohamed Irfaan Ali, President of the Cooperative Republic of Guyana, who opened with a powerful statement that the impact of climate change is not bound by physical borders. He spoke about the actions Guyana has undertaken to accelerate climate justice. Guyana has strictly adhered to its low carbon agenda, particularly through its 'Low-Carbon Development Strategy 2030'. Alongside, Dr Ali also emphasized that the livelihood of people and their living conditions must not be affected in the process of moving towards low carbon emissions; Guyana has actively ensured that its people are benefited while the

### Actionable Messages

- The utilization of resources must be mindful and deliberate, and not mindless and destructive.
- To address the global environmental challenges, we must act immediately on the basis of the rules that all the countries have agreed upon. This must also take into account, the principles of equity, common but differentiated responsibility and respective capabilities.
- The developed countries must act urgently to fulfil their promises of reducing emissions, shifting to a sustainable lifestyle and providing the developing countries with increased finance and technological support.
- Global leadership must be committed to a common global good that urgently acts on its promises, particularly with regard to mitigation action and adaptation support.
- There must be an advancement of living conditions and the lives of people through a sustainable lifestyle that benefits all people.
- Coal must be rapidly phased down by 2030 and fully phased down by 2040. At the same time, renewable energy must be deployed at the same pace to ensure energy transition is fast and just.



**MR NITIN DESAI**  
Chairman, Governing Council, TERI

“ Political leaders can translate sustainable development into policy, corporate leaders can translate into investment choices, academics and research can bring knowledge and technology innovations and civil organizations connects people to make sustainable choices. ”



**SHRI BHUPENDER YADAV**  
Hon'ble Minister for Environment, Forest & Climate Change

“ What we need today is an approach that balances the quest for economic growth and mindful resource consumption. We need to move towards globally sustainable lifestyles that respect planetary boundaries ”



**DR VIBHA DHAWAN**  
Director General, TERI

“ I am sure it is nature which will tide us through these difficult times of climate change and other impacts of high carbon and GHG emissions. ”



**DR SHAILLY KEDIA**  
Associate Director, Sustainable Development Outreach, TERI

“ Responses to the pandemic should be viewed from the perspective of planetary resilience and must be right for humans as well as for planet earth. ”

years in office. He mentioned the importance of programmes and schemes, like the Pradhan Mantri Ujjwala Yojana and the Pradhan Mantri Kisan Urja Suraksha Evam Utthaan Mahabhiyan (KUSUM), in providing access to cleaner fuels and sustainable natural farming. He also spoke about the importance of the International Solar Alliance, Coalition for Disaster Resilience Infrastructure, Infrastructure for Resilient Island States, Mission L.I.FE (Lifestyle for Environment) in improving the environment. As mentioned by the previous speakers, the Prime Minister also mentioned that developed nations must act urgently to support developing nations in financial and technological assistance. He ended his speech on a powerful note that India will continue to act for climate-resilient policies and practices, as always. Dr Vibha Dhawan emphasized that we do need energy and development, but the protection of nature and sustenance of human life is also important. On the whole, the inaugural session targeted the actions by India in moving towards sustainable development. The schemes and policies undertaken under the leadership of the Hon'ble Prime Minister of India has effectively helped India walk the talk.

country shifts towards sustainable development. Ms Amina J Mohammed pointed out that the current situation is untenable but we do have a roadmap to move towards an inclusive and sustainable future. An effective strategy for this is to immediately phase down the usage of coal by 2030, and

fully phase down by 2040, while at the same time deploying renewable energy for a fast and just transition. The Hon'ble Prime Minister of India, Shri Narendra Modi began his address by putting forth the importance environment and sustainable development holds in his 20



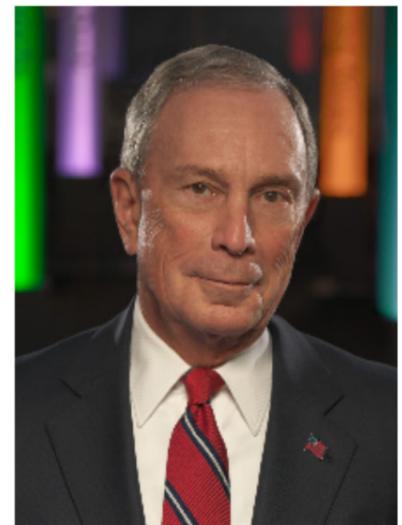
The Energy and Resources Institute  
*is proud to honour*

**MICHAEL RUBENS BLOOMBERG**  
UN Special Envoy on Climate Ambition and Solutions,  
Founder of Bloomberg LP and Bloomberg Philanthropies

*with the*

## Sustainable Development Leadership Award 2022

In recognition of his leadership over the years, and his contribution to society in advancing the causes of climate action, environmental protection, and sustainable development.



**LEADERSHIP IN DEVELOPED COUNTRIES: RECONCILING THE ROLE OF STATES AND MARKETS FOR SUSTAINABLE PRODUCTION AND CONSUMPTION**

**Moderators:** Mr Manjeev Puri, Distinguished Fellow, TERI; Mr Arne Walther, Former Chairman, International Energy Agency  
**Speakers:** Mr John Forbes Kerry, United States Special Presidential Envoy for Climate; Mr Espen Barth Eide, Hon'ble Minister, Ministry of Climate and Environment, Norway; Ms Steffi Lemke, Hon'ble Minister, Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, Germany; Ms Steffi Lemke, Hon'ble Minister, Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, Germany; Mr Steven Guilbeault, Hon'ble Minister of Environment and Climate Change, Canada; Ms Emma Kari, Hon'ble Minister of the Environment and Climate Change; Ms Barbara Pompili, Hon'ble Minister of Ecological Transition, France; Ms Teresa Ribera Rodríguez, Hon'ble Minister, Ministry for the Ecological Transition and Demographic Challenge, Spain



**MR JOHN FORBES KERRY**  
 United States Special Presidential Envoy for Climate

“ India is a red-hot investment for clean energy transitions. Clean energy transitions are essential to our ability to be sustainable and be able to pull back from the abyss with respect of climate crisis. ”

**Actionable Messages**

**Message 1:** Deploy financing for the next 30 years to bring the technology that will help empowers us in battery storage, green hydrogen fuel, carbon capture and storage for clean energy transitions.

**Message 2:** Private sector engagement is crucial to accelerate sustainable consumption and production patterns for developing countries such as Africa, South Asia, Central Asia and other places to look for green products, green capacity to create transition to clean energy.

**Message 3:** Need a tool box with legal, political and economic instruments for transition to a climate neutrality.

**Message 4:** We urgently need to change our consumption and production patterns towards more sustainable and circular way. Need to decouple human welfare and economic growth from the use of virgin natural resources.

The session was moderated by Mr Manjeev Puri and Mr Arne Walther, welcoming the excellencies and setting up the context for discussion on challenges faced by the developed world in transition to a sustainable consumption and production patterns. Mr John Forbes Kerry started the discussion by addressing climate crisis as a major challenge to clean energy transitions. Mr Kerry focussed on private sector engagements in developing countries to accelerate the transition to sustainable future. Mr Espen Barth Eide defines the role of government to set up infrastructure, recommendations and taxation polices for the private sector for a green economy shift that involves all the stakeholders worldwide to increase nature capacity to survive and develop sustainable production and consumption patterns.

Ms Steffi Lemke highlighted the need of transparent investments for the private and public sectors to invest in environmental protection and sustainable development. Mr Steven Guilbeault further extended the discussion by addressing the need of a circular approach in order to build a green patterns of sustainable production and consumption. Mr Guibeault also highlighted the pressing issue of plastic litter worldwide and drew attention on the fact to rethink on the way to use and manage plastics. Ms Emma Kari focussed on decoupling of human welfare and economic growth from the use of virgin natural materials and embrace principles of circular economy to change the current pattern of consumption and production. Ms Barbara Pompili highlighted the objective of resilient planet to ensure a sustainable and just future puts lights on the challenges the society faces collectively due to evolution of lifestyles, climate change and loss of biodiversity. Moreover, the alignment of public and private investments with objectives of the Paris Agreement is needs to ensure a sustainable future. Ms Teresa Ribera Rodríguez further enriched the discussion with a thorough understanding on the need of transition from a linear economy to circular economy for sustainable consumption and production patterns. Ms Rodríguez also call attention to some of the key sectors such as tourism, construction, textile, in order to introduce policy measures to facilitate transformation to a sustainable consumption and production in these sectors.

The session was summed by the moderators, thereby stating the importance of global united efforts to tackle the current climate crisis and build a sustainable future on the principles of circularity and adaptation.



