

Virtual Dialogue on Inclusive Energy Transitions

Date: 22 September 2022

Time: 2:00-4:00 p.m. (IST)



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EVENT PROCEEDINGS

ABOUT THE SESSION

WORLD SUSTAINABLE DEVELOPMENT SUMMIT

The World Sustainable Development Summit (WSDS) is the annual flagship Track II initiative organized by The Energy and Resources Institute (TERI). Instituted in 2001, the Summit series has a legacy of over two decades for making 'sustainable development' a globally shared goal. The only independently convened international Summit on sustainable development and environment, based in the Global South, WSDS strives to provide long-term solutions for the benefit of global communities by assembling the world's most enlightened leaders and thinkers on a single platform. Over the years, the Summit series has witnessed the participation of 54 Heads of State and Government, 103 Ministers, 13 Nobel Laureates, 1888 Business Leaders, 2745 Speakers, and 38,280 Delegates.

ACT4EARTH

Act4Earth initiative was launched at the valedictory session of WSDS 2022. Building on the discussions of WSDS, this initiative seeks to continuously engage with stakeholders through research and dialogue. Act4Earth initiative has two components: COP Compass and SDG Charter. The COP Compass will seek to inspire and mobilize leadership at all levels for inclusive transitions through ambitious and informed policies and measures, which will enable paradigm shifts towards meeting the United Nations Framework Convention on Climate Change (UNFCCC) and Paris goals through mitigation, adaptation and means of implementation. SDG Charter will seek to identify gaps and suggest ways for strengthening and mainstreaming sustainable in policy agendas for enhanced environmental, social, and economic outcomes.

Suggested Citation

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Disclaimer

The event summary is based on auto-generated transcript. Some edits were made on grammar and spelling. The discussion can be accessed from YouTube: <https://youtu.be/kiVBBpy0N90>

THE DIALOGUE

The policy dialogue on Inclusive Energy Transition focuses on issues of affordable and inclusive energy transition from the demand side perspectives. The dialogue focuses particularly on the demand side picture in three sectors: agriculture, MSMEs, and transport. The objective of the policy dialogue is to engage with stakeholders and experts on just energy transition, to solicit their feedback and inputs which will feed into the policy brief prepared by TERI's research team.

SPEAKER LINE-UP

Welcome and context setting:

- Dr Shailly Kedia, Senior Fellow, TERI

Presentation on the findings of the policy brief:

- Ms Saheli Das, Associate Fellow, TERI
- Ms Rumpa Banerjee, Communications Associate, TERI

Policy Perspectives:

- Shri R.A.S. Patel, Deputy Commissioner, Ministry of Agriculture and Farmers Welfare
- Dr Ritu Mathur, Lead, India Climate and Energy Modelling Forum, NITI Aayog

Roundtable Discussion by Experts:

- Moderator: Dr G Mini, Senior Fellow, TERI

Panellists:

- Mr. Abhishek Nath, Sector Head, Energy and Power, Centre for Study of Science, Technology and Policy
- Ms. P Anima, Media and Communications Lead & AC, TERI
- Dr. Abhishek Kar, Senior Programme Lead, Council on Energy, Environment and Water
- Prof. Subhes Bhattacharyya, Professor of Net Zero Carbon Energy Systems, University of Surrey
- Dr. Srestha Banerjee, Director, India Just Transition Centre, International Forum for Environment, Sustainability and Technology

ACTIONABLE MESSAGES

Message 1: Considering the upcoming leadership that India will be taking for the G20 presidency, it can push for stronger interventions and concentration in the clean energy transitions from demand side perspectives, as the aggregate energy consumption of G20 countries as a percentage of world's total energy consumption is high: at around 76-78%.

Message 2: Although the Government of India is already trying to take care of clean energy transition in the agriculture sector, particularly in irrigation systems, but a lot more has to be done in terms of incentivising and skilling in solar pumps. Along with this, other implements are also required as Indian agriculture, today, is highly mechanized and hence highly energy intensive, and most of this energy is still based on fossil fuels.

Message 3: While transitions in terms of technology have been discussed so much, more needs to be done in energy efficiency, on both the demand and supply sides, from clean energy perspectives or decarbonizing by focusing on hard to abate sectors, and power sector; maintaining electrification as much as possible with simultaneous clean energy transitions.

Message 4: For inclusive energy transition, the focus should be on the availability of data, issues of data gaps, threading our policies and initiatives with the correct data, and then planning it out through the transition by scaling up, influencing human behaviour, and engaging people.

Message 5: The two major problems, when working in a people centred energy transition process, are collecting data because of the lack of willingness of the participant to share the data and the data organization – whether the data is organized in such a way to address the problems of inclusion.

Message 6: Although, globally around 20% enterprises are owned by women, in India, this percentage is very less. The ground reality is a little different, because people usually register their enterprise in the name of a female, but their active engagement is questionable.

Message 7: To address the issue of gender inclusiveness through the lens of media in the long-term, one needs to address it in terms of sensitization of the media, and in terms of inverting the lens of looking. It has a lot to do with capacity building to change the lens and look at it from the other angle, the angle of demand, where currently the media is kind of against pressing on turning the traditional methods of looking.

Message 8: Rather than questioning around how we encourage people to use more LPG, i.e., clean energy, researchers should focus on the research or policy questions around how we get people to use more clean energy picks from available bucket of clean energy options, irrespective of what technology it is, by keeping the issues manageable, accessible, and affordable in our mind, as this could be useful in the long run.

