Workshop-cum-Consultation on

Addressing Current Gaps in Realising Just Energy Transition

New Delhi, October 30-31, 2023

Event Report

Inaugural

India's commitment to low-carbon development is grounded in the urgent need to address crucial developmental imperatives. These imperatives encompass energy security, poverty eradication, workers' rights, livelihood generation, and sustainable economic growth. This vision highlights the critical need for simultaneously reducing carbon emissions as an integral part of a comprehensive and balanced approach to sustainable development.

In addition to efforts to ensure equitable wealth distribution and inclusive policies, India places significant emphasis on addressing challenges associated with urban transition. Cities, being major energy consumers and contributors to pollution, particularly through increased demands in transport, utilities, and infrastructure, play a pivotal role in these endeavours. The shift towards renewable energy requires managing the disruption of long-standing institutional arrangements, supported by robust policy changes to promote sustainable options.

To achieve this, city-specific, low-carbon mobility solutions are deemed essential, with a focus on inclusivity, innovation, and livelihood creation. The government has taken proactive measures, exemplified by altering the auto industry's energy mix and embracing environmentally friendly fuels, such as Compressed Natural Gas (CNG), electric, hydrogen, and ethanol. However, a holistic approach that intertwines aspects like gender, convenience, and socio-economic transition, is indispensable for a Just Transition.

The gender divide in the economic sector emerges as a significant concern, posing a potential obstacle to the success of the transformation. At the policy level, the integrated vision underscores that the ecological footprint of an energy source is not solely determined by its technology but also by the scale and nature of its implementation. Energy transitions hold the promise of positively

impacting various cross-cutting intersectional issues, including minimising the gender gap, ensuring equal employment opportunities and compensation, and fostering greater engagement of women across diverse sectors and levels. This, in turn, contributes to nationwide growth and advancement.

Friedrich-Ebert-Stiftung (FES), in collaboration with partner organisations, has been actively addressing these challenges and promoting progressive ideas in India since the 1980s. Through supporting platforms for discourses and providing nuanced socio-economic analyses, FES facilitates meaningful debates at national, regional, and global levels.

In his opening comments, Richard Kaniewski, Deputy Country Director at the FES India Office, emphasised the need for a just energy transition given our present addiction to fossil fuels that has fueled climate change, causing extreme weather events, environmental degradation, and social injustices. In India, the stakes are high. It is a country where aspirations for a better life meet the imperatives of environmental stewardship. The energy transition here cannot simply mirror the Western model. It must be uniquely Indian, balancing the need for economic development with the necessity of environmental preservation.

FES follows the values of social justice, equality and inclusion. And the corresponding principles are applied to the work as well. FES understands just transition as a process where there is an emphasis on dialogue, political participation and protection of basic rights and that is gender-just too. A just energy transition should reduce inequalities persistent in society. As a unified, yet heterogenous civil society, it is within our power to address the gaps and pave the way for a just energy transition. This endeavour requires collaboration, innovation, and a shared commitment to a sustainable, equitable, and clean energy future, both in India and around the world.

The inaugural session at the consultation focused on the findings of two projects exploring the dynamics of women's engagement in the energy transition and e-mobility sector, aligning with FES's commitment to realising a Just Energy Transition and addressing current gaps in this transformative journey.

Sucharita Bhattacharjee, Policy Analyst and Deputy Head, CUTS Calcutta Resource Centre, began by introducing CUTS as an international research, public education and networking Think Tank working in various fields, including international trade, competition policy and law, economic regulation, consumer protection, energy & E-mobility and sustainable development issues. She mentioned the two main objectives of CUTS in the E-mobility sector are:

- Advocating with policymakers and grassroots stakeholders to bring about practice and policy change promoting electric mobility; and
- Dissemination of knowledge on good practices amongst relevant stakeholders through conventional and digital media thereby creating opportunities for cross-learning.

CUTS has been working in collaboration with FES India in the energy and e-mobility space for the last few years. She provided a concise overview of the joint projects, shedding light on their

specific points. These included: Exploring the Impact of Electric Mobility on the Jobs Ecosystem, Exploring the Potential of E-mobility as a Booster for the Local Economy and Livelihoods in India, and the last mile transportation enabler for green jobs.

Furthermore, she elaborated on the thematic areas selected for the ongoing podcast series in the current year. These thematic areas serve as focal points for discussions, fostering a deeper understanding of crucial topics in the realm of energy and e-mobility.

