

Path to Sustainable Energy Futures in Developing Countries

Panel Discussion Brief

Overarching Theme

In the pursuit of shedding the burden of unsustainable fuel import bill, many developing nations encounter a dual challenge: reconciling energy security and environmental sustainability. Unfortunately, despite their aspirations, these countries grapple with limited domestic investment in renewables, insufficient innovation, and a lack of global support in clean energy initiatives. This panel discussion sought to unravel the intricacies and opportunities inherent in the quest for sustainable energy futures within developing nations. The discussions uncovered fresh perspectives on the factors impeding these nations from harnessing cutting-edge technologies and financial models, despite their advantageous position as late entrants, relatively unburdened by fossil fuel entanglements like their counterparts in the developed world.

The Panel Composition

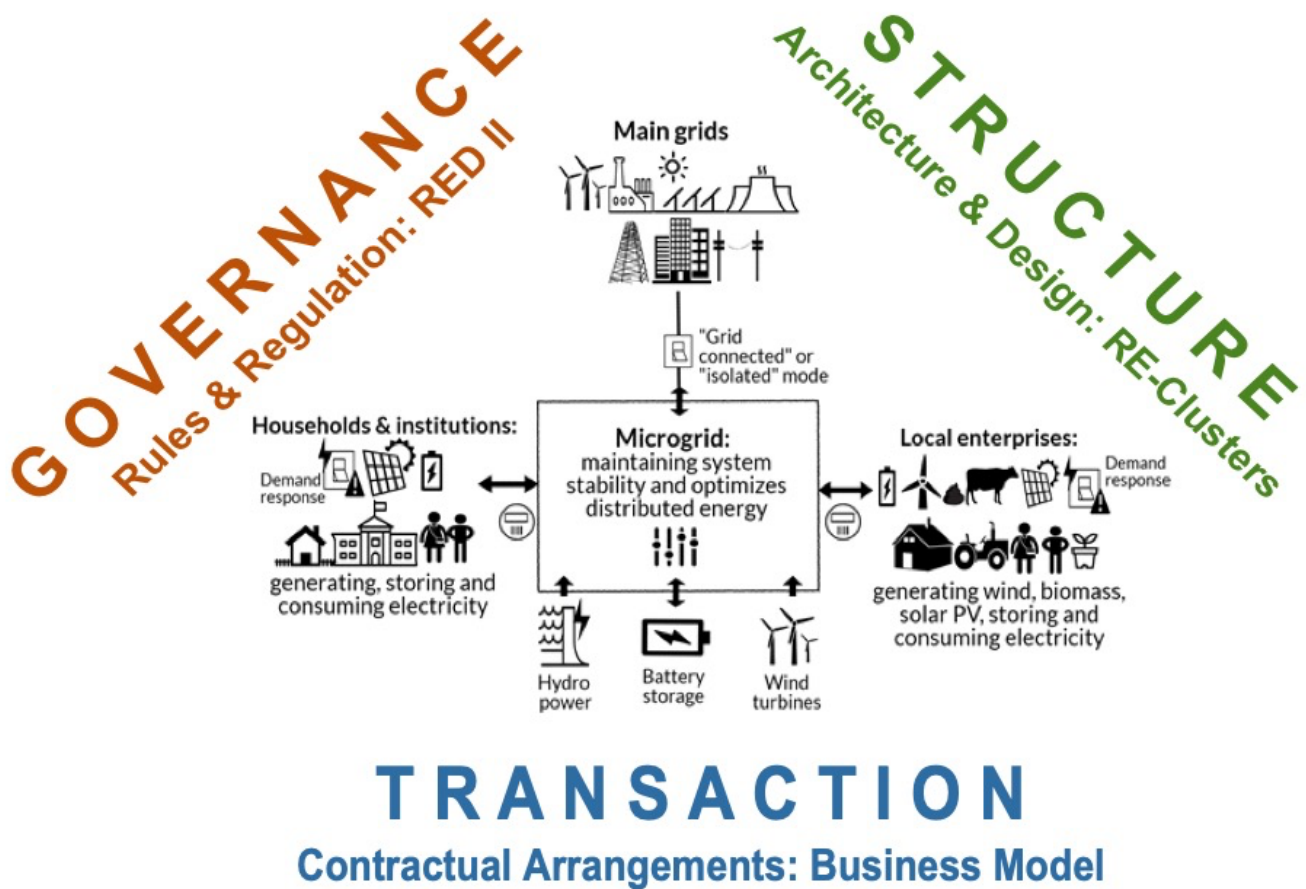
The panel convened on 16 November 2023 (12:20 pm – 01:35 pm) in G&T Auditorium of the IBA-Karachi Main Campus at Karachi University. The session was moderated by Junaid Alam Memon, a professor of society and natural resources at IBA-Karachi (positioned 1st from the left). The distinguished panelists included Jens Lowitzsch, Professor at the Kelso Chair at Europa-Universität Viadrina, Frankfurt (Oder), and Director of Kelso Institute Europe (positioned 2nd from the left); Satyendra Nath Mishra, Assistant Professor at the Institute of Rural Management, Anand, India (joined online); Afia Malik, Senior Research Economist (Energy) at the Pakistan Institute of Development Economics, Islamabad (positioned 3rd from the left); and Mudassar Zuberi, Head of Business Development at K-Electric, Karachi (positioned 4th from the left).



