P08 / Access to clean energies in developping countries by the year 2030 : How to increase access by the year 2030 and beyond in the context of climate change?

Topic : ENVIRONMENT, SDGs, ENERGY

Chair : Fernand Guevara Mekongo Mballa (Catholic University of Central Africa)

Second Chair : Mowshumi Sharmin (University of Auckland)

GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

Access to clean and affordable energy is a necessity in developing countries because energy consumption is the main cause of climate change. Even though developing countries (DCs) are not historically responsible for anthropogenic greenhouse gas (GHG) emissions that have led to climate change, legal instruments, particularly the Paris Agreement on climate change, recognize that the share of GHG emissions from DCs will increase to allow them to develop. According to the United Nations, at the current pace, around 660 million people will still not have access to electricity and nearly 2 billion people will still depend on polluting fuels and technologies for cooking by 2030. The issue of access to clean energy has sparked numerous research efforts. They focused on the opportunities that such access could provide in terms of employment (Petrie, 2013), the various plans aimed at enabling access to clean energy on the African continent (Boa, 2016), the issue of their governance on a global scale (Luomi, 2020), and the main challenges faced by both old and new actors in the energy transition (Henderson et al., 2021).
Overall, all these questions do not address, or only partially address, the issue of how to increase access to electricity and clean fuels and technologies for the greatest number by 2030.The importance of this issue is paramount in the context of the effective implementation of SDG 7, which aims to ensure access to clean and affordable energy for all by this deadline.
The purpose of this panel is to highlight the different approaches that can contribute to the achievement of SDG 7.

CALL FOR PAPERS

Access to clean energy sources in developing countries is a vital issue beyond the 2030 deadline, as these energy sources will be at the heart of the lifestyles of these populations who will have to face climate change in a context where various legal instruments recognize that the share of anthropogenic greenhouse gas (GHG) emissions from developing countries will continue to increase in order to meet their needs. The reduction of said gases can be done immediately through the effective use of non-polluting energy sources in developing countries.
Various approaches can contribute to the emergence of solutions aimed at increasing the chances of achieving SDG 7 six years before the 2030 deadline, and even maintaining the momentum beyond that. For this, it is necessary to have in this panel, communication proposals addressing questions such as:
• What specific financial tools can contribute to achieving SDG 7?
• What public policies should be implemented to encourage the use of non-polluting technologies and fuels for cooking in developing countries?
• What public policies should be implemented at the local, national, sub-regional, regional, and global levels to increase access to clean energy in all sectors (businesses, communications, medicine, agriculture, and infrastructure)?
• Which policies and regulatory frameworks are likely to accelerate access to clean energy for all?
• What international cooperation frameworks should be implemented to ensure access to clean energy for all by 2030?

The panel will accept all proposals addressing these issues, including others related to the consequences of lack of access or the use of polluting energy sources on the rights of vulnerable people such as women and children, displaced persons, as well as on the environment in general. Additionally the panel will also accept papers discussing access to clman energy in the context of climate change.

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Session 1

Friday, July 4th 10:15 to 12:15 (D3)

Discussants

Pankaj Dabgotra (Panjab University)

William Asante (Simon Diedong Dombo University of Business and Integrated Development Studies)

Policy Interventions for Energy Transition in India: An Analysis

Rajdev Rajdev (Panjab University)

NAVREET KAUR (Panjab University Chandigarh)

Industrialization and conventional energy system is also associated with environmental threats and health hazards. The power plants running on thermal, hydro and nuclear in India, however could not meet the demand of domestic, agriculture and commercial sector. The statistical facts and figures pinpoints towards the energy deficit in India. Furthermore, the statistics show that though 90% of rural households in India are electrified but only 63% of households are connected to grid electricity and among them only 37% have any appreciable level (>4 hrs) of electricity (CEEW). In order to address energy deficit and reduce carbon emissions, government of India has implemented several programmes. The major policy framework implemented to extend clean energy access was National Solar Mission (NSM) under the NAPCC in 2010. The mission initially aimed to generate 100GW of solar power through off-grid systems in rural areas by 2022 and later in 2017 shifted focus to grid-connected solar plants, but only 70% of the target was achieved. This paper presents a comprehensive analysis of strategies for increasing access to clean, reliable, and affordable energy in the context of climate change, focusing on renewable energy technologies and decentralized energy solutions. The paper provides the context to scale up the adoption of clean energy sources by analysing the trends in energy and electricity generation from different sources and for different sectors. On the policy front, the paper identifies and analyses key regulatory frameworks that can accelerate clean energy access, including carbon pricing, feed-in tariffs, and subsidy reform. To improve the electricity access, a combination of grid connections, off-grid systems, and solar rooftop systems, is implemented in India.

