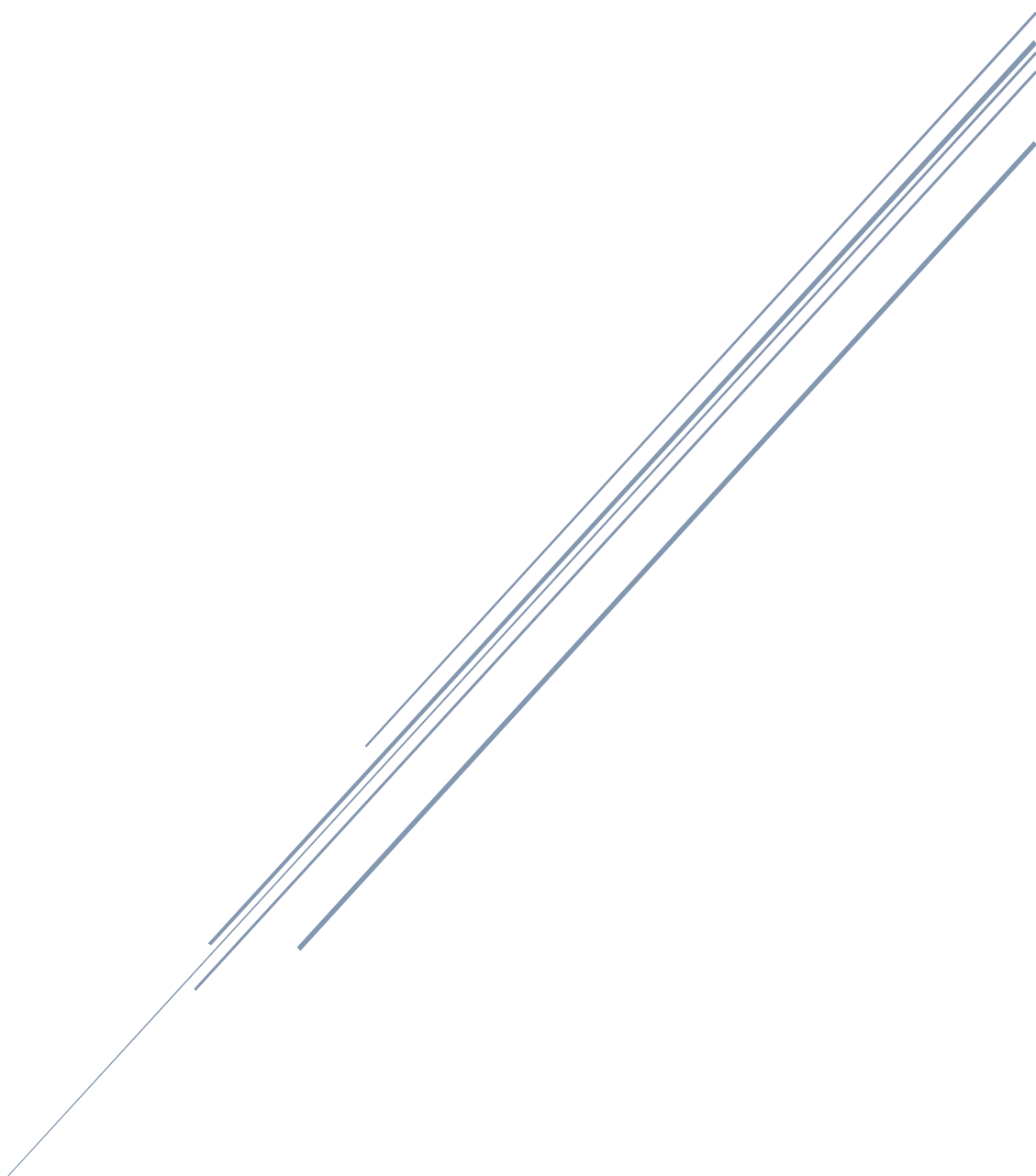


TERI-KAS National workshop on, *“Climate Change: New Age Evolution”*

Key Takeaways & Workshop Summary



Short Summary & Key Takeaways: “National Workshop on Climate Change: New Age Evolution”

14th - 17th March 2022, Bhubaneswar, Odisha

- Emissions have come down 28% against the 35% target specified in the Paris agreement, however, there is a need to look towards adaptation and mitigation strategies to strengthen climate policies. The fact that despite tremendous progress in technological advancement we're still at a cautionary point in our environmental progress, showcases the fact that we need significantly upgrade our mitigation efforts on a global scale.
- Higher Greenhouse Gas (GHG) emissions have several economic implications like loss of jobs, deteriorating GDP status, air pollution etc. We need to remember that we borrow the earth from our previous generation and thereby need to act accordingly. The COVID pandemic taught us the extent to which a global meltdown of services and daily activity can cause on humanity, a climate change crisis will be much more devastating.
- Net Zero is net positive and it must be specified that India needs its own carbon space to develop.
- Hydrothermal Carbonization can treat high moisture waste and enhance resource recovery potential. It can efficiently treat heterogeneous wet waste without pre-drying. Also, it requires lesser time and space than biological processes. It can be carried out at moderate reaction conditions (180- 260° C) under auto-generated pressure.
- The major transformation that we require in short term is to provide subsidies and incentives to electric vehicles and related equipment manufacturers, Also, the quality of public transport particularly bus and rail needs to be improved in terms of safety, comfort and infrastructure.
- Ethanol can be produced through biomass or coal. However, research shows that Biomass to Ethanol (BTE) is more environment friendly whereas Coal to Ethanol (CTE) is commercially viable option. Deeper utilization of fossil fuels during production and carbon sequestration can help to a great extent.
- While India aims for a dedicated and unified natural gas transmission network under the “One Nation One Gas Grid”, its objective to establish a gas-based economy is viable *only* if large domestic reserves are discovered and exploited.
- The proposed Carbon Border Adjustment Mechanism (CBAM) is based on the idea that a price on carbon consumption will encourage countries to adopt cleaner technologies and clean up their production process, along with avoiding carbon leakages to other countries with relaxed environmental standards. India being EU's 11th largest import destination and EU being India's 3rd largest export destination, implementation of CBAM by the EU can make Indian exports expensive, hence altering the trade dynamics between the two countries.
- Coastal indigenous people witness many changes due to climate change, commercial exploitation of marine life, search for hydrocarbons and other resources, pollution,

increasing 'dead areas' and this increases their vulnerability. Addressing this global challenge demands an inclusive solution which will require us to formally recognize the traditional knowledge of Indigenous people worldwide and also establish meaningful partnerships with the indigenous communities.

- Building resilience of communities through investments in social infrastructure and repurposing of land (and infrastructure) to generate employment and attract low-carbon investments is critical for establishing the principle of just transition in India. Additionally, there is also a need for Just Transition in the agricultural sector primarily due to the limited scope of finance institutions, huge dependence on traditional methods for farming (chemical-based farming), and augmented levels of land-induced vulnerability.
- There is a greater need to invest in green technologies as they are more cost effective than brown technologies. To achieve net zero target, we need huge financing of around 2-3 trillion dollars which further requires better cooperation among nations. Achieving the ambitious targets of COP 26 while maintaining just transition requires cooperation among civil society, NGOs, government and private institutions.
- India needs to critically focus on mainstreaming autonomous adaptation for climate resilience within policies such as National Action Plan for Climate Change (NAPCC), State Action Plans on Climate Change (SAPCC) and other sectoral developmental plans. It also must draw out plans for collecting precise data assessments – disaggregated by age, gender, occupation, and income class to better understand the socio-economic impact of climate risk.
- For managing ship-based supply chain and trade ecosystem climate change adaptation needs to account for likely lifetime of the port infrastructure, the operability of the port, resilience under extreme conditions, and building future adaptability into present day port investments.
- With the union ministry looking to mobilize green resource development through sovereign green bonds, it enhances the need to focus on deploying dynamic modelling for fiscal multipliers to improve our climate financing systems.
- To improve climate vulnerability management within the global south, the principles of climate financing 'aid' must be discussed comprehensively on a global level in order to prioritize financing mechanisms amongst regions that are extremely susceptible to environmental changes.