**MS STEFFI LEMKE**  
 Hon'ble Minister, Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, Germany

“ We need to make sure on how to do finance and transitions of economy and societies towards climate neutrality. Investments need to be transparent to ensure public and private sector can invest their money effectively in environmental protection and climate action. ”



**MS EMMA KARI**  
 Hon'ble Minister of the Environment and Climate Change

“ Sustainable production and consumption patterns can play a crucial role for our societies be in limits of the earth carrying capacity. The overall consumption of natural is one of the key challenges needs to tackle together ”



**MR ESPEN BARTH EIDE**  
 Hon'ble Minister, Ministry of Climate and Environment, Norway

“ Role of government is no longer to tell business for a green shift instead should set infrastructure, recommendations, taxation, and bring all stakeholders on board for a green economy. ”



**MR STEVEN GUILBEAULT**  
 Hon'ble Minister of Environment and Climate Change, Canada

“ Greener patterns of sustainable production and consumption can be embraced through principles of circular economy and requires solutions through involvement of nations worldwide. ”

**REORIENTING MARKET ECONOMIES AND ACCELERATING DEVELOPMENT OF GREEN TECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT GOALS**

**Moderator:** Mr Manish Chourasia, Managing Director, Tata CleanTech Capital Limited  
**Leadership Addresses:** Dr Maria Mendiluce, Chief Executive Officer, We Mean Business Coalition, Geneva, Switzerland; Mr Hussain Al Mahmoudi, Chief Executive Officer, Sharjah Research Technology and Innovation Park; Mr. Sunil Duggal, Group Chief Executive Officer, Vedanta Limited; Mr Rohit Chandra, Chief Executive Officer, OMC Power Private Limited; Mr Sumant Sinha, Founder, Chairman & CEO, ReNew Power Private Limited; Mr Mahendra Singhi, Chief Executive Officer, Dalmia Cement (Bharat) Limited; Mr Alexander Slater, Deputy Managing Director, US-India Business Council

The CEO Forum: Reorienting Market Economies and Accelerating Development of Green Technologies for Sustainable Development Goals saw the discussion around current developments and steps taken by government organizations and the private sector, on adopting innovative technology and investing in research and development of these technologies. There was focus on creating an ecosystem and awareness around sustainable technologies

and importance of the private sector in commercialization of these technologies for mass adoption. Policy intervention was seen as necessary in sectors which have recently started their sustainability journey. Rural areas were brought under focus in the discussion, and a call for action towards sustainable growth of those areas was encouraged. The need for financial capital was agreed upon by all for green technologies to flourish.



**Actionable Messages**

**Message 1:** Financial capital needs to be generated for green technology development and commercialization. Transfer of capital from developed to developing countries is important.

**Message 2:** Need to work to build capabilities and innovation around mineral-intensive technologies and carbon-neutral technologies with the government, private sector, civil society, and individuals across boundaries.



**MR MANISH CHOURASIA**  
 Managing Director, Tata CleanTech Capital Limited

“ Global warming is a global problem with a global solution, everyone needs to be involved. ”



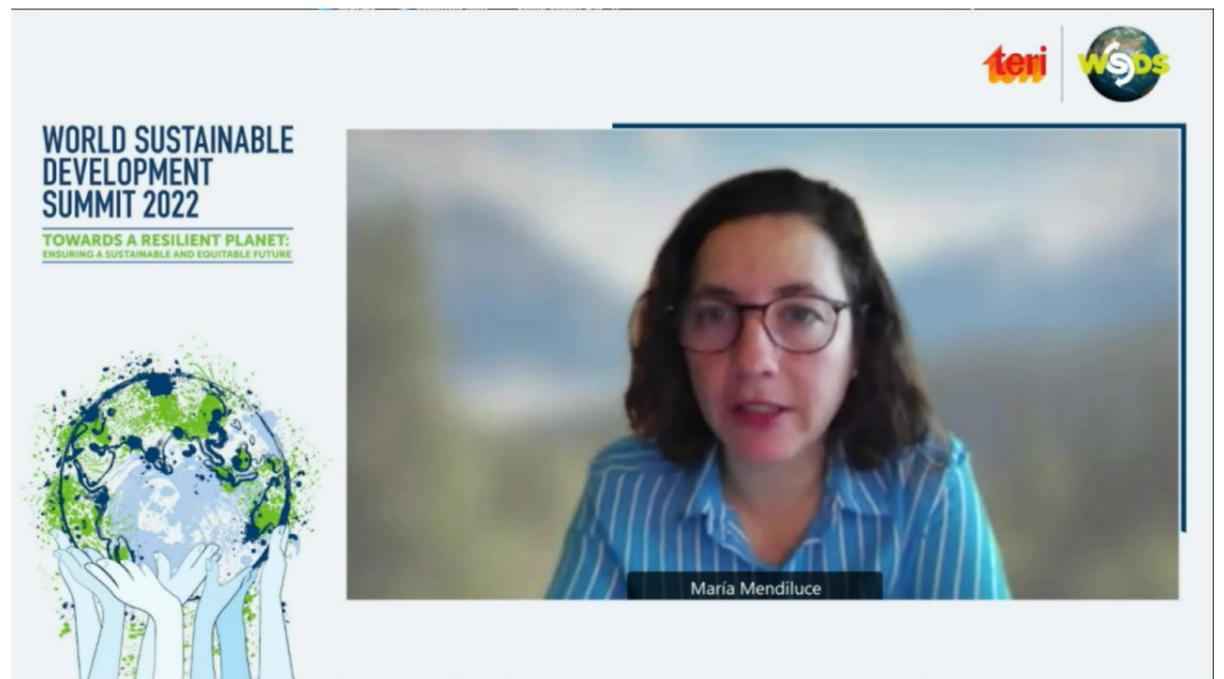
**MR HUSSAIN AL MAHMOUDI**  
 Chief Executive Officer, Sharjah Research Technology and Innovation Park

“ Partnership with TERI for relationship between UAE and India for technology, innovation and development. ”



**MR ROHIT CHANDRA**  
 Chief Executive Officer, OMC Power Private Limited

“ OMC Power is working in a sustainable way of developing rural landscapes. Figure out a model using renewable technology which is self-sustaining. ”



**FROM GREY TO GREEN: ROADMAP FOR INDIA ON THE PATH TO NET ZERO**

**Speakers :** Mr R R Rashmi, Distinguished Fellow, TERI; Mr Naveen Unni, Partner, McKinsey and Company and Leader of McKinsey's Sustainability, India; Dr M S Ahluwalia, (former Deputy Chairman of Planning Commission, Government of India); Mr Anshu Bharadwaj; Ms Ulka Kelkar, Director – Climate, WRI India; Dr Vaibhav Chaturvedi, Fellow, Council on Energy, Environment and Water



After the UNFCCC brought out the 1.5 degree C report in 2018, there was an increased focus of nations to commit carbon neutrality. And adhering to the commitment is the need of the hour. Several countries have already voluntarily committed carbon neutrality. After the announcement of carbon neutrality by India for 2070, the thematic track discussed opinions of various experts on the pathway to net zero by India. Unanimously the panellists agreed that the 2070 Net Zero target is important



**MR R R RASHMI**  
Distinguished Fellow, TERI

For carbon neutrality we need to mobilise humungous amount of finances.

While focusing on de-carbonisation and cleaner energy options, the potential implications on social equity and distributional impacts on coal-enrich states and their social and economic sector are very high, and hence, calls for a transition that is just and fair. Just Transition needs to consider a broad range of social and economic sectors, geographic locations, diverse stakeholders and time horizons. Coal is the major source of revenue and employment for resource-rich states such as Jharkhand, Odisha, Chhattisgarh, West Bengal, and Madhya Pradesh. Just Transition should occur in a phased manner. In absence of any alternative economic choices and social support systems, poor people became more vulnerable as coal-dependent local businesses got impacted, many migrated to other locations and crisis deepened. In order to transform the state away from its rentier economic nature, promotion and diversification of the state's industrial establishment away from the traditional mono-industrial practice will help promote enhanced levels of economic activity, large-scale

**RESPONSIBLE CLIMATE ACTION TOWARDS A LOW CARBON AND RESILIENT PATHWAY: AN INCLUSIVE WORLDVIEW**

**Speakers :** Dr Anil Kumar Jain, IAS, Secretary (Coal), Government of India; Mr Sumanta Chaudhuri, IAS, Former Secretary (Coal), Government of India; Dr Kunal Khemnar, IAS, Additional Municipal Commissioner (Estate), Pune Municipal Corporation; Mr Jarnail Singh, Deputy Director, India Office, MacArthur Foundation; Mr Ayaskant Kanungo, General Manager (Commercial and Corporate Affairs), Odisha Coal and Power Limited; Dr Ashwini K Swain, Centre for Policy Research; Mr Subhomoy Bhattacharjee, Consulting Editor, The Business Standard; Shri Surendra Kumar Pandey, All India Secretary of BMS and Deputy Incharge for Coal Sector

employment integration and address the missing industrial gap that exists in the economy. Moving forward, if coal-phase down/ phase out happens in an unplanned manner, the entire local economy would collapse and it will destabilise the social fabric. Alternate financial model for state economy as well as development is the need of the hour. While transitioning to the envisaged non-fossil fuel economy in time, it is crucial to map implications of coal phase-down/-

out and create a blueprint for a proactive planning and an inclusive, fair, and humane transition. As a large number of stakeholders are involved in the process of Just Transition, new technologies for carbon reduction such as conversion of coal from solid state into liquid and gaseous form and carbon capture and storage technology need to be adopted. The ideas of Just Transition provide a larger perspective for further reflections which guide future policy, research and action on the ground.