From a financial perspective, the paper discusses mechanisms of green finance to increase investment in clean energy infrastructure in developing countries like India.

The data for this paper has been gathered from secondary sources. The paper found that, though the energy deficit has reduced in India. Targets and achievements during 2020-21 from renewable sources at grid and off-grid level reveals that for the first-time solar energy (4166.28 MWp) surpassed the wind energy. In India estimated solar energy potential is 748.98 GWp. Till 2019-20, total 33730.53 MW cumulative solar power capacities was achieved. It has been indicated that during Phase -III of NSM, there has been increase in both solar grid and off-grid installation. However the installation is not increasing continuously every financial year. No doubt, in comparison with Phase I and Phase II, the installation during Phase III is tremendously more and has shown exceptional increase in off-grid solar installation.

It has been found that the challenges exist in policy implementation, due to less awareness financial barriers and lack of comprehensive policy statement. The declared policies do not match with the development of renewable energy system (Namooothri, M).

It is suggested that local solar PV manufacturers should be facilitated and financial support should also be given to the industries as well as citizens in the form of subsidies for residential and agriculture sector.

(Virtual) Dimensions of energy poverty, growth, and environmental vulnerability in Asian lower-middle-income economies

Mowshumi Sharmin (University of Auckland)

Energy plays a pivotal role worldwide in dealing with many present problems for instance, poverty, inequality, climate change, food security, health, and education. The paucity of access to affordable, reliable, sustainable and modern energy for all (SDG 7) is connected with poor well-being and the predominance of poverty. Energy poverty being a multidimensional phenomenon the connection between energy, poverty, and the environment poses a vicious cycle in a constantly globalized world. It is due to the fact that the interdependence among them generates such conditions, which could hardly be avoided by the most susceptible sect of the population living with the barest subsistence. Despite that there are three impasses for which energy poverty seems to get less recognition globally i.e. an absence of internationally consistent universal metrics for measuring energy poverty quantitatively, disagreement regarding the quantity of energy required to evade energy poverty and the dearth of harmonious agreement concerning energy poverty reduction and climate change improvement. These mentioned nuanced constellations are creating dilemmas in the energy poverty scenario. In this view, lack of availability, accessibility, and affordability of modern energy sources is energy poverty that has a constant relation with economic poverty and is connected to economic, social, and environmental outcomes of sustainable development. Though the energy crisis is seen in every sphere of life, at present, there is absence of an internationally consistent universal metric for measuring energy poverty quantitatively. Against this background, this study aims to empirically investigate the linkage of energy poverty, economic growth, and environmental vulnerability measured in CO2 emission of 15 Asian lower-middle-income countries from the viewpoint of globalization, governance, and institutional quality. In spite of being a crucial issue for sustainability and human development, and from an economic point of view energy poverty issue in literature has got very little attention or no attention incorporating Asian lower-middle-income economies. Moreover, paucity of studies on energy poverty aspects concentrating on globalization and institutional quality in this region motivates us to initiate a study so that it contributes to the existing energy poverty related literature of the mentioned region where energy is a crucial ingredient for graduation to the next level. This study employs panel-based econometric procedures like Panel corrected standard errors, Feasible generalized least squares, and Pooled OLS approach. The calculation of energy poverty is made by creating an energy poverty index (EPI) taking into account the three dimensions of energy poverty (availability, accessibility, and affordability) using Principal component analysis. The findings postulate that energy poverty and governance are emission neutral for the whole panel. Moreover, institutional quality in this region has not reached a level that could substantially reduce emissions. Contrarily, growth and globalization are emission-enhancing. Given this, this study recommends that policymakers of developing economies should adopt a coordinated approach among economy, policy along with the financial, technical, and institutional matter to ease environmental vulnerability and energy poverty.