Message 9: In the process of inclusive transition, it's not about just one location, researchers must consider both urban and rural areas, all sorts of settlements, either formal or informal, different gender aspects, conditions of use of the users, vulnerable section of the population, and then supporting them in a targeted manner, but most importantly, generating awareness and sharing the information more widely, making it more accessible.

Message 10: Promoting any new technology as a solution of a problem may not always serve the purpose of making it inclusive. Thus, the question comes at each level of the decision making, whether we are cognizance of what is actually required to take the entire population with us and whether that frame of mind is being applied at the decision-making process or not, and that remains for future investigation.

Message 11: When we are talking of just energy transition, one needs to look at the informal coal economy, and the participation of women in such informal sectors, which have not been factored in the very formal and sanitized discussion of just transition (focused on formal workers and formal economy).

Message 12: For just energy transition, an implementable governance system is crucial to engage people, particularly women, and the only way to do so is having more and more academic discussions engaging researchers, think tanks coming from various background, engaging local level institutions to build the local capacity, and it should be a sustained engagement over a 14-year period.

MAKING WORDS COUNT

“ We are already in the way of clean energy transitions, and we are even near the convergence path as the Ministry of New Renewable Energy along with the Ministry of Agriculture and Farmers Welfare are providing subsidies to promote solar pumps through PM-KUSUM scheme.

Shri R.A.S. Patel, Deputy Commissioner, Ministry of Agriculture and Farmers Welfare

“ While transitions in terms of technology have been discussed so much, more needs to be done in energy efficiency on both the demand and supply sides, from clean energy perspectives or decarbonizing by focusing on hard to abate sectors, and power sector, maintaining electrification as much as possible with simultaneous clean energy transitions. But the questions we should address are – how we scale these up?, how do we ramp these things out in making the transitions? – that is where we get to the central problem, centering this on people. It becomes extremely important to look at how we could influence the behaviours and carry people forward in transition.

Dr Ritu Mathur, Lead, India Climate and Energy Modelling Forum, NITI Aayog

“ To address the problem of leaving no one behind and the challenges that would be there in terms of taking this agenda forward, we need a system wide interaction. We should learn from our past mistakes and ask the right questions. Though we don't have any solution, asking the right questions is the good starting point, and then there is a likelihood that we will get the right answers at some point of time.

Prof. Subhes Bhattacharyya, Professor of Net Zero Carbon Energy Systems, University of Surrey

“ Willingness of the participants to share the data is one of the issues related to data collection, and the solutions lie, perhaps, mostly in the approach we take to solve these problems. So, to make it inclusive, our whole approach needs to become inclusive, if we want to capture the gender related data and other factors of inclusiveness.

Mr. Abhishek Nath, Sector Head, Energy and Power, Centre for Study of Science, Technology and Policy

“ In the spirit of South-South cooperation, as championed by the honourable Prime Minister of India, it would be very useful if we engage with Global South through cross learning, at least in the clean cooking energy space as India has already reached out to 80-90 million households under the PMUY programme.

Dr Abhishek Kar, Senior Programme Lead, Council on Energy, Environment and Water

“ If we are talking of gender equality in the new transition and how equality can be built in, then one of the biggest barriers will be the informality, not just the informal workers of the coal economy, but the informal economy that exist in these areas, and to overcome those barriers, we need a long-term transition planning, through local level engagement, and of course, generating a lot of data at organisation level.

Dr Srestha Banerjee, Director, India Just Transition Centre, International Forum for Environment, Sustainability and Technology

“ Media, in general, is trying to capture women's engagement from the ground, like the involvement of women in the ground, especially when it comes to initiatives on solar energy, their presence in the EV sector, etc., extensively. But from the demand side perspectives of agriculture and MSMEs, those kinds of reports are few and far between. Some opinion pieces, or even long form featured narratives look at this more holistically, but we need more of that to address the issue more comprehensively.

Ms P Anima, Media and Communications Lead & AC, The Energy and Resources Institute

WELCOME AND CONTEXT SETTING

Dr Shailly Kedia, Senior Fellow, The Energy and Resources Institute (TERI)

The theme of this virtual dialogue is based on inclusive energy transitions in the context of SDG 7, which is a part of the SDG Charter. Over the years, we know that the just transition narrative was largely led ahead of Rio+20 by ILO. It has moved from issues around job related transitions, very specifically in the energy transitions discussions related to jobs reskilling and also placement of jobs (for people who would lose jobs in the fossil fuel sector). However, as a researcher, when we talk about energy transitions, we consider both the supply as well as the demand side of the energy systems. Through this particular dialogue we also want to flag that there are lots of aspects that relate to inclusion and socioeconomic aspects (including gender) that become important issues which have to be considered by policy makers as well as researchers that pertain to the energy demand side. So, when we are talking about agriculture – what are the inclusiveness related aspects – and we are very fortunate to have a representative from the agriculture Ministry of India, Mr Patel who will share his perspectives. When we talk about industry – what are the inclusiveness issues related to MSMEs – that becomes a very important topic. Also, when we talk about transport, since transport is such an important sector that enables mobility for people, there are inclusiveness aspects and gender dimensions that become important.

We thought that through this dialogue and through pushing the concept of inclusive energy transitions. We will also want to flag that there are inclusiveness aspects that need to be considered for the demand side interventions, when it comes to clean energy transitions. So, some of the guiding questions for the dialogue include: what the inclusiveness are; the implications of inclusive energy transitions in specific demand side energy sectors (including agriculture, MSMEs, and transport); what policy instruments can promote inclusive energy transitions; what the barriers and challenges are (including the data gaps to inform decision making in this regard); and how can clean energy transitions better factor gender dimensions.