**DR ANIL KUMAR JAIN**  
IAS, Secretary (Coal), Government of India

Climate change is not a local phenomenon, it is global.

**Actionable Messages**

- Message 1:** Resilient strategy is critical to achieve clean energy targets.
- Message 2:** Need micro-finance institutions not just budgetary support for this transition and huge investment needed.

**Actionable Messages**

- Message 1:** Finances need to be mobilized to achieve carbon neutrality.
- Message 2:** Carbon neutrality needs to ensure just transition.
- Message 3:** All major economic systems need to transform themselves

and must achievable. Various modelling exercise already found that net zero transition has non-economic benefits like health improvement other than ensured economic benefits in terms of GDP growth and job opportunity. Various ways to reach the net zero goal were suggested by speakers along with highlighting important ancillary socio-economic dimensions to this transition. It is a stated fact that GDP and rate of carbon emission share a positive relationship and carbon-neutrality depends on this relation. There is a need to develop a green growth model which will decouple GDP and carbon emission, and that shall be the new paradigm of development. Based on long term commitment of net zero by 2070, short-term and medium-term action plan needs to be chalked out at the earliest and to follow that path is very crucial. In a country like India, the action plans will differ for different states, as per their clean energy potential, and socio-economic characteristics. Realizing net zero requires a transition away from fossil fuels to cleaner sources of energy like solar, hydrogen energy. Talking particularly about India, phasing out of coal as a major source of energy is the need of the hour. But this transition from thermal powered to renewable energy will put as many as 1.5 million people out of job. Green transition therefore needs to ensure just transition, which is an opportunity to get is an opportunity to get reliable energy access, clean mobility, women related jobs, thermal comfort in housing.

## MSMES AND CLIMATE RESILIENCE

**Inaugural Welcome Address :** Dr Malini Balakrishnan

**Welcome Addresses:** Mr Edwin Koekkoekk, EU Delegation to India; Mr Vinamra Mishra, Director, Ministry of MSME and Tech

**Panel Discussion Moderator :** Mr Kumar Jai Gaurav, GIZ India

**Presenters :** Dr A K Gosain, Professor IIT Delhi and Director of INRM Consultancy; Dr Subodh Jindal, Head of All India Food Processors' Organisation; Mr R KVij; Dr Sriram Appulingam, NABARD; Mr Rainer Augier; Mr Rajiv Kumar, SIDBI

In this thematic track, the inaugural welcome address was given by Dr Malini Balakrishnan wherein she talked about agriculture, sectors affected by climate change, opportunities for MSMEs adopting technologies, and increased awareness about climate finance and a very fundamental approach towards adapting towards climate change while fighting it. Mr Edwin Koekkoekk, talked about the position of MSME in the Indian economy, the Paris agreement, EU Green deal and the close cooperation of the EU Delegation with GIZ and TERI. Mr Vinamra Mishra talked about the scope of MSMEs in India and how the sector is the second highest employer after the agricultural sector. He also spoke about the regulatory frameworks of governmental and global bodies that the Ministry was taking up.

The Panel discussion was moderated Mr Kumar Jai Gaurav, wherein the first presentation was given by Dr A K Gosain. His study was based on possible impacts of climate change on MSME in India, vulnerability of MSME sector in the long, short and medium term. Dr Subodh Jindal, from the food sector, spoke about the agriculture sector, and the two sides of industries of processing, packaging and distribution. He also said the role of financial institutions is bigger than we realize and focussing on the funding of smaller organizations can produce better results that we have as of now. Mr R KVij spoke about the textile sector and climate change, how more finance and funding should be a point of focus and providing small organizations with legal and administrative help is essential and that is how small entrepreneurs, organizations



and MSMEs can be effectively empowered. Dr Sriram Appulingam spoke about climate change and how it affects the rural sector and how the rural sector is still the driving force of the Indian economy. Mr Rainer Augier spoke about climate finance for MSMEs, understanding and investing in green finance. How budget allocation is important for sustainable development and it gives access to and for MSMEs to leap into better things and prove their credibility

better. Mr Rajiv Kumar discussed the aspect of technology, innovation and how we can focus on similar sectors which are on the rise now. We can come up with alternatives for loans and partner with local and state governments and identify clusters for finance and other activities which could empower the role of technology in climate change adaptation and help small organizations and MSMEs come into notice.



### DR S NAND

Deputy Director General,  
The Fertilisers Association of India

“Fertilizers are also helping in decarbonization indirectly by growing more crops and capturing more carbon.”

The objective of the deliberation was to explore research and innovation activities across academia like IIT Bombay and the view on possible steps to move forward to decarbonization from supply and demand side.

Mr Anshul Mathur from BP gave the insights to the motive of the organization “Reimagine Energy for the people and the planet”. BP has set its target to achieve net zero by 2050 or sooner. He emphasized on the importance of strong partnerships among customers, academia, corporates, think tanks, regions and cities, and innovative business models to have aligned strategies that will work for the planet, to share knowledge and fast-track technologies, to de-risk investments, to progress solutions at pace and scale, which will help in accelerating decarbonization.

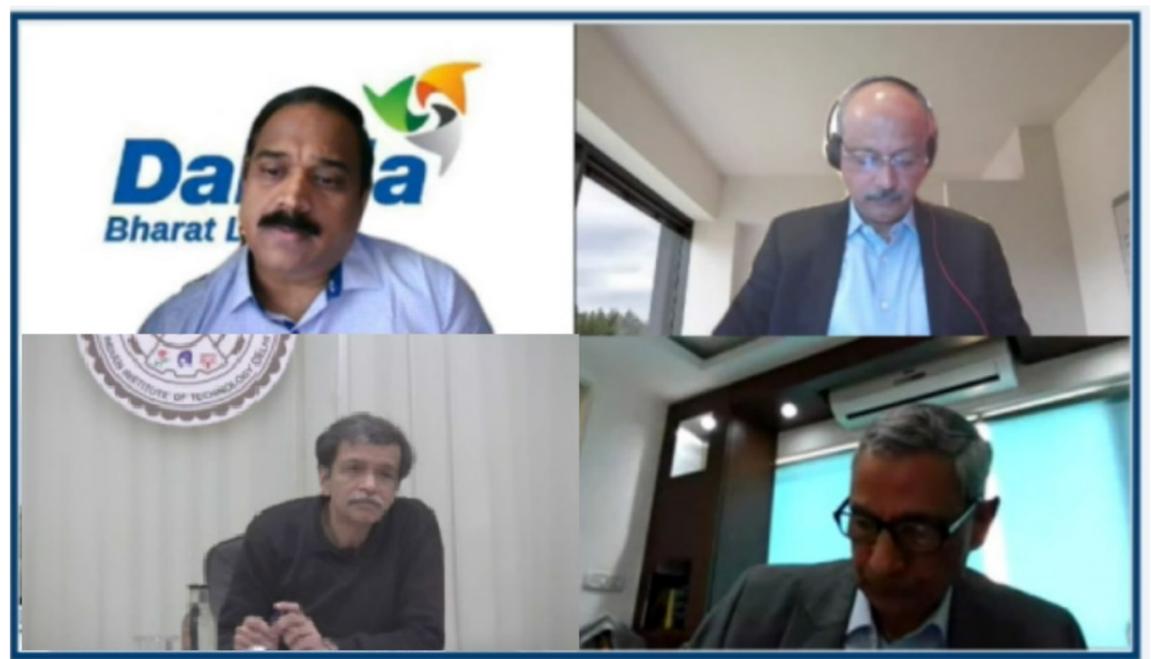
Prof. Srinivas Seethamraju gave insights to the research work done in past two years with BP on providing solution to decarbonization of industrial sectors such as Steel, Cement, Fertilizers, etc. He briefly touched upon the current energy consumption and emission profile of Indian industries and where it stands on global front.

Arvind Bodhanker emphasized on the necessity of grants or fund flows into the industry, carbon marketing with the right pricing and trade flexibility in the global market.

On steel sector perspective, Mr Lokendra Raj Singh stated the lack of concrete policy, regulation and standardization for the new facilities and green product. There should be a defined specific energy consumption for new plants.