1. Role of Trade unions in India & EV transition
2. Gender inclusivity in the mobility sector
3. Innovative finance mechanisms as a driving factor for electric mobility
4. The role of startups and entrepreneurs in ensuring a just transition in the automobile sector

This was followed by a presentation made by Sanjukta Mukherjee, Co-founder, Sustainable Design Research Consortium who spoke about their collaboration with FES on Women in Just Energy Transition for the last three years. The focus included areas spanning women in energy-related policy research and strategic engagements, especially for women-led cluster development, and advocating for sustainability and climate action. They actively support women on the ground by developing circular economy-based business models, offering mentorship to clusters, analysing clean energy-related livelihood practices, and providing actionable insights for gender mainstreaming. Their efforts aim at mainstreaming gender equality and social inclusion, promoting sustainable energy through interconnected, cross-cutting issues and disciplines.

The collaborative activities encompass a broad spectrum, ranging from policy recommendations, academic cooperation, and awareness-raising to skill development, capacity building, training, and regional cooperation. As per International Energy Agency (IEA) sources, fossil fuels currently supply about 81 percent of the energy used, with non-fossil fuel sources contributing around 19 percent in the global context. The presentation also highlighted historical trends in energy consumption, emphasising the slow shift between energy sources over time. Despite the increasing urgency posed by the climate crisis, the inertia in the energy supply system calls for urgent attention in the current transition to address socio-economic volatility and environmental instability.

As India grapples with surging demand for energy across every sector of its expanding economy, addressing the pervasive lack of access to reliable and clean energy emerges as a national priority. Recognised as a significant impediment to enhancing global human well-being, this challenge has prompted international efforts to curb anthropogenic greenhouse gas (GHG) emissions. India, notably, pledged at the 26th session of the United Nations Framework Convention on Climate Change (COP 26) in November 2021 to achieve net-zero emissions by 2070.

Renewable energy is increasingly regarded as an intelligent solution, garnering renewed commitments to tackle multifaceted challenges such as poverty, social inclusion, equality, and the climate crisis. In the pursuit of sustainable development worldwide, securing access to affordable, reliable, sustainable, and modern energy services is imperative. This involves concurrently reducing GHG emissions and minimising the carbon footprint of the energy sector. Leveraging this transition provides a unique opportunity for gender empowerment and social inclusion.

Fishbowl

Post the inaugural session, the fishbowl played a crucial role in catalysing initial conversations among the participants, functioning much like an ice-breaker. This unique format required all participants to form a circle, with only two individuals at the centre engaged in an isolated discourse, while the remaining members assumed the role of an attentive audience without interrupting the inner circle. Notably, the JET workshop tailored this method through a thoughtful adaptation- reconfiguring the conversations into a dynamic question-and-answer format. This modification aimed to ensure that all participants could actively engage within the allocated timeframe, fostering a more inclusive and participatory environment.

Participants were assigned the responsibility of asking questions related to research, field insights, or policies about a 'just' energy transition in the Indian context. Each participant had the chance to introduce themselves, pose inquiries, and even answer queries from another participant seated across from them. This interactive exchange was followed by a seamless rotation, as a new individual assumed their place in the dialogue, thus perpetuating the cycle until every participant had both responded to a question and posed one. The deliberate design of this process was geared towards surpassing traditional modes of inquiry and response, fostering an environment conducive to breaking down barriers among the diverse stakeholders present.

Given the diverse geographic backgrounds of the participants at the workshop, the fishbowl activity emerged as a powerful tool for promoting cross-learning. By encouraging the exploration of varied perspectives and facilitating interactions beyond the customary set of questions, the session successfully laid the groundwork for collaborative dialogue among participants with distinct backgrounds and experiences.

Some relevant themes that emerged from this session were:

1. **Contextualisation of JET Schemes**
   - Diverse regional disparities necessitate a tailored, region-specific approach for Just Energy Transition (JET)
   - A one-size-fits-all strategy may prove unsuitable given unique challenges in different areas

2. **Spillover Impacts of JET on Labour and Migration**
   - Neglecting issues related to employment loss, capacity building, and women workers' problems resulting from a clean energy transition can exacerbate social inequalities. and undermine the well-being of the workforce
   - Closing data gaps on women workers, quantifying their contributions, and ensuring decent work conditions are vital for a fair and sustainable transition

3. **Empowering Local Governance Bodies**
   - Beyond top-down Central government initiatives, emphasising a bottom-up approach is essential for the attainment of energy and climate goals
   - Strengthening local entities, such as *panchayats* and municipalities, through awareness and capacity-building programmes is crucial for their proactive role in the JET
   - The transition to renewable energy not only opens opportunities for local governance but also contrasts with centralised conventional energy production, enabling communities and regions to achieve self-reliance in energy production

4. **Ensuring Gender Inclusivity in JET Plans**
   - Establishing a gender-sensitive culture through inclusive discussions and targeted training programmes is crucial. This approach ensures that gender integration becomes an intrinsic and ongoing aspect of energy policy-making processes, rather than being a sporadic effort