Our TERI team will be presenting a study to raise some of these issues, which will also help us in framing the discussions in this event as we move forward.

PRESENTATION OF TERI STUDY: (ON BEHALF OF TERI TEAM)

Ms Saheli Das, Associate Fellow, The Energy and Resources Institute and Ms Rumpa Banerjee, Communications Associate, The Energy and Resources Institute

This policy dialogue is based on TERI's preliminary findings. First of all, I would like to thank to all our partners, our authors, and Mr Ajay Shankar for his advice. In WSDS 2022, TERI has launched the 'act for art' program; under which we have two components COP compass and SDG Charter. This policy dialogue is focused on SDG 7: 'ensuring access to Affordable reliable sustainable and modern energy for all', under the SDG charter component.

As already discussed, just transition around coal is actually gaining discursive traction. These days, just transition narratives have moved around the low carbon economy, based on creating decent job opportunities. But, in the era of climate change, we require transition towards renewable energy as well as climate negotiations which multilateral development banks have already focus on.

We should also focus on people-centered transitions – that the International Energy agency focused on. The main rationale of our study is that we saw a rise in the energy consumption for G20 countries, and it will continue to rise with further development. Most of the policies are supply side, but the demand side interventions are also emerging. For inclusivity, we should examine both supply and demand side.

The major gap in demand side interventions is with respect to inclusiveness. In this study, we are aiming to analyse the policy instruments and trends for inclusive energy transitions from demand side perspective, in major three sectors: agriculture, MSMEs and transport, for G20 countries.

From the energy supply trends, we find that only 12 percent of the total primary energy supply in G20 is renewable energy. The top three countries that have the highest share of renewable energy are Brazil, Indonesia, and India. However, the demand side picture is a little different.

In the demand side, the percentage share of energy consumption of the G20 countries to world's energy consumption is around 76 to 78 percent over the time period 2000 to 2019. According to the 2019 data, energy consumption share is the highest for China, USA, India, EU, and Russia.

The aggregate energy demand is actually increasing over time in G20 countries. However, the percentage share towards the world's energy demand has a slight declining trend. From this, we can see that in G20 countries the demand is increasing, even though the share is decreasing a little bit. Thus, we can say that energy supply side and demand side has a different picture, and India is in a better position because they are the third nation for renewable energy supply have the significant demand.

From energy demand side, the percentage shares of energy consumption are significant for industry and transport sectors; though that for agriculture and allied sector is minimal. Since China, USA, India, EU, and Russia have more energy demand, we will be focusing on these five countries.

Among G20 countries, China has significantly higher energy consumption in the industry sector, but it has shown a declining trend from 2014 onwards and has been almost constant (around 20%) from 2017 onwards. In USA, transport sector consumes the highest energy and the trends are mostly constant throughout the time period. India has highest energy demand in two sectors, industry and residential; where industry shows an increasing trend and residential sector shows decreasing trends which is an interesting result. Apart from these countries, EU has the highest energy consumption in transport, industry, and residential sectors; where the industry sector has a declining trend, transport shows a rising trend and for residential it is constant. In Russia, again industry, transport, and residential sectors consume the highest energy. All three sectors have almost constant trends (around 20% to 30%) over the time period of 2000 to 2019.

Now let us focus on the policies in the agricultural sector; specifically on the demand side of the agriculture production. Energy is required in each step of agricultural value chain from inputs to end users, like for irrigation system, mechanization, greenhouse temperature control, space water hitting, crop drying, lightning, ventilation, refrigeration, etc. Here we are The main use of energy in agriculture production is for irrigation purposes. Most of the policy instruments in G20 countries are through subsidizing solar irrigation systems – both solar panels and solar supported pumps. These have been subsidized either through different renewable energy promotional policies, or through specific policy implementations, like India has PM-KUSUM. In developed countries, the clean technologies which have been adopted are mostly market driven.

For MSMEs, policies in G20 are focused on policies that are aimed to make clean energy practices more affordable, by improving their access to credit, providing subsidies, energy audits, and training programs. For example, credit guarantee is provided under India's credit guarantee scheme; funding for projects that use clean energy practices, like Australia's Clean Energy Finance Corporation; UK's business climate Hub for information support to help MSMEs through policies; South Africa's training schemes in the agrifood sector to help MSME's identify more clean energy practices; and energy audits used by Japan to identify ways in which they can improve their energy efficiency.

If we look at the transport sector, in G20 countries, most of the policies are actually aimed either towards making sustainable/affordable transport system, or improving quality and convenience of sustainable transport infrastructure. Affordability then can be addressed by fiscal incentives through subsidies so that consumers can purchase electric vehicles for less money. China, Germany, India, Italy and Japan have such subsidies. Further, through tax rebates and tax benefits, targeted products can be made cheaper than less sustainable products; for example, South Korea has tax rebates and EU has tax benefit approaches. Also,

through exemptions from import tax duty on EVs and less tax on CNG (compared to diesel and petrol), targeted products can be made cheaper than less sustainable products. For example, Argentina and Mexico have exemptions from tax duty on EVs and India, China, South Korea have less tax on CNG. In addition, governments also invest on infrastructure, such as electric vehicle charging and CNG refilling stations, to improve the convenience of using these products. Such solutions were promoted by countries like, Canada, Italy and Japan. For ensuring inclusivity we need to address public transportation – where, to our knowledge, the relevant policies are missing in G20 countries. According to our study, only South Africa, turkey, UK, Russia, and Indonesia have promotional policies that provide subsidies on bus fares and have also launched night-time bus services.