## RESEARCH AND INNOVATION OUTLOOK FOR INDUSTRY DECARBONISATION IN INDIA

**Speakers :** Mr Anshul Mathur, Vice President, Communications and Advocacy, Asia Pacific, BP; Prof. Rangan Banerjee, Forbes Marshall Chair Professor Department of Energy Science and Engineering, IIT Bombay and Director IIT- Delhi; Dr Arvind Bodhanker, Executive Director-ESG and Chief Risk Officer, Dalmia Bharat Group; Mr. Lokendra Raj Singh, Chief Operating Officer, JSW Steel Ltd., Vijayanagar; Mr M Muthukrishnan, Airport Sector-Head of Environment, Health and Sustainability, GMR Group; Dr S Nand, Deputy Director General, The Fertilisers Association of India; Mr Rajeev Kumar, VP Regions Cities and Solutions, BP



Mr M Muthukrishnan said that only aviation is responsible for 2% as compared to 14% of total transport sector emissions. Raw material sourcing, enhancing process efficiency with advanced technologies and low carbon emission in supply chain are some areas that need to be looked at to reduce overall emission intensity. Mr Nand from Fertilisers sector focused on the need of PLI for electrolyzers for suppliers and gap funding for ammonia users.

### Actionable Messages

Sectors like Iron and Steel, Cement, Fertilizers, etc., are being termed as harder-to-abate (HTA) sectors as moves towards overall decarbonization. In industry, almost 70–80% of emissions are from thermal energy use and the rest is balanced through electricity.

The panelists discussed about RE&CE transition and how EU-India Partnership can deliver to achieve the desired goals regarding RE&CE in key industrial sectors. The challenges and opportunities associated with implementation RE&CE measures in India were discussed. The panelists emphasized on the importance of financial support and importance of policy formation and implementation by governments regarding RE&CE. Dr Suneel Pandey highlighted that CE is a key element in material extraction and production. Owing to material scarcity, the linear model is no longer being considered and there is a switch to CE principles. Various issues such as re-manufacture and recycling are being considered for enabling resource efficiency and fast-track adoption of CE in India.

Shri Sudhir Kumar mentioned the long engagement of NITI Aayog on RE with preparation of sectoral reports on efficiency and the release of National Resource Efficiency Policy, NREP, 2019. He emphasized the need for further discussion and collaboration for taking initiatives in the right direction. He

## ENABLING PARTNERSHIPS TO PROMOTE STANDARDS AND BUSINESS BEST PRACTICES ON RESOURCE EFFICIENCY

**Session Chair:** Dr Suneel Pandey, TERI

**Special Addresses :** Shri Sudhir Kumar, NITI Aayog and Ms Astrid Schomaker, DG Environment

**Speakers :** Shri Sudhir Kumar, Advisor, NITI Aayog; Ms Astrid Schomaker, Director, DG-Environment, EU Commission; Dr Rachna Arora, Team Leader & Coordinator EU-REI, GIZ; Dr Sandip Chatterjee, Director, Ministry of Electronics and Information Technology (MeitY); Mr Ulhas Parlikar, Global Consultant (Waste Management, Circular Economy, Policy Advocacy & Co-processing)

### Actionable Messages

Mr Ulhas Parlikar focused on promotion of standards for CE, creation of recycling parks, good collaboration between governments and industries, and converting wastage into useful resources.



**SHRI SUDHIR KUMAR**  
Advisor, NITI Aayog

“Policy creation and field implementation is the best practice to overcome wastage.”

mentioned that currently there are 11 committees on RE&CE looking after the ongoing work and looking into new areas identified such as solar panel waste, lithium ion battery, and gypsum.

Ms Astrid Shomaker stated that the economic model should be compatible with the future generations. She iterated that clean transport, energy sectors and sustainable system require a radicle shift and consumer should play their part. There is a need to turn environmental challenges into socio-economic opportunities. India needs to work on important sectors such as extended textile, electronics and plastics with a focus on EPR and design for circularity standards.

In India, a graded approach is required to go from strategy to policy and then towards implementation/action. Dr Rachna Arora spoke about the role of informal sector, policy compliance and capacity of different stakeholders for enabling RE&CE. The discussion concluded on a positive note with the hope to further strengthening the EU-India partnership through collaboration and knowledge sharing.



## ACHIEVING SUSTAINABLE DEVELOPMENT GOALS THROUGH CARBON AND CLIMATE FINANCE FOREST SECTOR EXPERIENCES FROM GLOBAL SOUTH

**Speakers :** Dr J V Sharma, Director, Land Resource, TERI; Mr Anupam Joshi, Senior Environmental Specialist, World Bank; Mr Sandeep Roy Choudhury, Director, VNV Advisory, India

The session highlighted the importance of carbon finance in achieving Sustainable Development Goals (SDGs). Forests and trees outside forests have a huge potential for generating carbon finance and improving the livelihood of local communities, thereby directly contributing to SDG 5, 13, 14, and 15. Farm forestry and agro-forestry are two major sectors of improvement where carbon financing can be a win-win situation for both farmers and the government. Policy interventions, innovative financial mechanism, capacity building, and institutional mechanism play an important role for developing carbon finance projects. The importance of research and developmental studies in policy formulations in natural resource management has also been looked upon. The panellists agreed on the fact that there is a need to develop a national-level carbon-neutral policy to help strengthen the public-private partnership among different sectors. Nature-based solutions are an important sector to engage local communities and ensure their positive approach towards eco-restoration. The session

ended with the key suggestions provided by the panellists to address the gaps in the existing finance mechanism, which include:

- Coordination mechanism should be in place to enable private and public sectors to come together at national or state level.
- Issue of governance should be resolved by strengthening the Gram Sabha/local-level institutions to handle the finance.
- Methodologies should be revised to cater the Indian and South Asian scenarios.



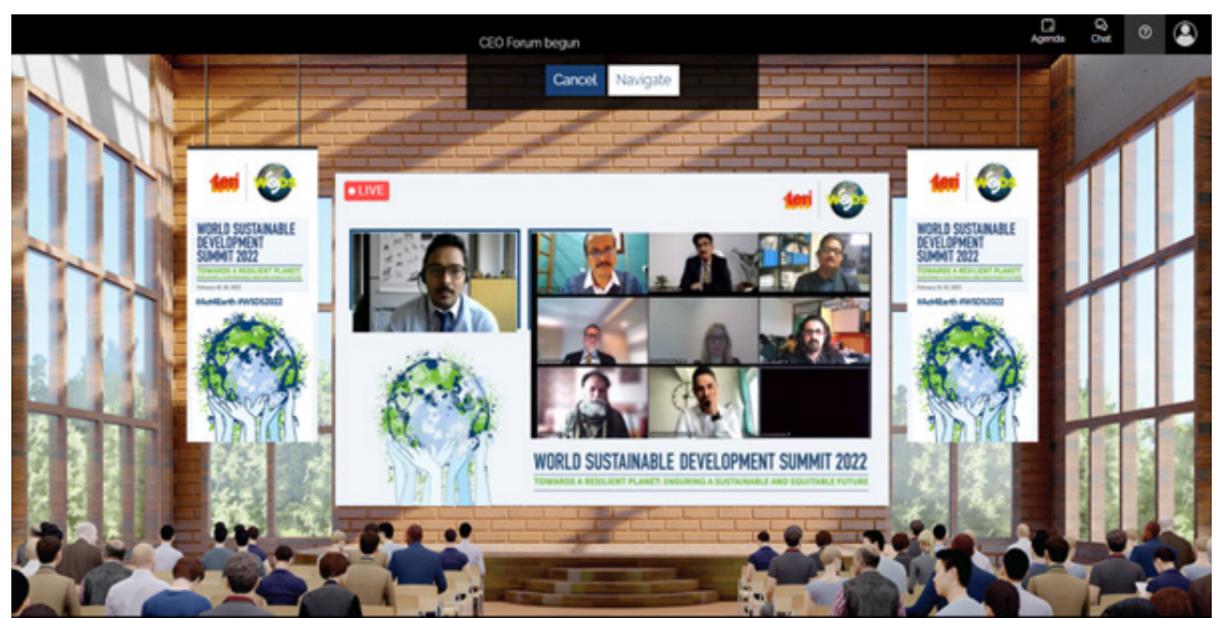
**DR J V SHARMA**  
Director, Land Resource, TERI

“Capacity building is one of the most crucial aspects to sustain the carbon finance project for long term.”

- Channelizing the resources for building capacity of frontline staff and local communities.
- Introduction of novel approaches such as biodiversity credits can be incorporated for biodiversity conservation and improvement of ecosystem services.

### Actionable Messages

Carbon finance mechanism should be transformed into a holistic system, in which all sectors (transport, energy, and rural development) can be roped in along with the forest departments.