Conference Glimpses



Day 1

Inaugural Session

During the inaugural session, the eminent speakers drew attention towards the increasing need to mend our ways of mitigating climate crises. They believe there is a need to act and adopt a lifestyle for environment to bring true and complete transition and to perhaps achieve our climate goals.

Emissions have come down 28% against the 35% target specified in the Paris agreement, however, we still need to look towards adaptation and mitigation strategies to strengthen climate policies. The fact that we have made tremendous progress in adopting technologies, electric vehicles but we are still heavily paying the cost of reaching the tipping point through environmental degradation points out that there is a further high need to enhance our technological advancement. Ongoing conflicts demands accelerate efforts from nations towards a green environment. While is a need to strengthen adaptation techniques, there is a higher need to solve the root problem of high GHG emissions. Higher GHG emissions have several economic implications like loss of jobs, GDP, air pollution etc. among others. There is a need to remember that we borrow the earth from our next generation and thereby we need to act accordingly.

One important lesson COVID brought was whatever happens in a region affects people in other regions too therefore, we need to generate capacity building. Emphasis was laid on the need for technology sharing and financing from developed to developing countries. Technological alliance is drawn as an important tool to mitigate climate crises.

Net Zero is net positive and it was specified that India needs its own carbon space to develop. There is a greater need to invest in green technologies as they are more cost-effective than brown technologies. It was again emphasised that to achieve net zero target, we need huge

financing of around 2-3 trillion dollars which further requires better cooperation among nations. To achieve the ambitious targets of COP 26 while maintaining just transition requires cooperation among civil society, NGOs, government and private institutions.

Day 2

Session 1 – “From Conventional to Alternatives: Energy Innovations for Net Zero Emissions”

The session focused on the goal of global carbon neutrality which necessitates a transition from conventional fossil fuels to sustainable renewable energy. With the COP-26 setting up higher standards of climate commitments, innovating and adopting new mechanisms for wider and deeper penetration of renewable energy needs to be deliberated upon, considering the fact that India has also upscaled its renewable energy targets and is exploring new renewables like hydrogen fuel.

India produces 1,70,000 ton/d of Municipal Solid Waste (MSW) as per the Planning Commission report, 2014. Global waste generation is 0.11-4.5 kg/cap/d. Indian waste generation is 0.2-0.6 kg/cap/d as per the Planning Commission report of 2014. Out of total waste generated, 80% gets collected whereas only 22% gets treated or processed. Treatment options for Wet, Biodegradable waste is identified to be Hydrothermal Carbonization as it can treat high moisture waste and enhance resource recovery potential. It can efficiently treat heterogeneous wet waste without pre-drying. Also, it requires lesser time and space than biological processes. It can be carried out at moderate reaction conditions (180- 260° C) under auto generated pressure. It produces coal-like hydrochar (HC) and process wastewater (PW) loaded with organics. It was concluded that Hydro char can be used as fuel and a soil conditioner and 70-80% protein can be taken out from the process waste.

Bhutan was quite ahead in giving carbon neutral pledges since it gave it in COP 15. They rely on clean hydro-electricity to meet their carbon neutral goal. Not just this, 80% of their hydro-electricity is exported to India. The major drivers of carbon emissions are Population, CO₂/Energy, GDP/population, Energy/GDP. High economic growth for Bhutan is inevitable since the Gross National Happiness (GNH) strategy is multi-dimensional in Bhutan. Therefore, a key message was drawn for policy makers that they should include GNH in the global agenda to mitigate GHG emissions.

Transport is identified as the second largest contributor to global GHG emissions after the power sector. Globally transport sector contributes 14% of total GHG emissions and 23% of all energy-related emissions. However, as per the Indian scenario transport sector contributes 10% of total national GHG emissions and 13.4% of all energy-related emissions (BUR, 2018). Based on varying development and deep decarbonisation conditions, and the corresponding demand-side and supply-side indicators, four alternate pathways have been identified like BAU (Business-as-usual scenario)- based on current policies and programs, DEVF (Development First scenario) which gives precedence to development goals rather than carbon mitigation targets, CNT (Carbon Neutrality scenario which says that one should not force carbon neutrality at a very high cost to the system and people; instead it should focus on comfort, access, convenience, affordability,

and lastly SYNCH (Synchronous scenario) to synchronise the development and decarbonisation objectives.

The major challenge in the modal shift to rail is providing real time information on the movement of freight, price rationalization and capacity enhancement; financing huge investments. Also, there is a need for private sector involvement to convince them to shift to rail. The major transformation required in short term is to provide subsidies and incentives to electric vehicles and related equipment manufacturers, Also, the quality of public transport particularly bus and rail needs to be improved in terms of safety, comfort and infrastructure.

The need to move from Coal to Ethanol based economy is seen. Currently, ethanol blending is 7-8% in India. Ethanol comes majorly from imports i.e. around 0.8 billion litres. The benefit of ethanol blending is that its pollution free and is cost effective and is thereby a flex free route to substitute other fuels. It is easy to substitute ethanol because of its easy availability as 1 tonne of sugarcane produces 10 litres of ethanol. Among many gasifiers techniques like Moving bed, Fluidized bed and Entrained flow, Entrained flow is identified as the most suitable. Ethanol can be produced through biomass or coal. However, research shows that Biomass to Ethanol (BTE) is more environment friendly whereas Coal to Ethanol (CTE) is commercially viable option. Deeper utilization of fossil fuels during production and carbon sequestration can help to a great extent.

Session 2 – “Redefining Sustainable Development in the post COP26 era”

The session focused on the fact that climate change has become a reality today and is evident that our growth has not been sustainable. The current discourse on limiting global temperature rise to 1.5 degree C and aiming carbon neutrality by the mid of this century makes it essential to rediscuss our current definition and standards of development. With carbon neutrality set as the new benchmark, there is a need to rediscuss sustainable development parameters be it climate resilient town/city planning, water and sanitisation, green/alternative packaging solutions to name a few.

Sustainable development needs to be seen through a different perspective and there is a need to base it on human and social development. A holistic understanding of sustainable development requires actions to be taken at the national and local levels. It is important to see the community as partners to promote growth and not just as mere beneficiaries. Climate adaptation in the state of Bihar is needed since the state is highly dependent on agriculture for employment and its economic growth. Lack of adaptation funds restricts the adoption of required technologies to carry out adaptation and mitigation. Climate risks are clearly rising, especially due to poor socio-economic conditions, lack of infrastructure, high exposure (in urban centres and high population density areas) and varying climate indicators. There is a need for more precise data and assessments – disaggregated by age, gender, occupation, and income class. Also, there is an urgent need for early warning systems to detect and inform about extreme climate events. Agricultural adaptation to climate change is evident, especially induced by autonomous adaptation channels such as inherent ability & community networks.

There is a need to mainstream autonomous adaptation for climate-resilient agriculture into NAPCC, SAPCCs & sectoral development plans. Provide support for indigenous farming practices derived from traditional knowledge. Incentivize knowledge sharing by local networking platforms along with educational or training programmes. India aims for a dedicated and unified natural gas transmission network under the “One Nation One Gas Grid” policy and also for the implementation of Natural Gas Marketing Reforms to achieve a market price discovery of gas. India’s objective to establish a gas-based economy is viable *only* if large domestic reserves are discovered and exploited.