Studies emphasize that demographic and socio-economic characteristics are one of the driving factors in inclusive energy transition. Renewable energy offers more scope for inclusion than conventional energy systems. One of the most important inclusions is gender: where disparities have really been addressed as part of national energy policies for the three sector we are focusing on here..

Women have seen significant empowerment in agriculture and MSMEs sectors. Measures to empower women are significant – in agriculture the index for Bangladesh is 0.749 and for western Highlands Guatemala in Mexico is 0.692. In MSMEs, around 13.5-15.7 million or 20% of all enterprises are owned by women (as per the 2019 Google-Bain report). Although there is a significant women empowerment in these two sectors, very little policy interventions are present. Almost no such policy exists to our knowledge that include women empowerment in agriculture specifically related to irrigation systems, comma which holds immense potential. Further, in the transport sector, hardly half of the women population in developing countries avail public transport. There may be different reasons for not availing public transport by women but the major factors are affordability and safety issues. Among the G20 countries, very few of them (India, Italy, Switzerland) have support policies for women headed MSMEs. While under the transport sector, only India and Mexico have addressed the issues of affordability and safety for women availing public transport.

Women are often most affected by the energy crisis and their participation in the clean energy transition journey has seen a very complex narrative – in a number of growing media reports, particularly in the format of special features. Long stories and opinion pieces have explicitly addressed the issue of women engagement with the process of energy transitions. The key challenges that we are focusing on are the media reports on the gender replication of clean energy demand side policies in agriculture, MSMEs, and transport sectors.

There is a need to represent the sectors of agriculture, MSMEs, and transport with respect to gender through media's lens. We are looking for a great coverage and more reports from the ground about clean energy demands and interventions in these three sectors. Since media plays a vital role as a source of information, it is significant in representing the gaps, through the aspect of gender, in these sectors. Hence, sensitizing the journalists through gender equity workshops in the energy transition dynamic, as well as increased gender focus by the media on policies on energy transition, are a few suggestions that we would like to put forward.

Thus, the overall recommendations from the study suggests are –inclusion of the missing dimensions in in the dominant discourses about demand side clean energy transition; to consider inclusiveness aspects in inadequate policy instruments; inadequate policy implementations in agriculture sector need to be prevented for inclusive energy transition. Although the share of energy consumption in agriculture is low, we should focus on it since agriculture is a cross-cutting sector. Further, reliability issues need to be addressed for promotion of demand measures. Other recommendations are amending the missing gender disaggregated data on clean energy transitions (specific to agriculture, MSMEs, and transport sectors) and the filling the normative gap through the media.

Shri R.A.S. Patel, Deputy Commissioner, Ministry of Agriculture and Farmers Welfare

Energy is required at every stage in the agriculture sector – from ploughing to harvesting and for post-harvesting related activities, such as for cold storage. Agriculture today is mechanized and hence, highly energy intensive. Most of this energy is based on fossil fuels. In terms of irrigation systems, the Ministry of Agriculture & Farmers' Welfare has been focusing on micro-irrigation systems, which consists of sprinkler as well drip irrigation systems. Presently, most farmers are using electric pumps. Through PM-KUSUM scheme, the Ministry is providing subsidies to farmers to encourage them to use solar pumps; with the support of the Ministry of New and Renewable Energy. Thus, farmers are now adopting the solar pumps in irrigation sectors – particularly to irrigate the fields through micro and drip irrigation systems to meet the basic requirements. The Ministry is trying to go ahead with the clean energy transitions over the fossil fuel, particularly for irrigation systems. For this, the Ministry is replacing diesel pumps with electric as well as solar pumps. Through PM-KUSUM, farmers can also earn by supplying the electricity generated through their solar systems to the grid, when there is no requirement of the energy for the pump operations. Since solar energy operated pumps are one of the daily needs for farmers, we need to focus on the same. Thus, the Government of India is already trying to take care of clean energy transition in the agriculture sector, particularly in irrigation systems. However, a lot more has to be done in terms of incentivising solar pumps as well as skilling. Further, now-a-days, the application of fertilisers, pesticides, etc., are operated by drones which also require energy.

Dr Ritu Mathur, Lead, India Climate and Energy Modelling Forum, NITI Aayog

While transitions in terms of technology have been discussed so much, more needs to be done in energy efficiency, on both the demand and supply sides from clean energy perspectives or decarbonizing, by focusing on hard to abate sectors and power sector –maintaining electrification as much as possible with simultaneous clean energy transitions. However, the questions we should address are how to scale these up, how do we ramp up these innovation in making the transitions – this is the central problem, focusing on people.

It becomes extremely important to look at how we could influence the behaviours and how could we carry people forward in the transition pathway. The government has been comprehensively looking at energy transition, in terms of policies related to technological side – such as hydrogen mission or scaling up of renewables. At the same time, we have a number of initiatives. like the Skill India or the start-up India initiatives, which are also simultaneously being set up to comprehensively manoeuvre the social, technological and economic aspects together as we manage this transition. This is an extremely imperative in managing our transition properly. For example, under the Pradhan Mantri Ujjwala Yojana (PMUY), about nine crore new LPG connections were already rolled out by January of this year and over 28 crore households in India now have access to LPG. Now, if we just focus on cooking – which is largely a women dominated activity – any benefits which accrue from changeover to clean cooking are going to be incurred more by the women and children. There was a recent study by the World Resources Institute, which also gave an estimate that PMUY has prevented at least 1.5 lakh pollution related premature deaths in 2019 alone. Another aspect where we need to focus is addressing the data gaps: for which we need to continue with our mapping efforts. For example, in terms of transition through skilling, there are many estimates about the number of jobs that are likely to be created along with the renewable energy transition. But how do we match the kind of skill sets which exist currently, what are the skill sets of the people who are currently in the regions where we might see the largest transitions, and how do we make this match with the kind of skill development and training programs that we are planning out? These kinds of connects are very important to make in the transition process. So, some important aspects are: knowing our data, threading our policies and initiatives with the correct data, and then planning it out through the transition.