5. **Mapping Risks and Opportunities for Large-Scale Energy Transitions**
   - Focus on Distributed Renewable Energy (DRE) is vital for increasing RE adoption and employment generation
   - Investing in the improvement of interstate grid connectivity as well as energy storage systems is crucial for upscaling and expanding the clean energy movement
   - A close examination of the value chain associated with Renewable Energy Technologies (RET) and Electric Mobility (E-mobility), including critical minerals, is vital for the identification of greening opportunities to prevent the exacerbation of emission levels

6. **Leveraging Insights from Similar Experiences**
   - Before Electric Vehicles (EVs), India implemented the CNG programme in the 90s which is now fully established in terms of the scale of the market and refuelling infrastructure
   - While not classified as entirely green, CNG has emerged as a strong competitor to the nascent Zero Emission EVs
   - This competition is fuelled by CNG's advantages, including lower upfront costs, almost equivalent running costs, and a well-established supporting infrastructure
   - Policymakers have the opportunity to learn from the entire CNG implementation programme and apply valuable insights to the development and implementation of E-mobility to accelerate its adoption

7. **Closing the Disconnect with National and State-level Programmes**
   - FAME I and FAME II subsidies have significantly promoted EV adoption in the country
   - Lacking, however, is a comprehensive national or state-level policy guiding the transition away from coal
   - Additionally, to ensure workforce readiness to shift to the clean energy sector, skill training programmes should be conducted by the state technical departments. These programmes should be linked with national and state-level schemes, such as National Rural Livelihoods Mission (NRLM), State Rural Livelihoods Mission (SRLM) and National Urban Livelihoods Mission (NULM). This will help mitigate some of the socio-economic impacts associated with a clean energy transition

World Café + Conversation of Possibilities

World Café, a dialogue method tailored for large groups, orchestrated dynamic discussions at our event, following the fishbowl. Attendees were divided into four groups, each assigned to dedicated tables focussing on specific themes, namely- gender inclusivity, technology adoption, workers' interest, and urban transition. The table hosts skilfully guided discussions on each of these themes guiding the attendees through four factors- Missing actors/actor mapping, Missing processes (including data and research), Narratives beyond metropolitan/geographic imbalances, and Joint/bilateral partnerships disconnect with national priorities. Following a set time of 25 minutes, groups seamlessly rotated to different tables, delving into a new theme and a new factor.

Following the World Café session, our event seamlessly transitioned into a Conversation of Possibilities, cultivating a renewed perspective on the challenges outlined in the preceding discussions. This segment actively promoted speculation, wild ideas, and the exploration of seemingly impractical options. Noteworthy is the decision to defer feasibility discussions until all possibilities have been presented. In this context, each possibility was regarded as neither right nor wrong; all were deemed equally valid. This dynamic format brought a nuanced layer to the event, igniting insightful conversations and fostering innovative thinking among participants.

Just Urban Transition

The focus of Just Transition has traditionally centred on decarbonising energy and transportation systems, as well as addressing employment generation and migration issues. However, there is a growing recognition of the pivotal role that cities play in steering this transformative change. Urban and peri-urban areas, marked by their concentration of resources, capital, and people, provide fertile ground for rapid advancements across social, economic, and technological domains. Yet, these dynamics also introduce the potential for unsustainable resource consumption and environmental degradation.

On a global scale, cities bear significant responsibility, contributing approximately 75 percent of the world's energy consumption and over 70 percent of global GHG emissions.[1] This underscores the criticality of prioritising just urban transitions, as they are pivotal in addressing the core challenges of resource sustainability and environmental impact.

Turning to the session, participants identified key **missing actors**. Notably, government departments exclusively dedicated to creating greener cities were scarce, along with a deficiency in organisations proficient in data collection for estimates and projections. The absence of adequately trained urban planners and scientific actors within local governance systems contributed to a lack of proactive measures. Moreover, insufficient training for urban and peri-urban municipal bodies further hindered progress.

Another perspective emphasised the lack of awareness among individual transport vehicle owners and local clubs, making them overlooked contributors to greening initiatives. Additionally, the absence of ample microfinancing institutions and Self-Help Groups (SHGs) for training non-working women in sustainable practices further identified them as missing actors.

Shifting the focus to **missing processes**, participants highlighted notable gaps. Firstly, there exists a lack of awareness regarding decentralised renewable solutions, such as solar rooftops, compounded by ineffective implementation of net metering. Another critical factor is the absence of knowledge and sensitisation drives concerning energy-efficient practices within educational institutions and workplaces. Moreover, there is a discernible deficiency in waste management processes for electronic gadgets and an inadequate battery recycling ecosystem. The shortfall extends to investments in sustainable and inclusive infrastructure.