Dr Vibha Dhawan brought out a few important facts related to agriculture in India. India has a total of about 17% of the world population but only has 2.4% of the world's land area is cultivable. She stated the need of interdisciplinary focus, the capability and skills for innovation and sustainability for addressing the challenges in the agriculture sector. Dr Jayahari mentioned that around 1.8 million human resources employed in agriculture and allied sectors in India will not be able to cater to the transition from the present manner of sustainable agriculture. It will require a lot of skill building, a lot of capacity building and a lot of awareness building to take the agriculture and food system in India from the present situation to the needs of the future by 2030–2040. Dr Ramesh Chand in his keynote address said that the youth are not interested in agriculture as they would look elsewhere for a better opportunity. But there are also the elder generation who are quitting their daily jobs or taking voluntary retirements and coming forward to take up agriculture as a profession.

Dr Manish Anand briefed about the TERI-FOLU scoping study. The study highlights the varying levels of capabilities and skills requirements across agriculture and allied sectors from the perspective of sustainable food and land use system as India is striving to find ways of achieving food and nutrition security. Dr Satender Singh Arya mentioned that Agricultural Skill Council of India has 186 job rolls with various levels. He stressed the need of start-ups, applications, making use of applications and skilled usage of applications.

Dr A K Singh addressed the Indian Council of Agricultural Research's role in providing training programmes, hand holding sessions, including long-term training programmes. Dr Rashmi Aggarwal highlighted how the inbuilt force can be made for attracting the youth in agriculture sector. She mentioned the need of launching National schemes to introduce formal standardized agricultural training programmes and several countries are also taking such projects of agriculture skill development with sustainability objective.

Mr Sharath Loganathan stated the importance of post-harvest in marketing, which requires to transport 1200–2300

## BREAKING BARRIERS: YOUTH AND AGRICULTURE

**Keynote Address:** Prof. Ramesh Chand, Member, National Institution for Transforming India-NITI Aayog

**Speakers :** Dr Vibha Dhawan, Director General, TERI; Dr Jayahari KM, India Country Coordinator, Food and Land Use Coalition; Dr Manish Anand, Senior Fellow, TERI; Mr S Vijay Kumar, India Lead, Food and Land Use Coalition; Distinguished Fellow, TERI; Dr Satender Singh Arya, Chief Executive Officer, Agriculture Skill Council of India (ASCI); Dr A K Singh, Deputy Director General, (Agricultural Extension), The Indian Council of Agricultural Research (ICAR); Dr Rashmi Aggarwal, Joint Director of Education & Dean (Acting), Indian Agricultural Research Institute (IARI)



### DR A K SINGH

Deputy Director General,  
(Agricultural Extension), The Indian  
Council of Agricultural Research  
(ICAR)

“In order to double farmer's income one way forward is through eco-enterprises.”

tonnes of vegetables within 14–18 hours of time so as to ensure that post-harvest the produce reaches the destination. He mentioned the barriers involved and emphasized youth's hesitance to come forward for this sector. Dr Sangeeta Chopra briefed about the technology developed called PUSA Farm SunFridge. She briefed the features of the model which is off-grid and battery less system with solar panels for daytime cooling.

## VEDANTA PARTNERS WITH TERI TO ACCELERATE ESG GOALS

Vedanta, a global natural resources company, signed a Memorandum of Understanding with TERI to forge a long-term partnership and work in collaboration on creating a sustainable world by leveraging both the organizations' strength in the ESG space. With a mission to promote "Sustainable Use of Resources for a Resilient Planet through Transformative Actions", the MoU was signed at the WSDS.

Vedanta plans to invest around Rs. 200 crore over the next 5 to 10 years on R&D and sustainability initiatives to promote and build a sustainable ecosystem. The partners will work towards building a sustainable future by engaging with governments, civil society and peers to promote a larger ecosystem for climate change, resource efficiency, and circularity, harnessing cleaner energy, sustainable supply chains, and people-centric development.

Speaking at the MoU signing ceremony, Dr Vibha Dhawan, DG, TERI said that "Businesses can play a paramount role in meeting development goals of UN Development agenda of 2030. Towards fulfilling this ambition, Vedanta and TERI have come together to work in the pursuit of solving pertinent issues that are critical towards achieving a sustainable future."

Vedanta Group CEO Sunil Duggal said, "At Vedanta, we keep communities, people and planet at the centre of business decisions. We believe, partnership with TERI will create a larger ecosystem to support the global agenda of



a sustainable world. This collaboration will help us traverse our ESG commitments on 'Transforming for good'. TERI has a great track record of developing innovative and sustainable solutions in areas of waste utilization, clean energy, resource efficiency and community welfare, which augurs well with our defined ESG aims. We aspire to work in tandem to achieve our common vision with this partnership."

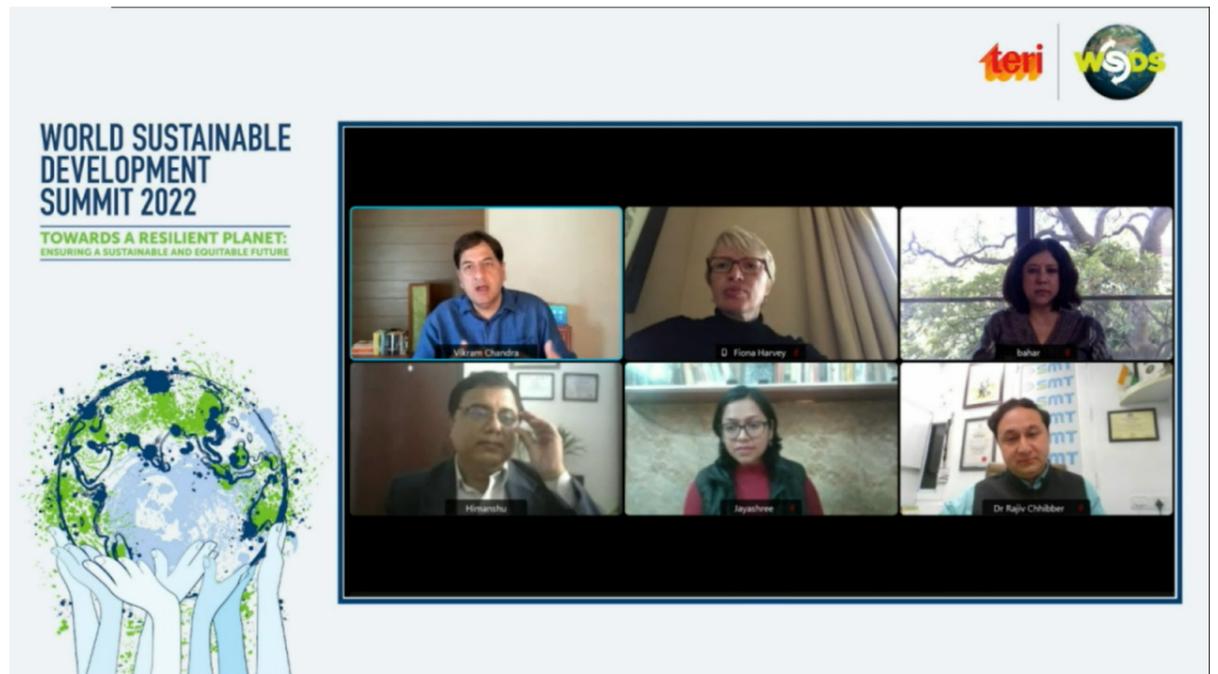
With this MoU, Vedanta and TERI will look at opportunities to work on common areas of interest until 2050. The partnership will provide a platform to promote individuals and organizations to adopt sustainable practices by creating Vedanta-TERI ESG awards and building a sustainable supply chain.