In terms of the agriculture sector, as mentioned, when we are looking at decentralized energy generation through solar panels for irrigation, we need to address the following question: how do we make sure that the people who are involved in the agricultural activities can increasingly enhance their incomes; and how can

they become more and more included in the system (in terms of being able to get into affiliated activities or additional livelihood activities), so that the incomes of people can also be enhanced and there is greater participation of people in the economic output as well as in the activities that they can entail.

I would extend the same thread by focusing on MSMEs as well, in terms of trying to look at the data sight of the gaps, to see what kind of skills would be forthcoming, or what kind of skills would be needed in enabling the MSME transition. The MSME sector clearly lacks detailed data of this kind and more knowledge on this would surely help connecting modelling as well as implementing correct policies.

CLOSING REMARKS

Dr Shailly Kedia, Senior Fellow, The Energy and Resources Institute (TERI)

Considering India's upcoming leadership in the G20 presidency, we know that energy transition is going to be one of the working groups; specifically from the demand side perspectives. So, it can push for stronger intervention and stronger concentration in this forum. India itself has implemented the PM-KUSUM scheme, which ensures energy security to farmers and also, in a way, promotes clean energy in the agriculture sector. Especially, moving away from diesel fuel is very relevant and could definitely be one of the aspects which India can highlight in terms of its knowledge sharing as well. Further, G20 countries, at an aggregate level, account for about 76-78% of energy consumption to world's total energy consumption. Thus, we do think that demand measures and inclusiveness concentration then becomes very important.

ROUNDTABLE DISCUSSION BY EXPERTS

Dr G Mini, Senior Fellow, The Energy and Resources Institute (TERI)

The concept of leaving no one behind and inclusive energy transition will enhance human wellbeing and capabilities. It increases resilience and also drives innovation towards sustainable society at all levels. It's no secret that an inclusive and a just energy transition can have transformational co-benefits for the achievement of the sustainable development goals as well. So, here the discussions will be focused on some of the implications of inclusive energy transitions, in the specific sectors of household energy access – mainly cooking and lighting, agriculture, MSMEs, and transport – more from a demand side perspective. The discussion will also look at: some of the policy instruments which can promote more gender inclusive transitions in these sectors, the barriers and challenges to inclusive energy transitions (including the data gaps in the information), and then more at a micro level. Finally, we will further focus on some of the good practices that exist in G20 countries.

Mr Abhishek Nath, Sector Head, Energy and Power, Centre for Study of Science, Technology and Policy

(Mr Nath has delivered his expert opinions on MSMEs and the existing data gaps in the sector.) I have been working in the MSME sector, for around 25-30 years, and was involved with various interventions – starting with State Bank of India to the World Bank. I have faced various problems among which the problem of data collection was a pertinent one at every stage. Initially, the problem existed in well-known clusters, but now as we spread out, we realise that the problem used to exist even in those places where interventions had already been taken place. There were two major problems that we faced at every level while collecting data. One is the willingness of the participant to share the data, and the other is related to data organisation – whether the data is organized in such a way to address the problems of inclusion.

Under the issue of gender inclusivity, it is difficult to capture gender related data in MSMEs. While in the presentation by TERI, it was pointed out that about 20% of the enterprises are owned by females, in India, it is extremely difficult to identify gender, gender data, and the ownership status of MSMEs by women (though it may be possible internationally). In India, people register their enterprise in the name of a female, but the actual ground level participation is questionable. Another difficulty is assessing the willingness on the part of

the participant to let you capture the data. The solutions lie, perhaps mostly, in the approach we take to solve these problems. Not to venture deeply into the solutions; according to my understanding, our whole approach needs to become inclusive, if we really want to capture the gender related data and other factors of inclusiveness.

Ms P Anima, Media and Communications Lead & AC, The Energy and Resources Institute (TERI)

Let's take this conversation forward by looking at gender energy transitions and the representation of it through the media lens. There is an inherent complexity when we look at women as well as energy transition in general. While women remain the direct beneficiaries of a lot of the schemes related to energy transition, they also have to deal with the historical problems related to access. This complexity is what the media has also been trying to capture in reports that you see over the past two or three years.

Renewable energy sector sees a fairly large presence of women, about 32%. In my experience the media, in general, is trying to extensively capture women's engagement from the ground, or the involvement of women on the ground – especially when it comes to initiatives on solar energy, their presence in the EV sector, etc. However, reports from the demand side perspectives (especially for the agriculture and MSMEs sectors) are few and far between because, it is a sector that is kind of emerging, but it is an area that media is increasingly interested in. There needs to be a long-term plan to address aspects such as terms of sensitization of the media, and inverting the lens of looking. It has a lot to do with capacity building and changing the lens of the media and look at these issues from the other angle – the angle of demand. We are also pressing on turning the traditional methods of looking. Thus, it is an area (MSME's and agricultural sector) where a huge opportunity for media engagement exists.. Like I've mentioned before, media's engagement with these sectors is rising, but there is also need for greater engagement; espionage in looking at the gender aspects and energy transition. Presently, in its representation the ground level stories, such as the Tilonia's stories of solar mama from Rajasthan, as usually focused on. These individual studies tend to get picked up by the media extensively, but stringing together the aspects of policy and framing a larger narrative –which addresses the issue of holistic energy transition –is where we seem to be lacking. We also see that in some spaces, like, opinion pieces or even long form featured narratives, these aspects are looked at more holistically, but we need more of such coverage to address the issue comprehensively.