(Virtual) Advancing Punjab’s Climate Goals through Solar Energy: Policy Effectiveness and Opportunities for Expansion

Namita GUPTA (Panjab University)

Navjot Kaur (Panjab University)

The global climate crisis calls for urgent action, and renewable energy plays a vital role in achieving sustainability. The state of Punjab, India's agricultural and industrial hub, has emerged as a significant contributor to the country’s commitments under the Paris Agreement, particularly in terms of expanding its Nationally Determined Contributions. Solar energy, as a renewable energy source, provides a transformative approach to reduce greenhouse gas emissions, diversify the energy mix, and ensure energy security. Punjab has implemented progressive policies such as the Renewable Energy Policy 2012, solar pump subsidy schemes, and Renewable Purchase Obligations (RPOs), which have culminated in the state's installed solar capacity exceeding 1,200 MW. Despite these achievements, challenges remain, such as inadequate rooftop solar penetration, delays in large-scale projects due to land acquisition issues, and inadequate enforcement of RPO compliance. Administrative challenges and financial constraints have hindered adoption in the rural and agricultural sectors, which are crucial for energy transformation. This study evaluates Punjab's solar energy policies in connection with national climate goals and identifies potential paths for increased adoption. It will further provide Practical insights for Punjab to align its objectives with national goals while also providing environmental and socioeconomic benefits, such as improved energy availability and creating employment opportunities.

Global biodiversity framework and energy transition: what potential interactions?

Lynda Hubert Ta (University of Ottawa)

The Kunming-Montreal Global Biodiversity Framework was adopted at the 15th Conference of the Parties to the Convention on Biological Diversity in Montreal in December 2022. It defines the roadmap for states to reverse biodiversity loss and restore ecosystems by 2030. In particular, countries have pledged to protect at least 30% of terrestrial, marine, coastal and inland water areas by this deadline. What are the potential implications of implementing this Framework for the energy transition, and in particular for access to clean energy in developing countries? Following a positivist legal analysis, this paper proposes to examine the provisions of the Global Framework and the national plans drawn up to implement it, in order to identify and anticipate their potential effects on the energy transition. This will enable a better understanding of the complex interdependence between biodiversity protection and energy transition objectives, underlining the need to seek balanced approaches.

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Session 2

Friday, July 4th 16:00 to 18:00 (C5)

Discussants

Rajdev Rajdev (Panjab University)

Namita GUPTA (Panjab University)

CAMEROON's energy policy by the year 2035: opportunities and challenges

Fernand Guevara Mekongo Mballa (Catholic University of Central Africa)

Cameroon's development vision is to become an emerging country by the year 2035 as enshrined in CAMEROON VISION 2035, the official government policy program. By that year , the country should be refered as " CAMEROON: AN EMERGING, DEMOCRATIC AND UNITED COUNTRY IN DIVERSITY ", moving from its actual classification as lower middle income country (USD 936 to 3705 per capita, with Cameroon's estimated USD 1050 per capita in 2007) to the middle income countries (USD 3706 to 11455, similar to the likes of Botswana, Mauritius, Seychelles or South Africa). Practically, the country intends to "become a newly industrialized country, which is a phase when Cameroon will transform from a primary phase to a secondary import substitution phase with the manufacturing industry accounting for more than 23 per cent of the GDP".In this respect, energy has a key role to play. This sector is essential because industrialization requires energy. To effectively materialize its ambition, the government's plan is to double energy by the year 2035 with gas and hydrolectricity as the main source of power. Although this ambition is starting to materialize with the constructrion of electric dams (Lom Pangar, Memve ele, Kikot, Nachtigal...). Yet , Cameroonian households and industries still suffer various eenergy shortages which affect their living conditions and economic activies, thus hilighting the point that the issue is not much about harnessing the country's vast potential in renewable energies, rather its ability to effectively contribute to the wellbeing of Cameroonians and the prosperity of industries. Hence the purpose of this paper is to highlight ways to implement better policies that would be conducive to the effective contribution of the energy sector to Cameroon's vision 2035 and subsequently contribute the effectiveness of the agenda 2030 in the country.

Best regards
FErnand

Sent with Proton Mail secure email.

The impact of climate change and unclean energy on the working environment: Africa’s view for a meaningful commitment in 2030

Joseph Bertrand NKOA YEBEGA (Catholic University of Central Africa (Cameroon))

There is no doubt that clean energy has many benefits for the professional world. In the sustainable development logic, a clean energy that is thought alongside climate change with its causes and consequences.

Whether they are of natural or human origin, the consequences of climate change are not without real

impact on the world of work. We are thus entitled to note that : rising temperatures, fires and bushfires, environmental pollution, etc., these recognized consequences of climate change make working conditions expose the worker to neuropsychological risk (unbalance, nervousness, change of mood, irritability, etc.), physical and psychological, biological (for workers in contact with people and animals), chemical (for workers in contact with chemicals. They are mostly vulnerable by their respiratory tract, skin and mouth), psychosocial (mental health is at half-mast, mental is unbalanced, disappearance of enthusiasm and competitiveness).