Session 3- “Trade and Carbon Tax in the Carbon Neutral World”

The session focused on the need of carbon tax to induce a carbon neutral world since European Union, through its EU Green Deal has communicated to the world its carbon neutrality plan for 2050. An important component of the deal is the provision of taxing import goods having high carbon content compared to those produced in Europe, known as the Carbon Border Adjustment Mechanism (CBAM). Trade partners to the EU especially developing countries have raised concerns stating the potential impacts of CBAM on their exports and competitiveness.

Carbon pricing measures capture the external cost of GHG emissions through the price that is put on carbon. Studies show that carbon emissions reduce by just 0.1% with the carbon tax. The global north depends on the global south since land is cheaper there and no tenure is fixed. Countries in Global south bear the burden and there is a need to better utilize the funds at the state and local level as land is a state subject, the funds should flow to the local level.

Carbon Border Adjustment Mechanism is a carbon tax going to be levied by the European Union with effect from 2023. It suggests taxing the difference between carbon embodied in domestically and imported goods. The adjustment mechanism is based on the idea that a price on carbon consumption will encourage countries to adopt cleaner technologies and clean up their production process, along with avoiding carbon leakages to other countries with relaxed environmental standards. CBAM is concerned with the carbon footprint and not with the consumption.

India and EU share high trade dependency. India being EU’s 11 largest import destination and EU being India’s 3rd largest export destination, implementation of CBAM by the EU can make Indian exports expensive, hence altering the trade dynamics between the two countries. The five sectors most vulnerable to CBAM are aluminium, fertilizers, iron and steel, cement and electricity. Indian iron and steel, and aluminium can be said to be the sectors at risk from CBAM. The literature suggests that it is important to provide incentives for developing countries to undertake costly emission reductions otherwise it might defeat the very purpose of imposing a tax, here, carbon border adjustment mechanism. The CBAM proposal needs to be improved for its effective implementation through a more rapid phase out of free allowances and mobilization of revenues from developed to developing economies for climate justice.

Session 4- “Reducing Island/Coastal Vulnerability”

The session focussed on some of the major vulnerabilities and issues of coastal and island areas and suggested innovative ways to make coastal and island areas climate resilient since the fast pacing global temperature rise is having a visible detrimental effect on coastal livelihood to the extent jeopardising the existence of several island nations. Irrespective of the fact that their contribution to global temperature rise is negligible, island and coastal communities are bearing a massive brunt of climate change. They now face a completely different set of problems like that of livelihood loss, biodiversity-marine biodiversity loss and environmental refugees to name a few.

Oceans are the lifeline and are much more important to the human existence than we imagine. Sustainable Development Goal 14 mentions the need and importance to “Conserve and sustainably use the oceans, seas and marine resources for sustainable development.” However, Ocean governance still remains in nascent stage and is still emerging as a concept. Coastal indigenous people witness many changes due to climate change, commercial exploitation of marine life, search for hydrocarbons and other resources, pollution, increasing ‘dead areas’ and this increases their vulnerability. Addressing this global challenge demands an inclusive solution which will require a need for the ocean observing community to formally recognize the traditional knowledge of Indigenous people worldwide and also establish meaningful partnerships with the indigenous communities, organizations and nations to learn and respect each others’ ways of knowing. The case of the Inuit community was taken to explain the changes in the Arctic ocean due to climate change, commercialization, tourism etc.

Climate crises are resulting in increase in sea level, wind wave, high sea level temperature resulting in coastal inundation (tsunami, floods, storms). Rise in sea level has irreversible long-term effects. A robust Integrated-Flood Warning System needs to be established as in Mumbai and Chennai. Maritime India vision 2030 is to provide \$US 40 billion through investments and also aims to create 2 million new jobs. There needs to be key climate consideration for the port ecosystem. The catchment area of concern for port operations falls well beyond its location and must consider the emerging climate risks in both the foreland as well as the hinterland. Adaptation to climate change needs to account for local conditions, likely lifetime of the port infrastructure, the operability of the port, resilience under extreme conditions, and building future adaptability into present day port investments. The transition towards a “landlord” model may limit the ability of the port authorities to “enforce” adaptation measures and lack of communication and integration between port authorities and city authorities are identified as major challenges in the Indian context.

Day 3

Session V- “Climate Change Capital Inflow: How can a change be fostered”

The session focussed on the need to channelize the green investment for mitigating the effects of climate change. It has been assessed that estimates for investment needs for the propagation of SDGs in developing nations range from 3.3 trillion US dollars to 4.5 trillion US dollars per year. It has been reported that at current levels of investment in SDG relevant sectors the developing countries alone face an annual investment gap of 2.5 trillion US dollars. Additionally, given that many countries within the Asia-Pacific region don’t have adequate financing mechanisms, recent

estimates suggest that achieving the SDGs by 2030 will require an annual additional investment of 1.5 trillion US dollars for developing countries in the Asia-Pacific region. As we move deeper into the decade which has been described by the latest IPCC report as the most critical time to reinvent our environment, more aggressive steps will have to be taken for the mitigation of the climate crises.

The idea of climate finance is primarily different for developed and developing nations. The developed nations view it as aid whereas developing countries view it as private finance. Various tools to aid climate finance are External sources (energy bonds, loans, grants, special investments) and Budgetary sources (carbon tax, property tax, sovereign bonds etc.). Sovereign Green Bonds are issued by Central Government and its issuance entirely depends on centre.

Minister of Finance announced that “As a part of the government’s overall market borrowings in 2022-23, sovereign green bonds will be issued for mobilising resources for green infrastructure. The proceeds will be deployed in public sector projects which help in reducing the carbon intensity of the economy” in Union Budget 2022-23. Dynamic modelling of fiscal multipliers is needed. All developing countries are climatically vulnerable and risk profile gets mitigated when we make these finance. Money is heavily invested in adaptation of small island countries which are sparsely populated. Despite this, the adaptation aid does not even reflect the vulnerability. There should be greater flow to Bangladesh type countries which are highly populated.

Aid is meant to improve the welfare of the recipient nations not just through funds but even technological flow. Today, there is very little flow from donor to recipient nations. Between 2016-2018 domestic private investors contributed about INR 139 thousand crores through debt and equity for renewable energy development. The bulk of public finance was directed towards the power generation sector (70%) followed by energy efficiency and power transmission (20%), and sustainable transportation (10%). At the micro level, micro credit financing has proven to be a successful tool to enable entrepreneurship, increase standard of living, and improve livelihood maintenance. In India, currently there over 100 regulated Micro Finance Institutions (MFIs) exist. Employ greater vigilance on the risk to return ratio of different financial instruments and how they are being leveraged. Human capital as a variable should not be ignored in the net zero discussions.

Session VI – “Technological Transformation for Clean Energy Expansion”

This session deliberated on viable technologies that can help in the expansion of clean energy and it also focussed on a few market-based policy mechanisms that can support their adoption. With India now aiming at 2070 as the year to achieve its net zero, the robustness of the technological segment will now be tested. While upgradation and development of several technologies within solar, wind and ocean energy have become more and more mainstream, a streamlined approach for their management and development is still not in place. While investment in R&D is the standard norm, allowing the market to choose the best technology available is a major policy decision that cautiously needs to be looked at.

There is a need to move from capacity to production. Also, energy storage was given high importance in Budget'23 as well. A report by ICRA estimates that India would need roughly USD 450-500 bn investment India would roughly need 450-500 bn investments including investment in transmission infrastructure and storage capabilities to meet its ambitious COP26 targets.