Additionally, the absence of reliable, unmanipulated data on both migrant populations and air quality indices (AQI) poses a significant challenge. Lastly, the lack of post-policy evaluation impedes understanding which income groups, social demographics, and genders benefit from specific policies. These identified gaps underscore the pressing need for comprehensive strategies to address and rectify these missing processes.

Addressing **missing narratives**, a prominent concern was the growing disconnection between urban and semi-urban areas. Urban centres faced mounting pressure to accommodate an increasing population, leaving semi-urban and rural regions deprived of urbanisation benefits — a narrative often overlooked. Additionally, the burden of emission reduction and infrastructure development often falls disproportionately on the disenfranchised, who are pushed to the periphery in the name of progress. Apart from these, inefficient waste management systems, a lack of focus on distributed solutions for urban energy transition, and the neglect of developing waterways were highlighted narratives.

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[1] https://news.un.org/en/story/2021/10/1101992

There is a noticeable **disconnect with national priorities** concerning urban transition, as this topic does not frequently occupy the forefront of public discourse. Participants identified various reasons for this, with a notable factor being the lack of connection between the masses and urban transition. This lack of connection was reinforced by the absence of intent and initiative from state and central authorities.

Furthermore, there was a considerable gap between relevant departments that could facilitate such a transition. Participants also expressed a lack of trust in policymakers, citing a discrepancy between their actions and words. Additionally, there was a deficiency in contextualising what urban transition meant for different demographics, classes, and geographies. Recent global events with significant environmental impact were also cited as reasons that had somewhat desensitised people to the narrative of rising pollution levels and climate change.

Some of the potential solutions that emerged during deliberations were:
- Preserve existing biodiversity hotspots and actively revive water bodies to elevate groundwater levels
- Place heightened emphasis on sustainable green infrastructure, and enforce the mandatory implementation of solutions such as vertical gardening and rainwater harvesting
- Foster trust in administrative institutions by executing inclusive pro-poor policies and establishing a single-window system for the efficient handling of policy and scheme files
- Ensure the efficient collection of e-waste and systematically designate waste disposal sites
- Strengthen local municipal bodies and prioritise ground-level initiatives for environmental sustainability
- Implement transparent processes for data collection and consistently communicate stakeholder needs to both Central state and authorities
- Institute incentives and mandates for micro-level sustainability solutions, greater contextualisation of individual steps to be taken by people in tier 1 and tier 2 cities
- Curtail urban reliance on fossil fuels and minimise waste generated by urban entities
- Proactively create additional smart cities to alleviate the strain on existing metropolitan areas
- Allocate increased funds for urban transitions to robustly support sustainable development initiatives

Gender Inclusivity

The ongoing global shift to sustainable energy holds the potential for significant societal changes. This transition could enhance social justice and gender equality, improving women's quality of life. However, entrenched social structures and cultural norms have hindered women's representation in the energy sector, impeding progress toward a gender-just transition.

Recognising and addressing these inequalities is crucial for achieving the objectives of social justice and inclusion in the context of energy transitions and providing actionable insights for policy implementation.

Given this context, several **missing actors** have been identified. Notably, policymakers at the policy-making level often do not fully endorse the concept of gender equality. Additionally, representation of minorities, such as transgender and non-binary individuals, is scarce in these decision-making spheres. The lack of significant numbers of SHGs, Non-Governmental Organisations (NGOs), and Civil Society Organisations (CSOs) dedicated to advancing women's representation in the energy sector further exacerbates the issue. Moreover, the media does not adequately highlight this disproportion, viewing it as a non-urgent matter. Private organisations also contribute to the problem by not actively endorsing and implementing gender equality initiatives in technical fields related to energy and e-mobility, which have historically been male-dominated.

Another critical concern in this context is the invisibilisation of women's informal labour, adding complexity to the challenges faced in achieving gender equality within the energy sector. Addressing these gaps requires concerted efforts across various sectors and a broader recognition of the multifaceted nature of gender disparities in the field.

Turning our attention to **missing processes**, participants underscored the insufficient integration of gender considerations in policy formulation and the inadequate monitoring of such efforts. Overcoming socio-economic-cultural barriers is imperative to encourage greater female participation in the workforce. Furthermore, there are challenges posed by indecisive democratic frameworks and a disconnect between various actors and processes in the energy sector. To enhance accountability and progress evaluation in policy implementation, establishing benchmarks and Key Performance Indicators (KPIs) is essential.

Additionally, adopting gender-specific research methodologies that are attuned to the responses and feedback from those surveyed is crucial. Moreover, it is imperative to recognise and account for the care economy, acknowledging women's contributions to household duties, in the formulation of energy sector policies. This comprehensive approach ensures a more inclusive and effective strategy for advancing gender inclusivity in the energy sector.