**MEDIA COLLOQUIUM: ROLE OF COMMUNICATIONS AS A MEANS FOR SHAPING PUBLIC AND POLITICAL PERCEPTIONS AND ATTITUDES ON CLIMATE ACTION**

**Session Chair:** Mr Vikram Chandra, Founder, Editorji

**Addresses :** Ms Fiona Harvey, Environment Correspondent, The Guardian; Ms Bahar Dutt, Environmental Journalist and Conservation Biologist; Mr Himanshu Shekhar, Mishra, Senior Editor, NDTV; Ms Jayashree Nandi, Environment Journalist, The Hindustan Times; Dr Rajiv Chhibber, Vice President - External Affairs, Sahajanand Medical Technologies

With an introductory explanation on the role of communications as a means for shaping public and political perceptions and attitudes on climate action, Vikram Chandra moderated the panel with his opening remarks. He emphasized on the role of media in disseminating awareness and engaging with the masses on fundamentals of climate action. He suggested that the trajectory of today's media, which includes social media, print media, etc., may limit exposure to alternative viewpoints and foster the establishment of echo chambers, or groups of like-minded people establishing and reinforcing a common narrative. This makes it difficult to engage target audience and becomes a challenge in the discourse of climate action. Fiona Harvey highlighted the role of environmental journalists in educating and spreading awareness about imperative thematic areas such as climate change, national food security, cost of living and business, which are all interdependent. Bahar Dutt, on the other hand, added the angle of politics in the course of climate action and emphasized that within the realm of journalism, "we need to ask difficult questions and make behavioural change accessible while also countering climate fatigue with our stories." She also suggested that the dynamics of media in the climate action discourse needs to be navigated beyond capturing the big events like the Paris Agreement and COP26. She explained how media needs to maintain the continuity of coverage on climate change for better outreach. Giving a corporate communication perspective to the panel, Rajiv Chhibber put forth his opinion on pervasive set-up of climate change and suggested that "we need to stop beating around the bush and target the audiences with coherent strategies." He further questioned the role of media during and after the event of crisis and suggested that the stark gap needs to be bridged with continuous coverage. Himanshu Shekhar brought the stakeholders' perspective to the panel and highlighted the four major stakeholders of Indian democracy—Government, Political parties, Common people, and Media. He further explained his point through an example of the recent cyclone Amphan that hit the Indian coast of Odisha and West Bengal, leaving millions of families homeless. He said that "the coverage of the entire cyclone was well documented but there was no documentation or media coverage of post-disaster implications". Setting further context to this discussion, Jayshree Nandi suggested that the story of climate crisis has three dimensions to it—severity of crisis impacts, global negotiations/geopolitics and what is being done at home (India). She specified how the reporting of climate action is skewed in developing and developed countries and that the geopolitics is reality and should be reflected by both developed and developing countries through the prism of equity and justice.



**Actionable Messages**

**Message 1:** As journalists we liquidate away the coverage once the disaster is over and that is the missing link we need to highlight.

**Message 2:** Geopolitics is reality and both developing and developed nations should reflect on climate equity and justice.

**Message 3:** Climate action can be impactful through a balanced approach that tackles both, good science and hard hitting stories which brushes upon emotions.

**Message 4:** We need to ask difficult questions and make behavioural change accessible while also countering climate fatigue with our stories.



**MS BAHAR DUTT**

Head Corporate Social Responsibility, Hindustan Zinc Limited

“The politics of environment between developing and developed nations creates a big dilemma for journalists”



**MR VIKRAM CHANDRA**

Founder, Editorji

“We as journalists need to break the shackles of the echo chambers”



**MS FIONA HARVEY**

Environment Correspondent, The Guardian

“There is a need to explore all the avenues as no time is left to do just one thing or try one method after another, every person should be reached through the media diaspora to combat climate change”



**MR HIMANSHU SHEKHAR MISHRA**

Senior Editor, NDTV

“An issue attracts the political party only when it connects to the masses. At this point no manifesto talks about climate crisis and that is mainly because it has not yet made its way to the common people”



**MS JAYASHREE NANDI**

Environment Journalist, The Hindustan Times

“There needs to be a focus on legal rights to compensation after a disaster, as the destitute and the marginalized communities face the biggest challenge to combat climate change.”



**DR RAJIV CHHIBBER**

Vice President - External Affairs, Sahajanand Medical Technologies

“The story of climate crisis has three dimensions- severity of crisis, global negotiations and what is being done at home.”

**STRATEGIES TO DECARBONIZE TRANSPORT SECTOR – MULTI-SECTORAL APPROACH**

**Session Chair :** Mr Shri Prakash, Distinguished Fellow, TERI

**Session Moderator :** Mr Sudhendhu J Sinha, Adviser, Transport, NITI Aayog

**Speakers :** Mr Shri Prakash , Distinguished Fellow, TERI; Ms Jaya Varma Sinha, Additional Member, Traffic, Railway Board; Dr Ashish Verma, Professor, Indian Institute of Science; Ms Akshima Ghate, Senior Principal, RMI India; Dr Anup Bandivadekar, Program Officer, Hewlett Foundation Environment Program; Clarence Woo, Executive Director, Asian Clean Fuels Association



**MS JAYA VARMA SINHA**  
Additional Member, Traffic ,  
Railway Board

“ Pandemic has played a very important role in making Indian Railways adjust according to the traffic and industry demand.”

Mr Shri Prakash discussed the long-term plans of Indian Railways to achieve 45% modal share in freight transport by the year 2030. Ms Jaya Varma Sinha officially launched National Transport Decarbonization Council (NTDC) and policy briefs on Private Participation in Rail Freight Terminals and Freight Forwarder Scheme. With the major focus on capacity building during past 5 years, Ms Jaya Varma Sinha discussed the progress of Indian Railways in achieving net-zero emission and highlighted the progress of super critical and critical projects which are proposed to be completed by Indian Railways in December 2022 and March 2024, respectively. There is also a plan to integrate Indian Railways’ parcel business with the India Post service. Indian Railways plan to achieve net-zero emission based on policy interventions including Demand-Pull and Supply-Push initiatives. Talking about the role of mitigation measures in attaining net-zero emissions, Prof. (Dr) Ashish Verma argued that carbon neutrality is important but



we should keep narrative for actual mitigation in mind. Opportunities of decarbonizing transport sector including shift towards public transport, traffic optimization and vehicle electrification were discussed. The major challenge is related decarbonization of the heavy commercial vehicles and passenger cars as their demand will continue to expand. Dr Clarence Woo highlighted the role of inclusivity of stakeholders to give mutual support for carbon neutrality agenda. He recommended the use of clean fuels based on

cost effectiveness and impacts on environment. Dr Anup recommended setting up of long-term zero emission vehicle deployment targets as well as the need of continuous public investments in EV infrastructure. Dr Anup recommended that electrification of heavy commercial vehicles should be done at a faster pace. Government’s role should be regulatory in nature and it may include heavy commercial vehicles in FAME Scheme. FAME Scheme should continue 3–4 years beyond the current ending year 2024.

Driving a Just Energy Transition highlighted how renewable energy is scaling in India and the world over, and is expected to contribute significantly to the fight against climate change. This critical moment in the development sector is witnessing several changes with respect to policy priorities, financing models, and building industries including renewable energy, directed at developing resilience against future shocks. However, the current scale of rapid expansion poses risks if potential negative impacts on the environment, social, and human rights are not taken into account, which could create challenges, ranging from land and labour rights, livelihood challenges to toxic waste, among others. Thus, there is an urgent need to address the potential negative social and environmental impacts, in the renewable energy sector to ensure sustainable growth by abandoning poor practices that could potentially become entrenched in the way the sector operates, and driving fair and just social transitions towards a low-carbon future. The renewable energy sector is poised uniquely to set norms that enable deep positive transformation creating flourishing and resilient communities and society, and instil principles of justice and equity across the value chain. With this motivation, the Responsible Energy Initiative was launched, which is a multi-year programme working to ensure renewable energy in Asia achieves its full potential and creates value in a way that is ecologically safe, rights-respecting and socially just. The initiative is being run by Forum for the Future, TERI, WRI India with expert support from Landesa, Business and Human Rights Resource Centre and WWF in India.

The initiative was introduced by Ms Uttara Narayan, who explained the vision and the objectives of the initiative. In her presentation, the environmental, social and cultural risks associated with the value chain of renewable energy were

Virtual Hall: Kanha

**DRIVING A JUST TRANSITION TO RENEWABLE ENERGY IN INDIA**

**Session Moderator:** Mr Saksham Nijhawan, Lead of the REI

**Speakers :** Ms Uttara Narayan, World Resources Institute (WRI); Ms Ritu Kumar, Senior Director, TPG; Mr Dinni Lingaraj, Group Manager - Sustainability, Wipro; Mr Mayank Aggarwal, Journalist and Contributing Editor, Mongabay

detailed. There was a call for adopting a just and regenerative approach in transitioning to a clean energy future. This approach would entail minimising socio-environmental impacts and ensure ecological restoration; acknowledging and addressing land, labour and community rights issues; strengthening accountability of governance mechanisms; and engaging meaningfully with marginalised communities. The presentation concluded on the key message of developing collaboration with a vision to action.

This was followed by a panel discussion where eminent speakers from the energy sector were invited to present their views on the overarching theme of responsible energy. The session was moderated by Mr Saksham Nijhawan, Lead of the REI. The session was guided by some exploratory questions:

- What might a deep just transition to renewable energy in India look like?
- What barriers and challenges does the sector face in enabling that transition?
- How might we go beyond traditional notions of profit and growth towards centering justice, dignity and wellbeing for everyone?
- What role can different stakeholders play in enabling this transition?



**Actionable Messages**

Develop participatory governance mechanisms involving the communities

Each speaker was invited to share their insights and several key issues were brought to the fore. The stake of local communities in energy projects and safeguarding their rights and measures to ensure benefits are extended to them, was extensively discussed.

The session concluded with Mr Saksham summarizing the discussions and thanking all the speakers and participants on behalf of the Responsible Energy Initiative.