There are primarily three technologies to harness solar energy i.e. photovoltaics, which directly convert light to electricity, concentrating solar power (CSP), which uses heat from the sun; thermal energy to drive utility scale, electric turbines; solar heating and cooling systems, which collect thermal energy to provide hot water and air heating or conditioning. The research on the motivations for solar technology adoption at the residential scale suggests several important considerations related to economic considerations including upfront cost, economic savings, and economic incentivization, environmental values, peer influence and access to information.

With an additional allocation of Rs 19,500 crore for the production linked incentives (PLI) for high efficiency module manufacturing of 280 GW capacity, it will strengthen government's attempts to dramatically expand solar cell and module manufacturing in the country and help achieve the target of 500 GW installed RE generation capacity by 2030.

Session VII – “People Centric Transition- Determining a pathway for transition from all fossil fuels”

The session focussed on determining a pathway for transition from all fossil fuels since the sectoral and economic transformation which India is likely to face due to its reliance on fossil fuels is extremely high. It is believed that if the principle of energy transition is not handled correctly, there can be an exhaustive increase in stranded workers and communities. While a people centric transition from coal production has seen the light of the day, there is greater need to focus on how transition activities of other fossil fuels will be managed.

India's target is to 500 GW RE by 2030, China's target is to introduce 35% electricity from RE by 2030 whereas Latin America aims 70% RE by 2030. However, they face challenges of integrating renewables, partly as a result of incompatible institutions. Beyond 30–50%, unless renewable electricity can be shifted across time or space, the amount of renewable electricity generated will likely need to be reduced or curtailed at the source. In India, 90% of all power is traded through long-term contracts, foreclosing options to balance intermittency across space.

There are several implications for India in RE integration as wholesale markets only account for 4% of volume transacted. Proposal to introduce a nation-wide market-based dispatch (2018) is yet to take off due to severe shortage of working capital and centralization of dispatch which results in loss of autonomy for local governments. Coal mining, coal-based power, and road transportation will experience major disruptions in the next 10 years. 60 districts in 16 states will be impacted. These districts account for 95% coal and lignite production; 60% coal-based power capacity; 90% automobile and ACM. High concentration in coal-belt Jharkhand, Chhattisgarh, Odisha. There is an imperative for just transition in coal sector through restructuring of the economy and industries by building better through low-carbon investments; harnessing local

resource potential, revenue substitution and JT investments through economic diversification to replace mono-industry dependence; building resilience of communities through investments in social infrastructure and repurposing of land (and infrastructure) through opportunity to generate employment and attract low-carbon investments.

There is a need for Just transition in agricultural sector primarily due to Limited scope of finance institutions, huge dependence on traditional methods for farming (chemical-based farming), highly vulnerable and marginalized people and due to lack of awareness and technical knowhow among farmers refrain the diversification of farm operations and efficient use of green technology. Establishing more and more Custom Hiring Centre's can induce the supply of farm equipment to marginalized farmers at subsidized rates on hire. Even, Farmer Producer Organizations can help provide small scale farmers with all end to end services. There is a greater need for convergence of policies and funding schemes at the local level for their proper implementation. Affordable climate smart technologies through target subsidies or by spreading the capital cost over time, suggest a faster and inclusive transition to climate smart agriculture.

Concluding Session

The world is constantly changing, and we need countries like India to take the lead. The need for carbon neutrality discourse as specified by the IPCC report, is a clear indication that the world needs a readjustment, a transformation of working of all political, economic, technological systems. This transition requires humungous infusion of financial resources. Largely financed through public sector, private sector has a key role to play in today's sustainable development narrative and augmenting climate change financing. It is estimated that current gaps in investment in developing countries is around USD 2.5 trillion per year.

The transport sector is the biggest source of carbon emission thereby, a push for electric mobility can help create conducive and sustainable environment. In a push for electric vehicles, battery swapping policy along with inter-operability standards can help in improving efficiency of EV ecosystem. The energy dialogue forced us to rethink and examine our approach towards addressing climate change. The conference deliberated on the need to move from diesel operated to Electric vehicles, coal to ethanol-based economy, technological transformation etc. and the apparent need for just transition while we aim for a complete transition from coal to green economy.

Day 4

The fourth day of the conference was dedicated for a visit to Chilika Lake. The lagoon can be broadly divided into four ecological sectors based on salinity and depth, namely the southern zone, the central zone, the northern zone and the outer channel. There is a list of rare, threatened and endangered species. On account of its rich bio-diversity, Chilika lake was designated as a "Ramsar Site", i.e. a wetland of International Importance. A number of islands

are present in the lagoon, prominent among which are Krushnaprasad, Nalaban, Kalijai, Somolo and Birds Islands. This visit was particularly to Nalabana Bird Sanctuary.

The Nalaban Island within the lake is notified as a Bird Sanctuary under Wildlife (Protection) Act, 1972. The National Wetlands, Mangroves and Coral Reefs Committee has identified the lake as a priority site for conservation and management. The Lake is a highly productive ecosystem, with rich fishery resources. The rich fishing grounds sustain the livelihood of more than 0.2 million fisherfolk who live in and around the lake. It has a great heritage value and also supports maritime trade with the far east countries.

Social Media Coverage





Pushp Bajaj, PhD • 2nd
Research Fellow and Head of the Blue Economy and Climate Change (BECC) Clust...
3w •

Delivered a talk yesterday on our research project focussed on "Enhancing
#ClimateResilience of India's Critical #Maritime Infrastructure (specifically the
seaport infrastructure)" at the very timely National Workshop on ...see more



A successful conclusion to the TERI-KAS National Workshop on Climate Change-
New Age Evolution with valedictory remarks from Shri Suresh Chandra Mahapatra,
Chief Secretary, Govt of Odisha.



CONFERENCE PROGRAMME

DAY 1 14th March 2022

Arrival at Vivanta Bhubaneswar, DN Square, Bhubaneswar

6:30 pm – 8:00 pm

Inaugural session

- **Welcome Remarks** – Mr. Souvik Bhattacharjya, Associate Director, The Energy and Resources Institute
 - **Opening Remarks** – Mr. Peter Rimmele, Resident Representative India, Konrad Adenauer Stiftung
 - **Welcome Address:** Dr Vibha Dhawan, Director General, The Energy and Resources Institute
 - **Special Remarks** – Mr. R R Rashmi, Distinguished Fellow & Programme Director, The Energy and Resources Institute
 - **Special Addresses** – Shri Sisir Kumar Ratho, Principal Chief Conservator of Forests & Head of Forest Force, Odisha.
 - **Theme Address** – Shri Jayant Sinha, Member of Parliament, Lok Sabha (**virtual**)
 - **Vote of Thanks** – Mr. Kartikey Sharma, Research Associate, The Energy and Resources Institute
-

Dinner 8.30 pm onwards

Day 2 – 15th March 2022

9.30 am – 11.00 am

Session I – From Conventional to Alternatives- Energy Innovations for Net Zero Emission

The call for global carbon neutrality necessitates a transition from conventional fossil fuels to sustainable renewable energy. With the COP-26 setting up higher standards of climate commitments, innovating and adopting new mechanisms for wider and deeper penetration of renewable energy needs to be deliberated upon, considering the fact that India has also upscaled its renewable energy targets and is exploring new renewables like hydrogen fuel.