In the discourse on **missing narratives**, participants drew attention to several critical yet overlooked issues. Firstly, the absence of women in the transport ecosystem emerged as a pressing concern, highlighting a significant gender disparity that warrants closer examination. Moreover, the enduring structural inequalities in asset ownership underscored the persistent challenges hindering equitable access to resources.

Another dimension of concern pertains to the limited access to sustainable livelihoods and the insufficient creation of indigenous job opportunities. These challenges contribute to broader issues of economic inequality that need to be addressed for a more inclusive energy sector.

Additionally, the narrative surrounding migration sheds light on a common expectation for women to follow their husbands, resulting in their exit from the workforce and underscoring the need for more nuanced policies that consider diverse societal dynamics. Furthermore, the financial constraints faced by women were noted as a substantial barrier, specifically hindering their ability to invest in clean energy technology.

In examining the **disconnect with national priorities** and the importance of collaborative partnerships, participants emphasised the imperative to prioritise capacity and capability building for women. This emphasis extends to both institutional and local levels, highlighting the need for joint partnerships that synergise with other processes promoting gender inclusion. Additionally, the participants stressed the significance of integrating efforts to reduce carbon footprints and leverage carbon credits. This aligns with the overarching goal of incentivising gender inclusivity in the energy sector.

Importantly, these initiatives should be implemented with the active involvement of local communities, ensuring that the JET is both environmentally sustainable and socially equitable. This holistic approach fosters a collaborative framework that addresses multiple facets of gender inclusion and environmental responsibility within the broader context of national priorities.

Some of the potential solutions that emerged during deliberations were:
- Gender-based budgeting at the state level
- Capitalising on women's reservation bill
- Data collection on formal and informal engagement of women across sectors
- Formal recognition of care work
- Gender-specific job mapping and skill training
- Incentivising gender parity in the renewable sector
- Sensitisation of government agencies on the importance of gender inclusivity
- Facilitate collaborative efforts between government bodies and think tanks for gender-inclusive policies
- Enabling workplace policies addressing gender-specific issues

Technology

In the realm of a JET, technology plays a pivotal role, serving as a cornerstone for steering the path toward sustainability. Technological advancements in renewable energy and smart infrastructure emerge as crucial catalysts for driving this transformative journey. These innovations hold the potential to minimise carbon footprints, encourage environmentally friendly practices, and usher in a greener paradigm. Nevertheless, the comprehensive impact of technology is hindered by the exclusion of specific labour sectors — both formal and informal — from the JET narrative. Recognising and integrating these overlooked actors represents a crucial avenue for unlocking economic growth.

The **missing actors** in the JET, spanning both formal and informal labour sectors, signify an untapped reservoir with significant potential for economic growth. Unfortunately, their skills and implementation capabilities are often overlooked, resulting in their exclusion from meaningful workforce participation. Age-related dynamics compound this issue, as rural youth face barriers to education, limiting their employment prospects, and older workers encounter age discrimination and re-entry challenges.

The rural-urban divide exacerbates challenges, limiting rural communities' access to formal occupations due to infrastructure and technology constraints. Undervalued ancillary occupations play pivotal roles but suffer from under-recognition, hindering innovation and productivity. This exclusion hampers social mobility, and economic growth, and perpetuates gender disparities, particularly affecting women. Discriminatory practices impede women's access to education and employment, perpetuating social impacts like poverty and isolation. Regional biases in social impact assessments demand a comprehensive solution.

Addressing these issues involves promoting inclusive education, eliminating discrimination, investing in infrastructure, and recognising the value of all occupations, fostering economic growth and equity.

Some of the identified **missing processes** propose lowering the cost of compliance with environmental regulations through incentives for green businesses and penalties for polluters. While mitigation strategies receive attention, the neglect of adaptation strategies emphasises the need for comprehensive plans. Crucial are detailed action plans at national and state levels, requiring clear targets for emission reduction, renewable energy goals, and social justice objectives.

Essential elements for a green workforce include technology transfer, re-skilling programmes, and industrial machinery upgrades. Emphasis on transparent and resilient value chains, new labour code implementation, workers' rights protection, and national-state policy alignment is crucial. Financial mechanisms for just transition initiatives, international engagement, subsidy policy reforms, and circular economy principles promotion are vital for sustainable progress.

In exploring **missing narratives**, key themes emerged. Broader digitalisation is essential, but it is crucial not to overlook last-mile connectivity limitations in remote areas. Regions with limited infrastructure face critical challenges in ensuring energy reliability and access. Transparent, inclusive approaches require careful planning to establish robust linkages between supply and demand. Addressing the politicisation of last-mile connectivity demands unbiased, democratised systems. Gender representation is pivotal, and effectively integrating intermittent renewable energy sources necessitates alignment with distributed renewable energy (DRE) systems.