This thematic track discussed the new and potential areas of private sector financing in a transition to clean and greener India. With India committing carbon neutrality for 2070, there has been a resurgence of immense opportunities for financial investment in this clean energy, be it equity investments or direct investments in renewable energy production.

With special emphasis on investments and potential investments in renewable energy, the private sector in unison highlighted private sector's interest in investment in the respective sector. It was also brought to light that there needs to be government support (in policy) in easing this entry of the private sector to the renewable energy sector. As a policy suggestion, the deliberation's output reflected the fact that the private sector is willing to invest in the whole value chain of electricity production but that requires revamping up the whole values chain and making it efficient for the private sector to invest in. Be it energy production or mobility, the intent of private players to enter any budding green sector is clear. Electric vehicles, battery storage are of particular interest to private sector. With an optimistic view that India can achieve the said carbon neutrality target and private sector ready for all sorts of corporation, the private sector urges using new financing mechanisms like green bonds to have it owns climate fund.

The key takeaways from the thematic were that the government needs to make realistic targets for climate change, create opportunities for financing and pay attention to sustainable financing.

## FINANCING ENERGY TRANSITION IN INDIA

**Speakers :** Pankaj Sidhwani; Sujoy Bose; Pushkar Kulkarni; Cecilia Tam; Namita Vikas; Girishkumar Kadamb



### PUSHKAR KULKARNI

Additional Member, Traffic,  
Railway Board

Investment model of road sector should be translated to other sectors including renewables.

### Actionable Messages

**Message 1:** There needs to be clear and realistic targets of the Government on carbon neutrality.

**Message 2:** Financial health of state DISCOMs needs to be improved to attract private sector investment in renewable energy.

**Message 3:** There needs to be consistency of policy and regulation on the part of Government to attract private investment in green finance.

## ENDOCRINE-DISRUPTING CHEMICALS (EDCs): REGULATORY AND POLICY IMPLICATIONS FOR INDIA

**Speakers :** Smt. Roli Singh, IAS, Additional Secretary, MoHFW; Dr S K Sarkar, IAS (R), Sr Director and Distinguished Fellow, TERI; Dr Brij Mohan Sharma, Research Scientist, RECETOX, Czech Republic; Mr Satish Sinha, Associate Director, Toxics Link, New Delhi, India; Dr Paromita Chakraborty, Associate Professor, SRMIST



### SMT. ROLI SINGH, IAS

Additional Secretary, MoHFW

Need for development of a collaborative platform between different ministries to monitor and regulate chemical substances in agriculture, fisheries, dairy, food processing, and pharmaceuticals, etc.; to ascertain harmonized protocols and solutions to minimize exposure to EDCs.

The Thematic Track deliberated on the status of endocrine-disrupting chemicals (EDCs), their adverse impact on human health in India and the policy landscape. The session was commenced with a welcome address by Dr S K Sarkar. Having led the project from TERI "Endocrine disruptors in Indian food, minimizing children exposure and fostering a separate space for every culture and food market," he emphasised the concerns from the health impact of EDCs. He also stated that "Extensive research underlines India as a hotspot for EDCs, and the results of the current study being an eye-opener." He welcomed the distinguished panellists in the discourse towards scientific policies in this regard.

A documentary, summarising the essence of the research under the EDIFY project and the actionable path that the scientists aim to convey to the policy makers was screened. Dr Andrea Terron, while delivered the special address, presented his thoughts on how Europe dealt with pesticides, having endocrine-disrupting properties. He also highlighted the data gaps and the need for further research to focus on

regulatory actions required to resolve issues related to EDCs. In her keynote address, Smt. Roli Singh provided a brief overview of the food safety and standards responsible for ensuring safe and wholesome food in India.

This was followed by release of the policy brief titled 'Endocrine-disrupting Chemicals (EDCs) in Food and Drinking Water in India: state-of-affairs and Recommendations for policy makers'.

### Actionable Messages

**Message 1:** The Indian legislative system needs to specifically address the tolerance limits and regulations for several key EDCs in food, water, and consumer products.

**Message 2:** India might gain tremendously from leveraging and expanding existing measures to address the problem of EDCs. The upcoming Chemical Management and Safety Rule (CMSR) may be expanded to include a broader range of very harmful EDCs.

The technical session was moderated by Dr Girija Bharat who briefly introduced the project and the panellists.

Dr Satish Sinha, underlined that synthetic chemicals are always present in common objects such as furniture, autos, toys, and consumable meals, these being exceedingly toxic. He further pointed out the health impacts of EDCs and its link to severe reproductive and neurological disorders. The more significant implication, he said is that many of these chemicals do not remain in the products. They find or leach out into the larger environment, impacting the food chain, establishing a strong connection between many of these chemicals and their impact on the food chain.

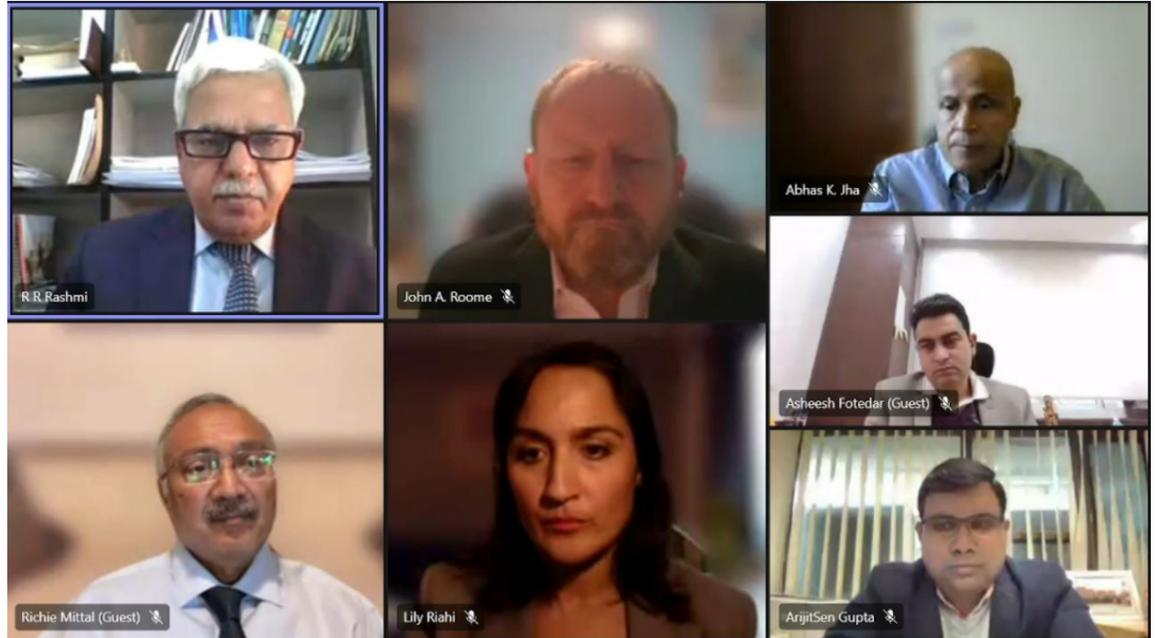
According to Dr Luca Nizzetto, the research on environmental contamination, shows India being hotspot for endocrine-disrupting chemicals. These chemical pollutants are present at such a young period in our development, that persistent exposure to them can have serious negative consequences, even when exposed to low doses.

He also stated that the Advanced Chemical Management System and the Food Safety Regulation began to recognise new techniques to identifying prioritised substances that exhibited possible endocrine disruptor characteristics. So considering the need and the ongoing effort to endow India with a moralistic chemical management system and take note of the scarcity of data on the dietary exposure for several priority contaminants, including some that are already recognized and endocrine disruptors, the EDIFY project was conceived as an international research exchange.