Session Chair – Mr. Subrahmanyam Pulipaka, Chief Executive Officer, National Solar Energy Federation of India (virtual)

Panellists

- Dr. Divya Gupta, Research Scholar, IIT Bombay
- Dr. Dorji Yangka, Independent Consultant (**virtual**)
- Prof. Dipti Gupta, Assistant Professor, IIM Lucknow (**virtual**)
- Mr. Souvik Bhattacharjya, Associate Director, TERI

11:00 am – 11:30 am

Tea Break

11.30 am – 1.00 pm

***Session II – Redefining Sustainable Development in
post COP-26 era***

The fact that climate change has become a reality today and is a evidence that our growth has not been sustainable. The current discourse on limiting global temperature rise to 1.5 degree C and aiming carbon neutrality by the mid of this century makes it essential to rediscuss our current definition and standards of development. With carbon neutrality set the new benchmark, there is a need to rediscuss sustainable development parameters be it climate resilient town/city planning, water and sanitisation, green/alternative packaging solutions to name a few.

Session Chair – Mr. R. R. Rashmi, Distinguished Fellow, The Energy and Resources Institute

Panellists

- Dr. Bibhu Prasad Nayak, Associate Professor at School of Livelihoods and Development, Tata Institute of Social Science
- Dr. Meeta Keshwani Mehra, Professor, Jawaharlal Nehru University
- Dr. Oliver Nelson Gonsalves, Research Fellow, National Maritime Foundation
- Dr Manish Anand, Fellow, TERI (**virtual**)

1:00 pm - 2.00 pm

Lunch Break

2.00 pm - 3.30 pm

Session III – Trade and Carbon Tax in the Carbon Neutral World

European Union, through its EU Green Deal has communicated to the world its carbon neutrality plan for 2050. An important component of the deal is the provision of taxing import goods having high carbon content compared to those produced in Europe, known as Carbon Border Adjustment Mechanism (CBAM). Trade partners to EU especially developing countries have raised concerns stating the potential impacts of CBAM on their exports and competitiveness. Considering the globalised nature of present day world and economic trade dependence of countries, this session tends to deliberate on the various dimension and impacts of a carbon tax on international trade, potential carbon emission, macroeconomic variables and etc.

Session Chair – Dr. Nitya Nanda, Director, Council for Social Development

Panellists

- Ms. Nidhi Srivastava - Independent law and policy consultant
- Ms. Vatsala Sharma, Associate Fellow, TERI
- Mr. Pranab R Choudhury, Associate Director, Center for Land Governance

3.30 pm- 4.00 pm

Coffee/tea break

4.00 pm – 05.30 pm

Session IV – Reducing Island/ Coastal Vulnerability

The fast pacing global temperature rise is having a visible detrimental effect on coastal livelihood to the extent jeopardising the existence of several island nations. Irrespective of the fact that their contribution to global temperature rise is negligible, island and coastal communities are bearing a massive brunt of climate change. They now face a completely different set of problems like that of livelihood loss, biodiversity-marine biodiversity loss and environmental refugees to name a few. This session aims to highlight some of the major vulnerabilities and issues of coastal and island areas and suggest innovative ways to make coastal and island areas climate resilient.

Session Chair – Dr. Atanu Kumar Raha, Ex- Principal Chief Conservator of Forests West Bengal**Panellists**

- Dr. Sabin Thazhe Purayil, Scientist E, Indian Institute of Tropical Meteorology (**virtual**)
- Dr. Uma Sankar Panda, Scientist E, National Center for Coastal Research
- Ms Rashmi B Ramesh, PhD scholar, School of Conflict and Security Studies, National Institute of Advanced Studies (NIAS)
- Dr Pushp Bajaj, Research Fellow, National Maritime Foundation

DAY 3 – 16th March 2022

9.30 am – 11.00 am

Session V – Climate Change Capital Inflow: How Can a Change be Fostered?

About: It has been assessed that estimates for investment needs for the propagation of SDGs in developing nations range from 3.3 trillion US dollars to 4.5 trillion US dollars per year. It has been reported that at current levels of investment in SDG relevant sectors the developing countries alone face an annual investment gap of 2.5 trillion US dollars. Additionally, given that many countries within the Asia-Pacific region don't have adequate financing mechanisms, recent estimates suggest that achieving the SDGs by 2030 will require an annual additional investment of 1.5 trillion US dollars for developing countries in the Asia-Pacific region.

As we move deeper into the decade which has been described by the latest IPCC report as the most critical time to reinvent our environment, more aggressive steps will have to be taken for the mitigation of the climate crises. In this session we shall deliberate how new age climate financing products can help bridge the financing gap and foster a radical change in our battle against climate change.

Session Chair – Dr. Nitya Nanda, Director, Council for Social Development**Panellists**

- Ms. Ananya Goyal, Research Fellow, National Institute of Public Finance and Policy
- Mr. Kartikey Sharma, Research Associate, The Energy and Resources Institute
- Mr. Saransh Bajpai, Senior Manager, World Resources Institute
- Prof. Vivekananda Mukherjee, BITS Pilani, Hyderabad Campus

11.00 am- 11.30 am – Tea/Coffee Break

11.30 am – 1.00 pm

Session VI – Technological Transformation for Clean Energy Expansion

About: With India now aiming at 2070 as the year to achieve its net zero, the robustness of the technological segment will now be tested. While upgradation and development of several technologies within solar, wind and ocean energy have become more and more mainstream, a streamlined approach for their management and development is still not in place. While investment in R&D is the standard norm, allowing the market to choose the best technology available is a major policy decision that cautiously needs to be looked at. In this session we shall deliberate on viable technologies that can make a difference and market based policy mechanisms that can support their adoption.

Session Chair – Dr. Jitendra Vir Sharma, Director, Land Resources – The Energy and Resources Institute

Panellists

- Ms. Sandhya Sundararagavan, Lead - Energy Transitions, World Resources Institute (**virtual**)
- Mr. Nitin Bajpai, Project Manager, Green Story
- Mr. Sushovon Bej, Program Specialist, GIZ (**virtual**)

1.00 pm - 2.00 pm

Lunch

2.00 pm- 3.30 pm

Session VII – People Centric Transition – Determining a pathway for transition from all fossil fuels

About: The sectoral and economic transformation which India is likely to face due to its reliance on fossil fuels is extremely high. If the principle of energy transition is not handled correctly, we can potentially see an exhaustive increase in stranded workers and communities.

While a people centric transition from coal production has seen the light of the day, there is little information available on how transition activities of other fossil fuels will be managed. In this session we shall deliberate this notion and understand the requisite frameworks that can be developed for their adoption.

Session chair – Mr. Souvik Bhattacharjya, Senior Fellow and Associate Director, TERI

Panellists

- Ms. Akanksha Golchha, Lead - Clean Energy Access & Finance, NRDC (**virtual**)
- Dr Kaveri Iychettira, Assistant Professor, School of Public Policy, Indian Institute of Technology Delhi
- Dr. Srestha Banerjee, Director, Just Transition, International Forum for Environment, Sustainability & Technology
- Ms Khushi Gupta, Research Scholar, Jindal Global University

3.30 pm – 4 pm

Tea/Coffee Break

4.00 pm- 5.00 pm

Concluding Session – Scenario Charting for India's Climate Change Future

- **Welcome Address:** Dr Vibha Dhawan, Director General, TERI (**virtual**)
- **Valedictory Address:** Shri Suresh Chandra Mahapatra, Chief Secretary, Government of Odisha

Vote of Thanks

- Mr. Pankaj Madan, Team Leader Programme Coordination, KAS India
- Mr. Souvik Bhattacharjya, Associate Director and Senior Fellow, TERI

DAY 4 – 17th March 2022

Site Visit/ Departure

- Site Visit to Chilika Lake
- Departure

Bio Notes



Mr. Peter Max Rimmele is currently the Resident Representative of Konrad-Adenauer-Stiftung Office, India. He took public office as Ministerialrat, Head of Division at the State Ministry of the Interior in Saxony, Germany, from November 1991 on until 2000. There he first served in the Police and Security and in the Local Government Department. On behalf of the German Foreign Ministry he served in East Timor as Registrar General, Head of Civil Registry and Notary Services (UNTAET), and later the principal Advisor for Governance Reform for GIZ (German International Cooperation) to the Ministry of Administrative Reform and the Anti-Corruption-Commission of the Republic of Indonesia for 7 years. He was also Principal Advisor Good Governance/Justice Program in Rwanda. Earlier he was Resident Representative Lebanon, Director of Rule of Law Program Middle East North Africa, Konrad-Adenauer-Stiftung.