Vital components of the Just Transition framework include incorporating individual land rights, local aspirations, and socio-economic narratives. Biodiversity considerations should

accompany technology adoption. Fostering confidence among stakeholders is essential, especially in coastal and erosion-prone regions. Continuous follow-up ensures the Just Transition narrative remains attuned to the evolving needs of rural India.

Turning to the **disconnection with national priorities and the role of joint bilateral partnerships** in expediting the adoption of renewable energy and clean technologies, the participants accepted that while recommending small business innovation funding to governments is common, acceptance of such initiatives may not be immediate. Governments meticulously assess all schemes, revealing a disconnect between technology and government priorities. Bilateral processes offer a means to accelerate technology adoption without resorting to blame games, yet lingering responsibility issues within governments hinder optimal knowledge transfer.

Broader alliances and intergovernmental co-financing mechanisms are essential for a power shift from grant-based funding to low-interest loans. The dichotomy in adopting renewable energy solutions persists, with coal lobbies and project developers influencing private players, and renewable purchase obligations (RPOs) posing challenges. Disconnections between government departments and agencies, as well as at various governance levels, persist. Funding for metropolitan cities from external agencies may not translate into effective on-the-ground implementation, particularly in grid and last-mile connectivity.

While global narratives advocate for e-cars, prioritising only a fraction of the population in India is cautioned against. The country must align rhetoric with action, addressing a system often tilted against the public and biased towards utility systems and jobs, to realise a Just Transition and a Post-Carbon future for all.

Some of the potential solutions that came up during our deliberations were:
- Supporting indigenous tech ideas and innovations to foster homegrown solutions
- Establishing clear and uniform standards for technology adoption
- Encouraging industry disclosure on labour plans and reemployment strategies post-JET implementation
- Embracing decentralised processes to address regional diversity in technology adoption
- Increasing R&D funding to support innovation and accelerate technology development
- Utilising PLI to drive skill development aligned with industry needs
- Conducting social impact assessments to evaluate the potential social implications of new technologies
- Deploying waste-to-energy technologies to promote resource efficiency and circularity
- Developing strategies for the treatment and disposal of legacy assets in a responsible and environmentally sound manner
- Implementing battery storage solutions at load centres to address intermittency and grid stability challenges

- Conducting regional skill audits to identify skill gaps and inform tailored training programmes
- Ensuring inclusive access to technologies for all segments of society, by bridging the digital divide
- Leveraging Artificial Intelligence to optimise implementation processes and enhance efficiency
- Optimising tech governance frameworks to ensure transparency, accountability, and alignment with sustainable development goals

Workers' Interests

Job security and protection of workers' rights are currently two of the main economic difficulties faced by a developing country like India as it tries to facilitate a transition from conventional to renewable energy mix. Creating jobs and making sure those jobs are green and better jobs that can lessen inequality among different segments of society - are the two main components of this challenge. This much-envisaged transition must be able to ensure workers' safety while providing them with incentives that are crucial for them to advance and improve. That being stated, accomplishing this goal will not be very easy and seamless.

There could be concerns like the absence of a unionised workforce, the effects of automation and digitalisation, skewed resource allocation, transition-induced migration and more. Another major challenge for India is that the country has a rapidly growing young population with low and medium skill levels. Therefore, it is necessary to devise a roadmap for energy transition that has the elements of distributive justice at its core.

Turning to the session, participants identified key **missing actors**. The first segment consisted of local government representatives at various levels, local politicians and trade unions. The next layer had actors like the contractual workers, the scavengers, and the gig workers. Gender is always a constant factor when it comes to the government's failure to provide full coverage to all actors across different sectors and services. The white-collar jobs including health professionals, urban planners, environmentalists, and skill training institutes should also be included in the Just Energy Transition narrative to ensure justice for every group of stakeholders.

Shifting the focus to **missing processes**, the group members pointed out that a significant gap exists in terms of the categorisation of workers based on their skill, the lack of provision for a sensitisation programme under the broader JET agenda and the absence of a stringent labour code, to start with. The process must include undertaking a thorough mapping exercise on workers' interests, creating convergence between different government schemes and green jobs and thereby ensuring the adoption of an appropriate educational curriculum.

Simultaneously, a lot of emphasis should be given to identifying areas of concern like fund misuse, gaps in terms of media narratives and policy advocacy, absence of a scientific

foundation behind any JET effort. These when combined with steps such as training of master trainers for community development and strengthening the database, will help us prepare a comprehensive strategic roadmap to address and undertake corrective measures for these missing processes.