Dr Abhishek Kar, Senior Programme Lead, Council on Energy, Environment and Water

As someone who has been working in the field of clean cooking for many year, there are a few issues (that come to mind) which we need to look into it, as they have not received the proper attention. For example, there is lot of attention around the public policy of Pradhan Mantri Mutual Yojana: a flagship scheme by the Government of India which has completely changed the landscape of growth in LPG demand. Before 2016, the trajectories and numbers for the growth in LPG demand were very different, because those are based on previous years' incremental approaches of increase in the growth rate of clean cooking of LPG use. But post 2016, because of a radical change in the policy landscape, the numbers have reached almost near the universal LPG access in 2021-22 – which would have been very difficult to anticipate for anyone who was working in this area pre-2016. However, one issue in this sector of LPG which one cannot miss out, even along with the SDG growth projections, is that if there is a radical policy intervention, the change in trajectory/ numbers of a particular factor may look dismal now (or even 10-20 years down the line) based on trend analysis. This can happen not just because of a radical policy change or policy intervention, like Pradhan Mantri Ujjawla Yojana, but also because of disruptive technology such as the existence of an energy efficient electric induction stove that comes to the market at a certain point of time. So, as per a CEEW analysis, as long as the domestic tariff for electricity is below Rs. 7.5-8, with a price of LPG is around Rs. 1100, electric induction is a very competitive technology. Now, if a new disruptive technology comes in and changes the entire pricing of electricity (in the range of say Rs. 4-5), it will make clean cooking technology more affordable and accessible to the people as compared to the earlier situation. He has highlighted that instead of just discussing

In this entire debate on SDGs, we usually discuss on the policy changes and prescriptions, but I think we need to really advocate for innovations – which means investment in R&D – so that we can get disruptive technologies that make clean energy highly affordable and accessible to people. Along with this, we require aggressively pitching for radical bold policy prescriptions, which go beyond the usual incremental progress trajectory.

The second issue, which I would like to highlight, is that there are many practices which are to be accepted as it is, or taken for granted in India. For example, in India, oil marketing companies have online booking systems, online receipts, tracking system for their sales, etc. –all these systems are a fantasy for someone who is a policymaker in a country in Sub-Saharan Africa. This is because the IT systems here are far more far advanced and robust as compared to what is there in Sub-Saharan African countries here. So, in the spirit of South-South cooperation, as championed by the honourable Prime Minister of India, it would be very useful, if India engages with these countries to enable cross learning and inter-country support; as we are equally struggling with the SDGs. Therefore, strong South-South cooperation – at least in the clean cooking energy space – will enable us to unlock our potential.

Because India has already rolled out such a massive programme (PMUY) that has reached out to 80-90 million households, it has learnt many things which may not be formally captured – but are present in their existing system. For instance, if we speak with a field officer from Indian oil who has been phasing or trying to get some paper work done, they might be able to point out the problems with the internet connectivity that they faced. These challenges, these lessons learnt, which at this point are in the memory of various institutional members, can be formalized and concrete steps can be taken up for the same. This way, when capacity building is underway for other countries in the global south, they can avoid the mistakes that have already been made (and their costs incurred) by us. Thus, (by learning from each other) the costly mistakes can be avoided; in a way, this is going to make access to clean cooking more affordable and more easily expandable even for those Sub-Saharan African countries.

The third thing which I would like to focus upon, keeping the fulcrum around the issue of clean cooking, is disconnection between the research community and the policymaking community. This disconnect, I think, is not very easily understandable and translatable between these two domains. As researchers we focus a lot more on pilot projects – doing field trials. Whereas, from a policymaker's perspective to run a country at the national scale, rollouts which are implementable quickly, fast and across the spaces are more apt. Thus, there is implementation science research that is missing –needed to bridge the gap between the small-scale pilot project and a National scale rollout. Not enough steps have been taken in terms of methodologically bridging the gap between a small demonstration and a national rollout. Various steps should be taken for the evaluation of this knowledge gap and we should find a structured way of analysing whether a successful demonstration project is actually scalable enough for a national level policy. Another factor on which he has pointed is that millions of households in India, today.

The fourth issue which I would like to emphasize upon is: while there is a lot of discussion around the question 'How do we make people use more LPG?'. I think our focus needs to be more technology agnostic. What I mean by that is: for example, a household uses LPG partially along with firewood, which, as we know, means that the health gains are limited since LPG is not used exclusively (it's a non-linear scale in terms of how health benefits occur). How do we promote more LPG usage in such households? Today, there are millions of such households in India – who have access to LPG, but because of a host of factors there are limitations in terms of the level of usage. Because of technologically specific restrictions as well, LPG usage in a household is not scalable beyond a point. So, rather than pushing the household towards using more LPG, why not think more in terms of a clean energy mix?

Like, to wean the household away from firewood, LPG and an electric induction stove be tried in combination. Thus, the overarching question we need to focus on is not 'How do we make people use more LPG?', but 'How to we make people use more clean energy?'