Dr Vibha Dhawan is the Director General of India's premier research institution- The Energy and Resources Institute (TERI) and has been associated with TERI since 1985. Dr Dhawan is actively involved in research as well as policy development at the national and international levels. Dr Dhawan is a well-published researcher and has been instrumental in the establishment of the highly successful Micropropagation Technology Park at TERI. In the area of advanced biofuels, she guides the activities of the DBT-TERI Centre on Integrated Production of Advanced Biofuels and Bio commodities.



Mr. R R Rashmi (Rajani Ranjan Rashmi) is a Distinguished Fellow with the Centre for Global Environmental Research in The Energy and Resources Institute (TERI), India and is based in Delhi. He has had over 35 years of service with the Govt. of India in policy making positions and has been India's principal negotiator for climate change for many years. He played a key role in framing India's approach to climate policies before and after the Paris Agreement. Besides, he has been associated with policy issues relating to environmental pollution, Ozone, and environmental clearances. He is currently a Member of the Technical Advisory Body of the International Civil Aviation Organisation (ICAO) and also serves on the Sub Committee of the Ministry of Finance of Govt. of India on Climate Finance.



Mr. Jayant Sinha is a second term Member of Parliament from Jharkhand, India. Mr. Sinha won his Lok Sabha elections in 2014 and 2019 with record margins. As Chairperson of the Standing Committee on Finance, Mr. Sinha leads the 31 member Parliamentary panel that has oversight of the Ministries of Finance, Corporate Affairs, Statistics & Program Implementation, and the Niti Aayog (the government planning agency). In addition, the panel has Parliamentary responsibility for the Reserve Bank of India, the Securities & Exchange Board of India, the Insolvency & Bankruptcy Board, and the Insurance and Pension regulatory authorities. Mr. Sinha is very active in Parliament having opened the debate on India's Annual Budget on multiple occasions as well as by introducing important Private Member Bills. In the 2021 Budget session, he introduced the Climate Change (Net Zero Carbon) Private Member Bill 2021



Mr. Subrahmanyam Pulipaka is the youngest chief executive officer of National Solar Energy Federation of India. National Solar Energy Federation of India (NSEFI) is an umbrella organisation representing solar energy companies in India that are active along the whole photovoltaic value chain: project developers, manufacturers, engineering companies, financing institutions and other stakeholders. NSEFI is a platform for various solar energy industry stakeholders with the objective of strengthening the communication and taking a unified stand for greater good of solar energy industry. He is the recipient of BRICS Energy for Thought - Young Scientist award - 2018. Previously he was the co-founder and CEO of Soreva Energy, one of the 10 Energy startups representing India at RISE-2017, Hong Kong.



Dr. Divya Gupta is a researcher in the field of solid waste and wastewater treatment. I have worked on hydrothermal carbonization of wet waste with a focus on resource recovery from waste. I have a graduate degree in Chemistry from University of Delhi followed by Masters and Ph.D. from IIT Bombay, in the field of Environmental Science and Engineering.



Dr. Dorji Yangka, is from Bhutan. At present he lives with his wife and two kids in Perth, Western Australia, where he pursued and completed his PhD on Carbon neutral Bhutan from Curtin University Sustainability Policy Institute (CUSP). In his recent past he worked for the OECD and EY Perth office. Currently he works as an independent consultant for a firm that provides solar panel and battery solutions. Back in Bhutan he worked in the power sector. He is passionate about national carbon neutrality, long-term model-based energy and climate change assessment and environmental intensity of human wellbeing.



Prof. Dipti Gupta, is working as Assistant Professor in the department of Business Sustainability of IIM Lucknow. She received her Ph.D. in Public Policy from IIM Ahmedabad. She is also a Visiting Scholar with CIRED (International Research Center on Environment and Development) based in Paris, France. She has published in reputed peer-reviewed journals such as Transportation Research Part D: Transport and Environment, World Development, Energy, Climate Policy and Economic and Political Weekly. She has presented her research at various international and national forums. Her research interests include Circular Economy, Energy and Environment Policy, Energy-Environment-Economy Modelling, Corporate Strategy for Sustainable Business and ESG (Environmental Social Governance) investment.



Mr. Souvik Bhattacharjya is a Fellow and Associate Director at the Centre for Resource Efficiency and Governance Division of TERI, New Delhi. Souvik holds a Masters Degree in Economics (with spl. in World Economy) from School of International Studies, Jawaharlal Nehru University, New Delhi. He has more than 16 years of rich experience in the field of energy and environmental research and management consulting. Among other assignments, Souvik is currently leading the EU supported Resource Efficiency Initiative in India project at TERI, which is jointly implemented by the consortium GIZ, adelphi, CII



Dr. Bibhu P. Nayak is an Associate Professor and currently the Chairperson, School of Livelihoods and Development, Tata Institute of Social Science (TISS), Hyderabad Campus. He is an economist by training and has been working on environmental and resource governance issues. He teaches courses like Ecological Economics, Theories of Economic Development and other courses linking institutions, environment and development. Prior to TISS, he worked for The Energy and Resources Institute (TERI), New Delhi and Institute for Social and Economic Change (ISEC), Bengaluru in India. He has worked on several research and consultancy projects funded by various national and international agencies. His research interest include economics of conservation, community based institutions, social capital and collective action, participatory natural resource management and rural livelihood systems.



Dr. Meeta Keshwani Mehra is Professor of Economics at the Centre for International Trade and Development (CITD), School of International Studies (SIS), Jawaharlal Nehru University (JNU). She has also held the position of the Chairperson of the Centre from December 2013-December 2015 and again from January 2018-January 2020. She has been a member of the Board of Studies (SIS, JNU) and Academic Council (JNU).



Dr. Oliver Nelson Gonsalves, is an Associate Fellow at the National Maritime Foundation (NMF), New Delhi. He holds a PhD in Energy Studies from the Energy Studies Programme (ESP), School of International Studies, Jawaharlal Nehru University (JNU), New Delhi. He also has an MA in International Relations and an MPhil in Chinese Studies from JNU. Dr. Gonsalves has acquired nearly four years of professional experience in the fields of research, business-intelligence, publishing and teaching. He was formerly a Visiting Research Fellow at the Azerbaijan Diplomatic Academy (ADA University), Baku (2017) and a recipient of the prestigious Maulana Azad National Fellowship (2013-18).



Dr. Manish Anand (Senior Fellow at The Energy and Resources Institute - TERI) is a multidisciplinary professional with more than fifteen years of experience in policy research, advocacy and capacity building encompassing diverse areas of agriculture, food and land use, resource use and efficiency and emerging technologies. He is academically trained in science policy, innovation studies, developmental studies and agriculture.