Mr R R Rashmi said that India has made tremendous progress in the area of energy-efficiency. The improvements are there not only in technological advancements but also in the application of building consumer awareness, greater stakeholder participation, and greater sensitivity to minimize energy consumption. Mr John A Roome informed that due to heat stress in India, the wet-bulb temperature could exceed the survival threshold of 35 degree Celsius in few of the locations in India. He further said that unless cooling access gap is addressed, the development objective of India would be impeded and lead to loss of productivity, jobs, and health. Mr Jigmet Takpa highlighted about the ICAP and India's commitments to Montreal Protocol. Mr Abhas Jha presented the ICAP study on "Developing a policy roadmap to support the implementation of ICAP". He shared the finding of the World Bank study with the key opportunity areas under various sectors. Ms Lily Riahi informed the panel about the residential air-conditioning electricity demand, which is outpacing the new solar add-on in the grid and the RAC demand is only going to increase in the coming years. It would undercut our efforts to reduce the power sector emissions. Mr Arijit Sengupta informed the panel about the steps taken by BEE in the cooling sector. He said that there is lot of potential in the cooling sector investments but there are many challenges as well. Mr Umamaheshwaram informed the panel on the need

**FINANCING THE IMPLEMENTATION OF THE INDIA COOLING ACTION PLAN**

**Speakers :** Mr R R Rashmi, Former Special Secretary, MoEFCC and Distinguished Fellow, TERI; Mr John Roome, Regional Director, The World Bank; Mr Jigmet Takpa, Joint Secretary, MoEFCC; Ms Lily Riahi, Coordinator – Cool Coalition, United Nations Environment Programme; Mr Richie Mittal, Immediate Past President, Indian Society of Heating, Refrigerating & Air-conditioning Engineers




**MS LILY RIAHI**  
Coordinator – Cool Coalition, United Nations Environment Programme

“ In recent years, the amount of residential air conditioning electricity demand on the grid has outpaced the amount of new solar capacity being added to the grid ”

of certification for the city officials to get them trained on the energy efficiency, thermal comfort, urban planning, etc. Mr Asheesh Fotedar shared his learnings in the development of cold chains and the challenges faced during the COVID-19 pandemic. He informed about the framework requirement for the development of cold chains. Mr Richie Mittal informed the works done by the ISHRAE that can bring a great value

to the cooling sector. He informed that the low-GWP refrigerants are needed to be developed in India, so that their adoption can be accelerated. He also said that there is an opportunity to transition to low GWP refrigerants when the existing equipment are replaced.

**EVIDENCE-BASED ACTION PLANNING TO ACHIEVE CLEAN AIR**

**Welcome Address:** Dr Vibha Dhawan, Director General, TERI  
**Speakers :** Shri Shanth Avverahalli Thimmaiah, Chairman, Karnataka State Pollution Control Board; Dr Prashant Gargava, Member Secretary, Central Pollution Control Board; Dr Anju Goel, Fellow, TERI; Dr Ajay Nagpure, Program Head - Air Quality, WRI; Dr Pratima Singh, Research Scientist, Air pollution-Lead, CSTEP; Dr R J Pandya, Advisor, Surat Municipal Corporation; Dr Ashok Ghosh, Chairman, Bihar Pollution Control Board; Dr K S Jayachandran, M S, Delhi Pollution Control Committee; Shri Polish Mukerjee, Lead, Air Quality and Climate Resilience, NRDC

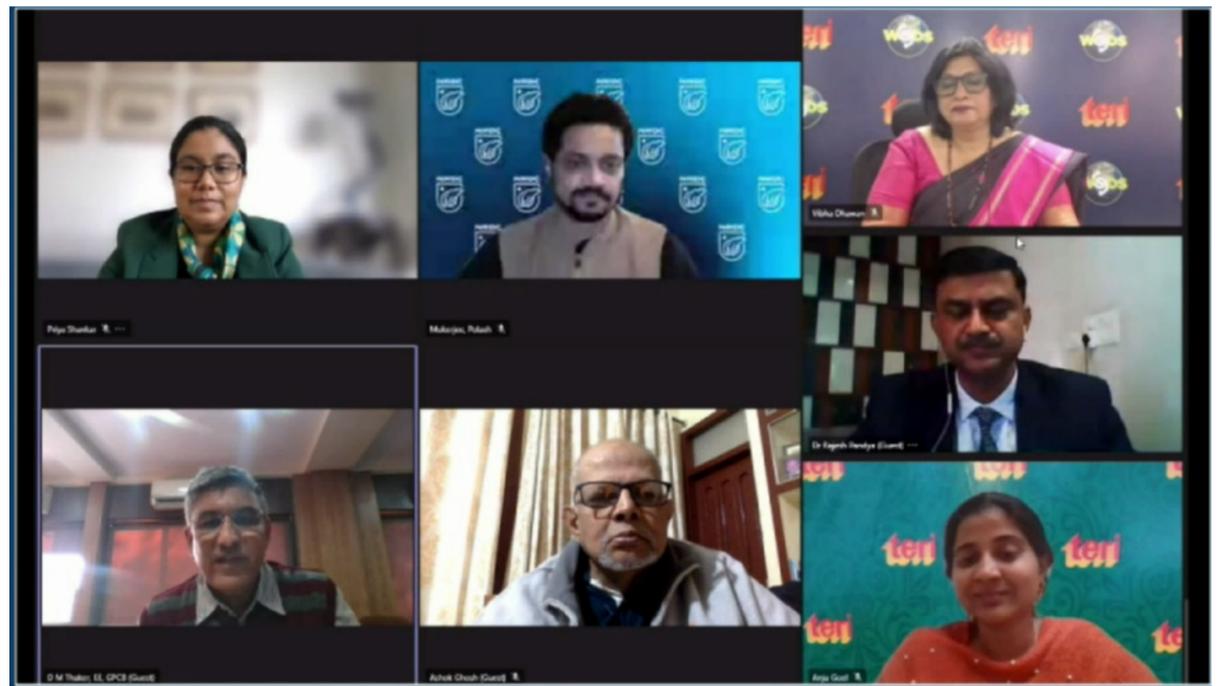
Dr Vibha Dhawan delivered welcome note for the session. She emphasized on collaborative efforts made by institutions to conduct source apportionment studies in different non-attainment city identified under National Clean Air Programme (NCAP). Dr Prashant Gargava inaugurated the session. He pointed out some efforts made by CPCB and DPCC to improve air quality in Delhi and talked about DTC buses fuel transition event happened in 2000.

Dr Anju Goel presented the outcomes from source apportionment study conducted by TERI in Surat city. She showed the multi-pollutants emission inventory for different sectors. Alternated and BAU scenario were also discussed in the presentation. Dr Anju Goel revealed the 20 intervention for alternate scenario to mitigate the air pollution in Surat city. Dr Ajay Nagpure explained the role of WRI in the source apportionment study of Surat city. He showed emission inventory prepared by TERI in his presentation. Dr Ajay talked about some key works which have been done by WRI during the study.

Dr Pratima Singh presented the findings of source apportionment study for the city of Bengaluru. The emission inventory of different sectors revealed that Transport (58%) is a major contributor to particulate matter (PM), followed by road dust (16%), and construction and demolition dust (11%). IT hubs and ring roads were identified as hot spot areas due to higher concentration of PM.

Dr R J Pandya thanked TERI and WRI for carrying out source apportionment study for Surat city and helping to identify and quantify the air pollution problem.

Dr Ashok Ghosh, Chairman, Bihar Pollution Control Board thanked TERI for carrying out source apportionment study for Patna city. He mentioned that in Patna, contribution of air pollution is more from outside the city boundary.



Shri Shanth Avverahalli Thimmaiah stated that initiatives have been in Bengaluru since 2003 to address air pollution problem. Widening of roads, phasing out older vehicles, developing green cover belt, switching over to EVs are some of the initiatives under by Karnataka government. Also, Karnataka government has prepared 44 actions points involving 11 departments to mitigate air pollution.

Dr K S Jayachandran mentioned that sound monitoring is carried out by DPCC in addition to air quality monitoring. 13 hot spots were identified based on PM10 and PM2.5

concentration. Also, initiatives such as winter action plan, installation of smog tower, introduction of mechanical sweepers and spraying of bio-decompost on paddy residue have been taken by DPCC.

Shri Polish Mukerjee spoke about international experience on air quality management. He discussed about evidence based action plan for China and California. He mentioned that public participation and stakeholder engagement will help to track the effectiveness of action plan.

**PEOPLE CENTRED TRANSITION – AN INDIAN PERSPECTIVE**

**Speakers :** Dr Brian Motherway, Head, Energy Efficiency, IEA; Ms Ghislaine Kieffer, Policy Analyst, IEA; Ms Anupam Nidhi, Head Corporate Social Responsibility, Hindustan Zinc Limited; Ms Jesse Burton, Senior Associate, E3G South Africa; Prof. Pradip Swarnakar, Associate Professor, Indian Institute of Technology Kanpur; Mr Gulab Chandra Prajapati, Damodar Bachao Abhiyan



**MS ANUPAM NIDHI**  
Head Corporate Social Responsibility, Hindustan Zinc Limited

“ We need to reskill both teachers and students alike to enable the development of a sustainable capacity building framework.”

The session largely focused on how given the emission leakage, India needs to start moving beyond the coal narrative and focus on just transition efforts across different fossil fuel industries. This will help the policymakers create a regularized and common framework that can seamlessly be implemented across different frameworks. The latter half of the session focused largely on capacity building, education and how reskilling techniques must include all the stakeholders in order to avoid information asymmetry and make sure that everyone partakes in the developmental process.

**Actionable Messages**

**Message 1:** India needs to be very cautious in its approach towards retrofitting policies and amalgamating them into their local framework. While just transition has success in different parts of Europe, the same formula can't work in India.

**Message 2:** India needs to start looking beyond coal and focus on just transition efforts across the fossil fuel landscape, not just coal.