Addressing **missing narratives**, the team members shared their individual as well as collective observations. Developing a regional narrative by conducting early studies of alternative economies to facilitate a regional energy transition is crucial. Using the local socio-cultural identities and adopting an eco-system approach will be helpful to bridge the gap in dominant narratives. The basic pillars of the emerging job market should be fair wages, social security and occupational health and safety measures. Ensuring distributive justice while promoting the local narratives by the stakeholders with a focus on gender, should be the essence of just energy transition dialogue.

The team agreed that there also exists a **disconnect between national priorities** in terms of inter-state as well as intra-state disconnect and global mandates. The policies at the national level are often in disjuncture with the international guidelines. The key factors of discord are - an absence of a broad, inclusive framework, and a lack of social security provision. Special emphasis should be given to the terms of engagement and terms of financial flows. The nature of the engagement of unions decides how much it can safeguard the workers' interests. Goal matching across all the levels – National, Regional and Global is necessary. Often the policies at the international level are legally binding but not democratically represented, which needs to be carefully assessed.

Some of the potential solutions that came up during our deliberations were:
- Local adoption of Global best practices
- Redesigning the Labour codes for the new and emerging jobs including the gig economy workers with a focus on gender
- Development of mandatory transparency framework to audit process of public-private-partnership or bilateral projects
- Adoption of a stakeholder-driven participatory approach to include all narratives
- Mapping of Workers interests, rights, safety and security measures – both existing and required
- Formalisation of contractual workers' unions
- Adopting innovative models for financial and socio-economic support systems for the workforce
- Undertaking extensive databased studies on the changing pattern of the transition-induced job market
- Identification of social groups that can be at the core of the JET dialogues

Panel Discussion: Just Energy Transition Pathways

Post these interactive sessions, the final session of the event saw short presentations and an interactive panel discussion by eminent personalities actively working in the clean energy sector.

The first presentation was by **Kaushik Sanyal, Country Head, Tata Power,** who focussed on the role of the private sector for livelihood generation and entrepreneurship development leveraging just energy transition. Some important pointers from his presentation:

1. *Global Energy Employment Overview:* 65 million people are employed in the global energy sector, constituting two percent of total global employment in fuel supply, power sectors, and end-user categories.
2. *Indian Renewable Sector and Job Generation:* The renewable sector in India contributes significantly to livelihood generation, and the transition to renewable energy is expected to create additional jobs, rather than causing job losses in the fossil fuel sector.
3. *Ongoing Re-skilling Efforts:* Continuous re-skilling is crucial, and Tata Power leads in this aspect with dedicated training and skill-building initiatives.
4. *Tata Power's Initiatives for Livelihood and Entrepreneurship:* Tata Power focuses on technology innovations, job creation, skill and training enhancement, energy efficiency, and building dealer networks through accessible financing and policy advocacy.
5. *Socio-Cultural Change for Women in Energy:* To bridge the skills gap in the sector, he advocates for socio-cultural change initiatives to involve more women in the energy sector, making it more inclusive and diverse.

Continuing from Sanyal's discussion, **N A Arivukkarasi, Assistant Professor at Madras School of Social Work**, explored the topic of gender mainstreaming in the clean energy sector, highlighting the underrepresentation of women in both the workforce and leadership positions. Some important pointers from her presentation:

1. *Gender Gap Implications for Energy Justice*
   - Limits women's access to clean, affordable energy
   - Exacerbates unpaid care work and hinders participation in energy policy decisions

2. *Approach to Achieving Gender Mainstreaming*
   - Gender mainstreaming is crucial but faces significant challenges
   - Requires a multi-pronged approach addressing social, political, and pragmatic barriers

3. *Key Principles for Just Transition*
   - Address sectoral and occupational segregation
   - Break gender stereotypes and promote equal opportunities
   - Eradicate wage and skills gaps, ensuring equal pay for equal work
   - Provide access to skill training and education

4. *Enhancing Social Protection and Working Conditions*
   - Establish inclusive social dialogue for women in decision-making
   - Improve working conditions, ensuring safe and healthy environments
   - Enhance social protection through mechanisms like pensions and childcare support

This was followed by a presentation on accelerating government support measures to attract private investment in clean energy transitions by **Siddharth Goel, Senior Policy Adviser, International Institute for Sustainable Development (IISD)**. Some important pointers from his presentation:

1. *Energy Subsidies in India*
   - The Indian government spends US$78bn annually on energy subsidies (two percent of GDP, 17 percent of total revenue)

2. *Urgency of Transition to Renewable Energy*
   - India must urgently shift from fossil fuel to renewable energy for long-term sustainability

3. *Lessons from Past Transitions*
   - Acting early is cost-effective compared to inaction
   - Just transitions are complex; leveraging regional advantages is crucial
   - Involving unions can improve acceptance while ignoring industry engagement risks and active resistance

4. *Regional Revitalisation Efforts*
   - Countries should focus on improved connectivity, hard infrastructure, higher education, and local entrepreneurship for a successful transition