Prof. Nitya Nanda is Director of Council for Social Development – A social science think tank based at New Delhi. He has been working on international trade, industrialization, development, energy and environment issues. He has been a consultant to several UN organizations, the European Commission and different government ministries/departments and agencies in India and contributed to policy making. He has a large number of publications in journals and edited books as well as pieces in magazines and newspapers. He has authored and edited several volumes. His important volumes include *Expanding Frontiers of Global Trade Rules* (Routledge, 2009), *Hydro-Politics in GBM Basin* (TERI Press, 2015), *India's Resource Security* (TERI Press, 2018), and *India's Industrial Policy and Performance: Growth Competition and Competitiveness* (Routledge, 2021).



Ms. Nidhi Srivastava is a Law and Policy Consultant based in New Delhi. She has over fifteen years of experience in legal and policy research on issues relating to environment, natural resources, energy and climate change. She obtained B.A. (Hons.) in English Literature (Miranda House, Delhi University); LL.B. (Campus Law Centre, Faculty of Law, Delhi University); and LL.M. in Energy and Environmental Law (Catholic University (KU) Leuven, Belgium). She is a PhD candidate at Energy Studies Programme, School of International Studies, JNU.



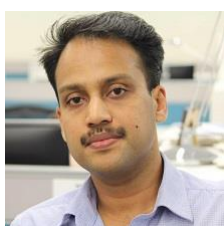
Ms. Vatsala Sharma is a Research Scholar who has recently submitted her Ph.D. thesis on Costa Rica and Bhutan's Commitment to Carbon Neutrality and the possibilities of implementing the policies of these countries in certain regions in India' and is also working as a Guest Faculty at the Department of Economics, Chaudhary Charan Singh University, Meerut.



Mr. Pranab R Choudhury is a researcher and consultant in the areas of natural resources management and governance, with more than 25 years of experience of working with South Asian governments, development actors and communities. He started his career as a Scientist with Indian Council of Agriculture Research. Moving on, as an Independent Consultant, he worked around Watershed, River Basin and Forest Management, landscape restoration, agriculture focusing on ecology, biodiversity, food and nutrition security, climate change and livelihoods, for more than a decade. He advises Land Policy Institutions and is an invited member in the executive committee of Green India Mission of Ministry of Environment Forest and Climate Change of Government of India.



Dr. Atanu Kumar Raha belonged to the West Bengal cadre of Indian Forest Service. He had joined the Indian Forest Service in 1977. He received his MBA degree from IISWBM under Calcutta University and PhD degree from Jadavpur University. He was promoted to the highest rank of Principal Chief Conservator of Forests, West Bengal in 2007 and retired from service in October 2012 after serving in various capacities for long thirty five years. Dr Raha was trained in Sweden, Australia and USA. He had rich experience of working in the field of wildlife management. As Director of Sundarban Biosphere Reserve, he had ushered in participatory management for the conservation of tiger population in Sundarban.



Dr. Sabin is a scientist working at the Climate Change Research Center of the Indian Institute of Tropical Meteorology, an R&D institute of the Ministry of Earth Science, GOI, located at Pune. Dr Sabin has a Masters & PhD in Atmospheric Science from Cochin University of Science and Technology and post-doctoral research at New York University. He joined IITM in 2008 and presently leading the high-resolution climate modeling group at the CCCR. He was nominated to IPCC-AR6 in 2018 and served as a Chapter Scientist, Lead author in monsoon annexe, Contributing lead author in technical summary to policymakers in the recently released WG1 report. He has represented the country at various national and international forums, including the United Nations Climate Summit on COP-25, and authored more than 30 research publications in international journals and books.



Dr. Uma Sankar Panda, Scientist E, at National Centre for Coastal Research (NCCR) is a physical oceanographer specialised in numerical modelling of biogeochemical interactions and dispersion of pollutants in coastal ecosystems, sediment transport and waves dynamics studies



Ms Rashmi B Ramesh, a third-year doctoral student at the National Institute of Advanced Studies, Bangalore, India. She holds a Master's degree in Geopolitics and International Relations from Manipal Academy of Higher Education, Manipal, India. Her areas of research include environment and climate change, geopolitics of the Arctic region, and India's foreign policy. Currently, she is a Visiting Researcher with the Arctic Centre, University of Lapland, Finland.)



Dr Pushp Bajaj, is a Research Fellow and the Head of the Blue Economy and Climate Change Cluster at the National Maritime Foundation in New Delhi, India. His research areas of interest include climate change impacts on India's maritime and naval security, climate resilience of India's critical maritime infrastructure, sustainability in the maritime domain, and the Blue Economy. He was recently recognised as a Fellow of the 2021-22 Coalition for Disaster Resilient Infrastructure (CDRI) Fellowship. Prior to joining the Foundation, Dr Bajaj worked as an independent science writer and researcher focusing on climate change and the environment.



Ms. Ananya Goyal is a Research Fellow at the National Institute of Public Finance and Policy (NIPFP), an autonomous research institute of the Ministry of Finance. She is also a Fellow (2021-22) at the Coalition of Disaster Resilient Infrastructure (CDRI). She has received her Masters (Research) in Economics from the National University of Singapore and BA (Hons) Economics from Miranda House. Her work focuses on questions of risk and resilience in the context of household finance and climate resilience.



Kartikey Sharma is a Research Associate with TERI with around 4 years of experience in consulting and sustainability research. He's worked on projects and assignments, analysing policies from a socio economic, economic and political economic perspective. A graduate in public policy, he has specialized on projects concerning Just transition, climate finance, environmental economics, political economy, sustainable agriculture, blue economy, complex systems, fiscal federalism, adaptation & mitigation and economic modelling



Mr. Saransh Bajpai is the Senior Manager in the Climate program at World Resources Institute. Here, he works with a focus to advance sub-national climate action work in India. Prior to joining World Resources Institute, he worked as an expert consultant with Climate Resilience Practice at WRI India to formulate the revised version of Madhya Pradesh State Action Plan on Climate Change. He holds a master's in Development and Environment Management from Indian Institute of Forest Management, Bhopal, Madhya Pradesh, and a bachelor's in Technology in Electronics and Communication Engineering from Jaypee Institute of Information Technology University, Noida, Uttar Pradesh.



Prof. Vivekananda Mukherjee received his PhD from Jadavpur University, Kolkata, India. He studied Economics at Jadavpur University and Jawaharlal Nehru University, New Delhi. He had been a research fellow at Planning Unit, Indian Statistical Institute, Delhi. Before joining BITS Pilani, he taught at Jadavpur University, University of Burdwan and RKM Residential College, Narendrapur. He had been Post-doctoral Fellow at INRA, France and Katholik University, Leuven, Belgium. He had been on visiting fellowship at University of Gothenburg, INRA, Technical University of Freiberg and Monash University. As a visiting professor he has taught at Centre for Studies in Social Science, Calcutta, Indian Institute of Foreign Trade, Kolkata, University of Gour Banga and Centre for Urban Economic Studies, University of Calcutta. He is one of the associate editors of South Asian Journal of Macroeconomics and Public Finance.



Dr. Jitendra Vir Sharma is Director of Land Resource Division at The Energy and Resources. A serving Indian Forest Officer, Dr J V Sharma has nearly 34 years' experience of overall coordination and management of projects and activities in the forestry sector. Earlier he has also worked as DIG (Forest Policy and Forest International Cooperation) as link officer along with his main assignment as DIG-Research and training in the Ministry of Environment, Forests & Climate Change and dealt with various issues of research and training. He has also worked on various projects related to Economic Valuation of Forest Ecosystem, Change in Forest Governance, Carbon Financing and enhancing livelihoods of forest communities.