In the recent months, there's been a lot of improvement and massive progress in terms of both commercialization and technology innovation around biogas. Our focus should really move away from narrow, technology specific research questions or intervention ideas as there is a bucket of clean energy options. We should focus on pushing a household to pick from available bucket of clean energy options (irrespective of what technology it is) by keeping the themes of manageable, accessible and affordable in our mind. This could be more useful in the long run.

Prof. Subhes Bhattacharyya, Professor of Net Zero Carbon Energy Systems, University of Surrey

I would like to speak about inclusive energy transition from an SDG perspective, by emphasizing more on leaving no one behind. If we try to do so, then what are the implications and challenges that might come, and some interventions that could support this process.

If the objective is to have a transition of the energy system that leaves no one behind, then we have to aim for a system (which is unsustainable at the moment) and convert or transform that into a sustainable, low carbon, decarbonized, net zero system in the future over a certain period of time – may be by 2030, 2040, 2050, or 2060. Many countries are planning and committing themselves to decarbonisation of their economies by a future targeted date. We cannot just look at the transition from a technological perspective alone. Ultimately, if the objective is that we want to take everybody with us, then it has to also move and transform itself from whatever the current situation is – which is mostly unjust and unfair – to a more fair and inclusive system; so that everyone is included and not a single person is excluded from that transition process. That would require backtracking and back casting that process of transformation, to look at what could be done and what are the steps that to follow, and how, perhaps, to approach the problem to make it more within the reach the objectives that we are aiming for.

In process of inclusive growth, inclusive development, inclusive transition, we have to consider both urban and rural areas – all locations in the given country's context, all sorts of settlements (either formal or informal), different gender aspects, conditions of use of the users – not only limited to households, but in a national context. In the debate about inclusive growth or just transition, usually the focus has been on a section of the population; like the ILO focuses on labour and the labour movement has created this term of just transition. But if we are really serious about sustainable development goals and the commitment that was made in terms of leaving no one behind, then focus cannot be limited to only labourers or only households, we have to focus on all users: such as small users from the commercial side, transport sectors, business side agricultural aspects, different industries, small industry, large industry An all-encompassing kind of engagement would have to be considered in that process of transition, which is missing at the moment in the discourse and discussions.

Even in academic literature, this gets dominated by a certain ideas and philosophies and very few people are really considering the problem of leaving no one behind and the challenges present in terms of taking this agenda forward. So, system wide interactions would be required.

(He continued by presenting a diagram that tries to capture the different types of activities and actions required.)

When we are trying to transit to a low carbon system, our residences will be transformed; our transportation systems will be transformed; our energy power generation will be transformed; the way of transporting and using energy will be transformed; and the landscape, the agricultural activities as well as the businesses will be transformed; into a cleaner and greener set of activities so that the entire decarbonisation process can succeed. In that process, again, our discussions have always been more at an aggregated level; when we bring it down to the local levels, many disconnections among committees arise. How this (decarbonisation) will happen at the bottom-up approach level is not always clear. There are inconsistencies in terms of building regulations, planning permissions, use of resources, and often there has been a significant focus on technocratic approaches to the solution. For example, in the UK, there has been a significant emphasis on electric vehicles, and the government has decided to ban any sale of new fossil fuel driven vehicles after

2030. But that is only one component of this entire solution package and focuses only on one solution. Choosing a technology and promoting it, may not always serve the purpose of making it inclusive. Thus, the question arises at each level of the decision making: whether we are cognizant of what is actually required to take the entire population with us and whether that frame of mind is being applied at the decision-making process or not? This remains to be investigated. This is where the problem lies, because of disconnects between the levels of decision making and decision making in silo. This is one area where major changes are required.

We should always try and ask a few questions at every step – can everybody afford the solutions or the options that we are proposing? Are there people or sections of the population who are at the risk of leaving behind? In this case, a divide may be created – between those with and those without the solution – which does not solve our purpose of sustainable development. Then we must ask: are there ways of protecting those who might be at the risk of being left behind? So can we devise sustainable protection mechanisms as well?

There are always challenges and financial intervention is one instrument that has been used in many countries; but they may not always be sustainable or may not be continued for ever. Like, in case of LPG promotion in many countries, LPG subsidies once given become very difficult to be removed over time. Another example is the case of fossil fuels which we had tried to promote at one point of time, but is now it a problem for us and we are trying to remove it. Thus, we should learn from the mistakes in the past.

Another issue is: can everybody access the services that we are trying to propose or promote and can everybody meet their needs with these solutions, or are there any not-reachable areas and/or sections of the population who might be facing risks of (again) not having adequate resources? Can these resources be available all the time – whenever we need it? And are the promoted solutions acceptable to all the users? If the solutions that are being promoted are not acceptable, then again, we are not carrying everybody with us because we are not getting their support. Cooking solutions is one example. Over the past 30 years or so, many trials with cookstoves and cookstove designs have happened in the laboratories – without looking at the user's perspective, and they have failed. Basically, in this case the solution that is being proposed is not acceptable; it has not been adopted by the users. We have the risk of facing similar challenges when promoting solutions, and innovative ideas from the supply side or the technology side, while not keeping in mind the user's own needs. Thus, we should learn from our past mistakes and ask the right questions. Even though we don't have any solution, asking the right questions is the good starting point. There is likelihood that we will get the right answers at some point of time.

One challenge, particularly in terms of financial resources and support mechanisms, is the resource challenge. The mechanisms do not always reach the targeted population and may not be sustainable solutions. Therefore, we must have a clear way of re-engaging and solving these problems of how every user might be able to have adequate resources. This, perhaps requires an interaction with the local solution and in turn create adequate benefits that may be shared between the users. To attain or maintain the scenario where every user is endowed with adequate resources, moving away from profits generated locally and also locally reinvesting of some of those profits (so that it can create the conditions for development and sustaining) may be required; that ensures development over the longer term for future generations as well.