The Framework for Discussion:

The moderator introduced the session by elucidating a generic conceptual framework for any energy system, whether current or future. Accordingly, when considering any energy system, three main components emerge: the physical structure of the system, its governance or software, and the nature of transactions that take place.

Energy Systems



In explaining the framework, four sets of broad questions were gradually posed, shaping the discussion within this session. Each panelist was supposed to answer the same question from their vantage point to facilitate a shared understanding that reflects the views of the actors currently dominating the global energy scene, perspectives from the research and academic community in developing countries, with a focus on India, Pakistan, and examples from various other settings, and the developed country viewpoint, encompassing all advanced technological and institutional changes happening there. These questions were:

1. Given that sustainability may mean different things to different actors, I would like to ask the esteemed panelists their perspective on the very idea of a Sustainable Energy Future, considering their role in the debate.
2. What are the main challenges from your point of view? (Problem description from the perspective of actors)

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3. What are the most pressing policy measures necessary to improve the transition to these renewable energy systems?
4. What are the most pressing policy measures necessary to improve the transition to these new energy systems?

Summary of the Discussions

The session articulated key challenges encountered during the transition, emphasizing the lack of essential infrastructure like transmission grids and storage facilities. Financial constraints pose a significant hurdle, as the upfront costs of renewable energy projects often exceed the financial capacity of developing countries. Political instability emerges as another impediment, complicating the implementation of long-term energy policies. Additionally, the entanglement in long-term contracts with fossil fuel power plants creates a capacity trap, hindering the shift away from conventional energy sources. Furthermore, a substantial portion of the population in developing countries lacks access to electricity, contributing to the unmet energy demand.

Conversely, the discussion sheds light on opportunities for developing countries. Embracing leapfrogging strategies enables these nations to bypass outdated technologies and adopt cutting-edge renewable energy solutions. Decentralized renewable energy systems emerge as a more feasible and affordable option for implementation in developing contexts. The transition also presents prospects for job creation in manufacturing, installation, and maintenance, while simultaneously improving air quality and public health by reducing emissions.

The panelists put forth a set of policy recommendations tailored to the unique challenges faced by developing countries. They advocate for the development of comprehensive energy plans, decentralization of decision-making, empowerment of local communities, investment in infrastructure, removal of subsidies for fossil fuels, improved access to finance for renewable energy projects, and promotion of energy efficiency and conservation. Following are some of the key highlights from the discussion:

- Energy is the thread that connects humanity beyond national boundaries and the implications of energy for global sustainability cannot be overstated. Sustainable global energy future is the one where energy is clean, secure, accessible and affordable to all - a future that is achievable for many developing countries only with the global cooperation and collective action.
- For developing countries however, sustainable energy future entails universal access to sufficient energy at an affordable price, as energy has direct relationship with the quality of livelihood and wellbeing. Although there is a notable inclination toward transitioning to renewables, this goal often takes a backseat in energy mix decisions due to a myriad of economic, financial, political, and institutional and governance related factors.
- With rising incomes in Asia, energy demand is escalating and many developing countries are expanding their energy system to ensure that everyone has stable and quality supply of energy. Nevertheless, the lack of financing for renewables and volatile global market of oil and gas are pushing many developing countries to look towards coal, something that needs serious thinking at the global level. With these investments, the world as a whole is losing the opportunity for speedy achievement of global targets as once locked into a fossil trap, it takes decades to replace these polluting installations.
- Energy market governance is one of the key areas that need attention for developing countries in general. As a regulator, government's role is to create efficient energy markets ensuring that cost and benefits of each technology are taken into account when deciding on energy mix. In countries

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like Pakistan's energy market has heavy hand of government and decision are made based on various political and personal considerations. Left with 70% of its electricity generated through imported fuels, the country trapped into circular debt, excess capacity and associated payments and inefficient state-owned energy generation and distribution companies. Only deeper, focused and graduated reforms backed by continued political will can take the country out of energy crisis for which there seems no easy and short-term solution.

- Energy transition is not only about putting up solar, erecting wind towers, its also about flexibility to adjust with volatility and intermittency associated with many of the energy sources that we consider renewable. Similarly, energy systems of today and future are no more about conventional fuels, conventional business models and conventional roles of key.
- Energy system by their very nature are sociotechnological systems and energy governance today is more complex as actors are taking new roles - the "heterogeneity challenge" emphasizing diverse actors like energy utilities, governments, SMEs, and individual consumers need cooperation and complementary relationships for successful decentralized renewable energy projects.
- Co-ownership is proposed as a pivotal element, serving as a learning device, motivational tool, and fostering acceptance of new infrastructure. However, challenges arise in aligning diverse actors under one common roof due to differing business models and ownership structures. The growing popularity of Consumer Stock Ownership Plan (CSOP) as a modernized business model to address these challenges, offering flexibility and proportional voting rights to shareholders is a way to managing heterogeneous stakeholders in the transition to renewable energy.

In conclusion, the panelists stress that achieving sustainable energy futures in developing countries demands a collaborative effort from governments, businesses, and communities. By collectively addressing challenges and leveraging opportunities, these nations can navigate the complexities of transitioning to renewable energy. Beyond the outlined points, the session delves into critical aspects such as the role of renewable energy in mitigating climate change, the significance of education and awareness in promoting sustainable energy use, and the imperative need for international cooperation to support developing countries in their renewable energy transition. This comprehensive discussion serves as a valuable resource for those keen on understanding the intricacies of sustainable energy in developing countries.

Acknowledgement:

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