Ms. Sandhya Sundararagavan is the Lead on the Energy Transitions at World Resource Institute where she works on supporting clean energy policies, power sector planning, modelling efforts and strategies for sustainable clean energy transformation



Mr. Nitin Bajpai is an LCA Project Manager at Green Story. Nitin has completed his M.Tech in Energy engineering and has experience working in the field of renewable energy, power, transport, industry, and bio-technology areas. His interest lies towards building a sustainable ecosystem comprising of clean energy technologies for power generation, resource-efficient and circular value chain of production, and energy-efficient practices. He had been working at numerous sustainability strategies projects undertaking the economic assessment, environmental assessment of interventions pertaining to clean energy and energy security.



Mr. Sushovan Bej is a Technical Expert at GIZ India, the German Corporation for International Cooperation GmbH. For over 60 years, GIZ has been working jointly with partners in India for sustainable economic, ecological, and social development. At GIZ, Sushovan supports Government of India and state governments such as Government of Delhi on developing a sustainable electric mobility ecosystem through policy advocacy, research studies and innovate strategies across the value chain such as EVs, charging infrastructure and batteries. Prior to GIZ, Sushovan was a Senior Consultant in Ernst and Young (EY), and played a vital role as a manager to the Project Management Unit (PMU) setup under Ministry of Power, Government of India for development of a charging infrastructure ecosystem in India. He also supported many

firms in their digital strategies as well as financial and business planning strategies for charging infrastructure ecosystem development.



Ms. Akanksha Golchha, is a Clean Energy Access & Finance expert of the India Programme, Natural Resources Defense Council (NRDC). Akanksha holds a M.A. in Regulatory Governance from Tata Institute of Social Sciences (TISS), Mumbai and is a qualified Chartered Accountant. In the past, she has worked with Shakti Sustainable Energy Foundation (SSEF) where her work focused on designing programs to facilitate distribution sector reforms and enhance energy access in India. Akanksha also has experience of project execution in the renewable energy, energy efficiency, and climate change domains. Her current area of work focuses on implementing clean energy technologies on ground by facilitating policy and marketable solutions.



Dr Kaveri Iychettira, Assistant Professor, School of Public Policy, Indian Institute of Technology Delhi

Kaveri's research is focused on the transition of energy and related sectors in the context of climate change under deep uncertainty. She approaches problems from the lenses of complex socio-technical systems, institutional analysis, systems thinking, and economics. Prior to joining IIT Delhi-SPP, she worked as a post-doctoral fellow at the Harvard Kennedy School, on various aspects of India's transitioning electricity sector. She has a PhD in Technology Policy and Management from the Delft University of Technology in the Netherlands. Dr. Kaveri Iychettira is also an Associate with the Harvard Kennedy School's Belfer Center for Science and International Affairs, and a Fellow at the Initiative for Sustainable Energy Policy at SAIS, Johns Hopkins University.



Dr. Srestha Banerjee is the Director of India Just Transition Centre, at the International Forum for Environment, Sustainability & Technology (iFOREST), Delhi, India. She holds a PhD in Environmental and Energy Policy from the University of Delaware (USA) and a Master's in Environmental Science from Ohio University (USA).

Over the past 12 years, she has worked with India and US-based environment and public policy think tanks, including the Brookings Institution (India office), the Centre for Science and Environment (Delhi) among others. She has authored/co-authored several scholarly publications in her areas of work, and also engages in public outreach through her writings. Her current areas of work include climate change and just transition, mining, natural resource benefit sharing, environmental justice and participatory governance.



Ms. Khushi Gupta is a Research Scholar who has recently completed her Masters in Public Policy from Jindal School of Government and Public Policy, Sonipat. She holds a graduate degree in Economics (Hons.) from Delhi University.



Shri Suresh Chandra Mahapatra, Chief Secretary, Government of Odisha



Mr. Pankaj Madan has been active with Konrad-Adenauer-Stiftung, India since February 1991. At this juncture he is Team Leader- Programmes of KAS, India Office and deputises for the Resident Representative to India as and when needed. During his long experience with KAS he has not only been curating KAS programmes including political delegations to Europe but has also been responsible for building, maintaining and enhancing old partnerships while forming new ones with political parties, think tanks, institutions and personages of repute. TERI is one example, with which KAS started in 2002 and it has grown from strength to strength.



Ms. Simran Dhingra is currently working as a Programme Officer at the Konrad Adenauer Stiftung, India. She has worked with prestigious organizations like German Embassy School New Delhi, Giesecke & Devrient Munich, Humboldt University Berlin and Goethe Institut in the past. Simran has pursued her graduation in Economics Hons. and post-graduation in German language and literature from University of Delhi. She has been an ardent learner of the German language for more than a decade and has successfully cleared the "Goethe-Zertifikat C2: Großes Deutsches Sprachdiplom (GDS)" which corresponds to the highest level - C2 - of the Common European Framework of Reference for Languages (CEFR).



Mr. Ashish Gupta has been working as Programme Officer in Konrad-Adenauer-Stiftung, New-Delhi, India. He has pursued Bachelor of Computer Application along with Masters in International Management from OHM University, Germany. He has also learnt German Language till B2.2 from Goethe Institut, New-Delhi. He has professional experience of over 8 years including his work with Deutsche Bank, Commerzbank, IBM & Kuoni Global Travel Services.

About Partners

The Energy and Resources Institute (TERI)

The Energy and Resources Institute (TERI) is an independent, multi-dimensional organization, with capabilities in research, policy, consultancy and implementation. We are innovators and agents of change in the energy, environment, climate change and sustainability space, having pioneered conversations and action in these areas for over four decades. With the belief that resource efficiency and waste management are the keys to smart, sustainable and inclusive development, TERI's work across sectors is focused on

- Promoting efficient use of resources
- Increasing access and uptake of sustainable inputs and practices
- Reducing the impact on environment and climate

TERI's research, and research based solutions have had a transformative impact on industry as well as communities. TERI has fostered international collaboration on sustainability action by creating a number of platforms and forums. Headquartered in New Delhi, TERI has regional centres and campuses in Gurugram, Bengaluru, Guwahati, Mumbai, Panaji, and Nainital. TERI's 1200-plus team of scientists, sociologists, economists and engineers delivers insightful, high quality action-oriented research and transformative solutions supported by state-of-the-art infrastructure.

Konrad-Adenauer-Stiftung (KAS)

The Konrad-Adenauer-Stiftung (KAS) is a political foundation. Established in 1955 as "Society for Christian-Democratic Civic Education", in 1964 the Foundation proudly took on the name of Konrad Adenauer, the first Chancellor of the Federal Republic of Germany.

With 16 regional offices in Germany and over 120 offices abroad, the Konrad Adenauer Foundation is committed to achieving and maintaining peace, freedom and justice through political education. We promote and preserve free democracy, social market economy, and the development and consolidation of the value consensus. We focus on consolidating democracy, the unification of Europe and the strengthening of transatlantic relations, as well as on development cooperation.

The leitmotif of the Konrad Adenauer Foundation "Germany. The next chapter" is supported by a thematic focus. With the three main topics Innovation, Security and Representation and Participation, it is quite clear which topics the Konrad Adenauer Foundation will focus on in the coming years.

KAS cooperates with governmental institutions, political parties and civil society organizations, building strong partnerships along the way. In particular, it seeks to intensify political cooperation in the area of development cooperation on the foundations of our objectives and values. Together with their partners, they make a significant contribution to the creation of a global order that empowers every country to determine its own developmental priorities and destiny in an internationally responsible manner.

The Konrad-Adenauer-Stiftung has organized its program priorities in India into five working areas:

1. Foreign and Security Policy
2. Economic, Climate and Energy Policy
3. Rule of Law

4. Political Dialogue focussed on Social and Political Change
5. Media and Youth

The India Office of the Konrad Adenauer Foundation takes great pride in its cooperation with Indian partner institutions who implement jointly curated projects and programmes.