Consequences to which are added the equally harmful consequences of unclean energy: rising temperatures, non-ecological, promotes greenhouse gases. The consequences are therefore quite similar.

Therefore, it's important to ask ourselves a fundamental question: what quality of life at work in 2030, with regard to the impact of the unclean energy on the professional environment today? As second question as essential: what must be done to save the professional world of tomorrow?

It will then be necessary to link of solutions for better supervised professional world, in the sustainable development logic. Pre-emptive measures (to prevent risk) or curative measures (when the risk has occurred). Resilience, prevention, care, adaptation will thus be the leitmotiv of a professional world redesigned in our march towards 2030. This is what the new challenges of the professional world consist of, in taking account the benefits of clean energy.

(Virtual) The Politics of Renewable Energy Transition in Ghana: Issues, Obstacles and Prospects

William Asante (Simon Diedong Dombo University of Business and Integrated Development Studies)

Global issues such as climate change and its associated negative impacts have reinforced the quest for more renewable energy (RE) sources. Against this backdrop, the Government of Ghana set a 10% RE generation target to be attained in 2020. However, this became a myth rather than reality. That notwithstanding, the Government of Ghana upon realizing its inability to meet the 2020 deadline has extended its RE target of 10% to the year 2030. Using a qualitative case study approach, this study sought to unpack the circumstances leading to the government's inability to meet the 10% target, and what lessons could be drawn for meeting the new set target. Adopting Kingdon's Multiple Streams as a framework for analysis, the study found that although appropriate windows of opportunity were opened for coupling the streams of problem, policy, and politics, policy entrepreneurs were reluctant to perform their coupling role. This was due to many factors including but not limited to the controversies surrounding the definition of hydro–energy, and the unenthusiastic public opinion. The study then resolved that for the Government to be successful in similar future ventures, governmental and nongovernmental actors should work in harmony.

Climate Change and Ensuring Access to Clean Energy through Renewable Energy Systems: The Case of India

Pankaj Dabgotra (Panjab University)

Non- renewable sources of energy deteriorate environment through carbon emissions, inequitable energy distribution and over exploitation of natural resources. Pollution and release of greenhouse gases (GHGs) are major environmental concerns associated with the conventional fossil fuel-based energy generation. These gases adversely impact the environment and widely regarded as the major cause behind the phenomenon of emissions induced climate change. In India, the results of climate change are visible in the form of unusual rains, floods and frequent droughts, reduced crop yields etc. due to high temperature and changes in water availability patterns; crop yields it impacts in agro-ecological areas (Mishra et al., 2020). Lack of access to sustainable and green energy supply act as a major obstacle to improve human well being in a developing country like India. Renewable sources contribute significantly in protection of the natural environment, promote socio-economic development and thus results in energy efficiencies and prosperity (Rendelovic et al., 2020. Access to clean energy through Renewable energy promotes human development and environment protection which further raises the subsequent economic and human productivity. In India, there is a constant endeavour to shift towards clean and sustainable sources of energy. Consequently, India has made substantial progress in harnessing various forms of renewable energy to meet its growing energy demands, reduce its reliance on fossil fuels and combat climate change. Apart from many programmes and initiatives in the last three decades, India has also taken recent steps in transition towards renewable energy. It submitted its Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change (UNFCC) ahead of Paris Summit on climate change in 2015 which aimed ambitious targets to move towards clean energy (Lok Sabha, 2020). Again, according to the updated Nationally Determined Contributions (NDCs), India strives to achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by

2030. It also seeks to reduce the economy's emission intensity by 45% from 2005 levels by 2030 along with the goal to reach the goal of net-zero by 2070. Government of India have implemented many programmes under the National Action Plan on climate change. The paper explored the relationship between climate change and renewable energy and highlighted the need and significance for sustainable energy. This paper has examined the various schemes and initiatives of Government of India with regard to renewable energy. The present paper discusses the recent advances made by India in the Renewable Energy Sector. It also attempts to document the various programmes framed and implemented by India to exploit different renewable energy sources. The paper has used the secondary data sources like Government Reports, Statistical Abstracts etc. Based on the findings of the study it has been suggested that will to transition, climate finance, simplification, affordability and decentralised energy model should be a primary concern in policy formulation for access to renewable energy.

Keywords: Greenhouse Gases, Climate Change, Renewable Energy, Accessibility