Again, as the technology is changing, lots of innovations are happening, but maybe not all users are equally capable of participating in those innovative solutions. We need to then think of improving their capacity to participate, so that maximum benefits can be generated out of the solutions and people can become more empowered as well through education/ skilling and knowledge sharing. The interventions should be focused on capacity building, creating opportunities for better living, prior identification of the vulnerable section of the population, and then supporting them in a targeted manner, but most importantly, generating awareness and sharing the information more, widely and making it more accessible.

Since, the topic of inclusive transitions is a complex issue – considering the diversity of the fossil-fuel endowed regions in India – I would like to focus on the implications of just transition for SDGs. In India, currently, the discussion is focused on coal and on the distribution of labour – where gender plays an important role considering the low participation of women in the extractive industry; particularly in well paid and formal jobs. When we talk about just transition and where women exist under this discussion, a lot of women's participation can be seen in terms of the informal sectors or indirect sectors and associated sectors such as MSMEs. There are two key issues which are important for gender, which are also tied to today's focus.

The first is the participation of women in a dignified way in the transition process, when trying to plan a new economy, is important. How do they get decent jobs, what kind of work they are going to do and how that can be ensured? The second point is access to clean cooking fuel, in which the gender dimension exists majorly, because women are often the ones procuring the non-clean sources of fuels (such as coal or firewood) and cooking or using it – which also has implications for indoor air pollution and women and children's health. Both of these are important issues to address when we are planning for a just transition.

If we look at the statistics in India's coal regions and the Government of India's penetration of LPG, there is a huge amount of dependence on coal as a cooking fuel, which is further supported by the findings from our studies of Ramgarh district of Jharkhand (a 150 year coal economy) and Angul district of Odisha (a future coal district: going to be India's top coal district in the next 10 years). Angul is much more prosperous than Ramgarh in many cases. This is because till the time there is cheap oil available in local market, it is very difficult to have supply and penetration of clean cooking fuel in the low-income households as they get coal at a much lower price. Sometimes in areas of Jharkhand, they gather coal by themselves and don't even buy it. For example, for someone from a low-income family – practically having household income below rupees 10,000 per month – it is very difficult to convince them to buy LPG or use LPG, even through education or awareness creation. So, when we are talking of just energy transition, the primary thing is to look at the informal coal economy – where coal is being gathered and is bought and sold in local markets – which has not been factored in the very formal and sanitized discussion of just transition (focusing mostly on formal workers and formal economy). This is a very difficult question to address as not enough are working in this sector; hence, there is lack of data. Intensive studies are required to understand this informality, to quantify it and to see what interventions can be planned. If I have to give one suggestion, (and in this our experience is very different from the western world's), it would be to focus on deep socio-economic characteristics for transition, because deep social sector investments and development interventions are required to plan this transition. Unless we do so, the informal economy, the gender inequality that exists as part of it, poor education levels among women, poor participation rate of women in the workforce – even when they are working, they're working as informal laborers with the lowest wages –all this cannot be addressed.

So just transition needs these three interventions: first, social sector intervention as a broad-based development intervention; second, targeted adequate investments in education, upskilling, rescaling are extremely important; third, (being discussed repeatedly) figuring out the governance mechanism. Development planning is nothing new in India and inclusive planning has been talked about for years, starting with the planning commission's District Development Plans. For just energy transition, we need an implementable governance system where we can ensure that people's participation happens and particularly, women are represented. To make everyone a part of this process, it should be bottom-up; but the challenge is, how do we make it happen? The only way is having more and more academic discussions, engaging researchers and think tanks coming from various backgrounds. It is very important to engage with local level institutions to build the local capacity; it should be a sustained engagement and we should approach for a 14-year transition process (not on a temporary or short term basis). In those countries where it has been successful, it is because local level institutions have been created to sustain this process.

Talking of gender equality in the new transition and how equality can be built in: one of the biggest barrier will be the informality, not just the informal workers of the coal economy, but the informal economy that exist in this areas. To overcome these barriers, we need a long-term transition planning through local level engagement and of course, generating a lot of data at the organisation level. The government of India has

come up with new labor codes – in a bid to have some social security measures – but have to see how it gets executed. Labour reforms will definitely be a key component, if you want to plan this transition.

CLOSING REMARKS

Dr G Mini, Senior Fellow, The Energy and Resources Institute

The important aspects that were discussed or raised today are the importance of data availability at a disaggregate level and thus, the implications of the data gaps: how we need to plug some of the data gaps and address the whole process of data collection itself. Another important issue is media's outlook: capturing some of the aspects of the marginalized, the vulnerable or women, and how the media as a whole needs a little more sensitization to deeper analyse these issues. The discussion also depicts the importance of radical policy decisions for technology or technology innovations and changes in pricing to bring about those radical changes in the consumption pattern of the consumers to move towards a more just transition; along with the need for South-South cooperation for a broader cross fertilization of ideas and knowledge transfer. Further, panellists have highlighted the challenges that come with just energy transition, in terms of affordability for the marginalized, accessibility, reliability, and the challenges of the marginalized who do not have voices, and where there is a lack of capacity. It has been highlighted in the discussion that these processes of transition should not just be looked at from a more macro perspective, but rather, other policies or other complementary aspects should also be seen, in terms of education, social enterprises, and governance. All those aspects also play a very important role in bringing about transformative changes or just transition.