5. *Financial Roadmap for Just Transitions*
   - Urgent need for a stable, long-term financial roadmap to support India's transition

6. *Investment in Renewable Energy Target*
   - India needs an additional US$300bn investment to achieve the 500 GW renewable energy target by 2030

Concluding our session, **Neha Gupta, the Lead at the Centre for Clean Mobility, OMI Foundation**, shared insights on EV Ready India and presented key policy recommendations stemming from their extensive research. Some important pointers from her presentation:

1. *Urban Mobility Dynamics*
   - Cities are crucial for sustainable shared mobility
   - Commuting involves public transport, taxis, rickshaws, walking, and cycling

2. *Shared Electric Mobility Trends*
   - Growing adoption in urban India for goods and people transport

3. *Rise of Ride-sharing*
   - Increasing popularity, leading to more electric rickshaws and cabs

4. *Electric Vehicle Adoption Snapshot*
   - Electric taxis constitute ~13 percent of 2022 sales; <1% of registered electric two-wheelers used for shared mobility

5. *Last-Mile EV Delivery Trend*
   - Last-mile partners shifting to electric rapidly due to lower costs, incentives, and state mandates
   - This is expected to drive ~25 percent of overall EV sales by 2025

6. *Strategic Recommendations*
   - Regulatory adjustments, vehicle financing enhancements, and the creation of a first loss fund

7. *Market Projections*
   - The shared mobility market is to grow at 56.8 percent CAGR by 2025
   - OMI Foundation predicts E3W sales at 2 million by 2030, electric cab share at 30 percent, and electric two-wheeler share at ~20 percent

After the short presentations, **Judhajit Sanyal, Senior Data Scientist & Researcher at Mestastop,** expertly moderated the panel, posing insightful questions to the participants who, in turn, provided substantive responses. Sanyal explored the major impact of green energy initiatives on livelihood and employability. Contrary to prevailing beliefs, statistical evidence showcased a noteworthy increase in employability resulting from the adoption of clean energy in traditional energy generation setups. It was underscored that the necessary reskilling for workers transitioning to the green energy sector is typically borne by the employing organisation, presenting an additional benefit.

Moving on to Yuvraj Sharda, Head of E-mob Solutions at Volvo Construction Equipment, Sanyal delved into the reliability of green energy sources for construction equipment in India. Sharda advocated for extending support to heavy-duty trucks, buses, construction and mining equipment, and tractors in FAME III. Despite their smaller scale, he emphasised their potential as low-hanging fruits due to their significant use and high diesel consumption, urging policymakers to consider their inclusion for comprehensive development in the EV landscape. The response highlighted limited reliability, necessitating on-grid power for machinery operation. However, a significant shift towards green power for heavy machinery in India was noted, driven by efficiency and a notable reduction in carbon footprint.

Next, N.A. Arivukkarasi tackled the extension of work definitions to include more women in the Indian context and the statistical tools ensuring study reliability. Emphasising the inclusion of homemakers as workers due to their substantial unpaid economic contributions, the response noted their early adoption of green energy measures. Various sampling techniques, including stratified sampling, were cited to ensure statistical validity and consistency in such studies.

Neha Gupta was then questioned about the anticipated significance of women adopting EVs as a mode of transport. Highlighting factors like lower cost and portable, chargeable electric batteries, the response underscored the extensive adoption of EVs by women. This adoption not only contributed to sector growth but also facilitated the gender mainstreaming of women workers, enabling independent travel.

Finally, Siddharth Goel addressed strategies to eliminate bias in funding different clean energy technologies. Currently lacking, such measures primarily focus on increasing overall funds for the clean energy sector. However, future considerations may involve implementing frameworks for more balanced investment, incorporating broader value assessments beyond the conventional Return-on-Investment paradigm. This entails a holistic evaluation, encompassing social and environmental factors, including the pollutants generated in manufacturing systems designed for harnessing clean energy.

Closing Remarks and Vote of Thanks

Conclusively, the workshop concluded with **Mandvi Kulshreshtha, Programme Adviser at Friedrich Ebert Stiftung**, providing a comprehensive summary of the entire event. Graciously, she extended a heartfelt vote of thanks to all the participants, expressing gratitude for their active involvement and insightful contributions throughout the workshop.

Reflective Insights

The two-day workshop witnessed participation from different stakeholder groups, including public policy think tanks, academia, NGOs, and trade union groups. However, the representation of manufacturers, industrial fraternity as well and business associations was rather limited, which needs to be carefully assessed and a suitable strategy should be in place to facilitate their representation in future initiatives.

Also, government participation needs to be ensured in such a workshop to make the deliberations and brainstorming inclusive enough, ultimately leading to increased awareness and improved policy outcomes.