

Energy Transitions in the Global South and Africa: Policy Imperatives, System Dynamics and Challenges

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Energy Impoverishment in the Global South and the 2030 Agenda

Energy poverty is pervasive with significant health and well-being ramifications, especially for the Global South (United Nations Environment Program [UNEP], 2021). Energy-impovertised communities are those that are dependent on traditional solid fuels and flammable hydrocarbons that are usually burnt in unsafe, inefficient and polluting stoves. The health and economic consequences are far-reaching, primarily through household air pollution, burn injuries and poisonings, with consequential health, neurological and psychological outcomes (Haagsma, et al., 2016; Wolf, Prüss-Ustün & Vickers, 2016). The socio-economic ramifications of the energy burden are enormous and generate social exclusion while limiting development in the affected countries (Guzowski, Martin & Zabaloy, 2021). With the accumulation of evidence of the impact of energy impoverishment, there have been increasing calls for expedited and inclusive transitions to safe and health-promotive energy. For such transitions to be truly just, they must centre on the needs of energy-impovertised people to ensure that no one is left behind (UNEP, 2021). There is also increasing consensus that access to safe and clean domestic energy is pivotal, if not a prerequisite, for a range of other global priorities beyond health, including environmental protection and sustainability, economic development and gender equality (Wolf et al., 2016). The significance of clean energy is highlighted in the UN Sustainable Development Goals (SDGs), with

SDG 7 aiming for “universal access to affordable, reliable, sustainable and modern energy for all by 2030” (UNEP, 2021).

The widespread energy poverty in the Global South is argued to be the result of entrenched global energy interests, institutional failures (Balachandra, 2011), and a paucity of information on alternative energy technologies and transition pathways (Solomon & Krishna, 2011). Transition management in these countries should therefore focus on a transformative policy framework, disseminating information on alternative energy technologies, and enabling affordability and access. The management of energy migrations, however, has multiple political, developmental and systemic threats emanating from international, regional and country domains which threaten to undercut current energy equity initiatives.

Evolutionary Energy Transitions, Technological Innovation and Human Agency

Energy transitions are evolutionary processes that broadly refer to the gradual transformation in the provision of energy with regard to technologies and application (Smil, 2017). The transition from one technology to another does not imply an immediate replacement but rather a gradual phasing out in which the use of both technologies may overlap at the initial stages. The current overriding global aim of energy transition is decarbonisation, primarily as a response to the urgent threat of climate change and therefore the need for rapid transition (Baron, 2016). Within this broad aim, energy transitions should, however, be people-centred with objectives of promoting universal access, social justice, equity and inclusivity (Lode, Te Boveldt, Coosemans & Camargo, 2022).

Energy transitions may occur at different levels and scales (Rotmans & Kemp, 2003). At a global and regional level, the transitions are influenced by international conventions and protocols and the ever-changing geopolitical stances that may have an impact on technological choices and the supply side. At a country level, the transition may be driven by policy changes at national and civic levels, initiatives from industry, business actors and researchers, and changes in household energy consumption behaviours. Factors that may affect the uptake and adoption of clean and safer energy technologies at household level may include the cost of technology, education levels and awareness, income and access to credit (Wassie, Rannestad & Adaramola, 2021). Regarding consumer behaviour, individualistic households are likelier to adopt modern energy than those in collectives (Jang, Fredriksson & Sharma, 2020). In addition to initiatives at global, regional and country levels, there is therefore a need to target individual households in the dissemination of practical knowledge on alternative technologies on clean energy and their relative advantages.

Country Energy Transition Management and Challenges

International conventions have called on national governments to lead multi-stakeholder transition management fora to map the desired future and pathways for safe and healthy energy (Horan, 2019). Government involvement is vital for catalysing and directing the transition away from pollutant and risky energy technologies to cleaner, health-promotive and sustainable sources. Apart from policy development, a government sets up the overall national priorities and objectives and is responsible for ensuring knowledge flow, installing necessary infrastructure, and providing supportive budgets (International Energy Agency, 2020). However, despite the increased recognition of the recent international conventions, there are countless and persisting regional and local developmental crises that constrain countries in the South. Energy impoverishment, like political instability, vulnerable economies, systemic corruption and infrastructural deficits, is often concentrated there (Mowforth, 2014). The ability of the countries in the South to deal with these challenges is weakened by the dwindling resources at the disposal of governments and compounded by the limits of political leadership (Keen, 2003; Mphahlele & Zandamela, 2021). However, local energy transitions cannot be more urgent, especially in the light of the rapidly worsening global climate crisis. Political leaders in the South may be faced with significant challenges to prioritise the issue and revamp or reframe local energy policy environments. This would need to contend with established economic interests which continue to profit from large-scale production and consumption of unsafe and dangerous fuels which pose not only threats to people but also to the environment, and therefore arguably a task that only people-oriented governments could accomplish (Janeliūnas, 2021).

The task of an inclusive energy transition can therefore not be left to international conventions and governments alone. There is a need for civil society organisations, academia, community groups, social entrepreneurs, and conscious business interests to be actively involved. Civil society organisations, as pressure groups, will need to engage with state and corporate elites on the urgency of redressing energy poverty and its dangers. This could be through lobbying the legislature or sponsoring bills on energy transition that accommodates marginal communities and promotes the safe use of energy. This level of engagement, however, needs to be informed by evidence and sound science. This is where the work of energy research is extremely important. Social and natural scientists working in this area are called on to offer insights into the approaches and technological innovations that can be used in energy transitions that are geared to the needs of the South.

Although the scale and approaches to the transitions needed in the South may vary from country to country, the involvement of numerous sectors including communities is crucial. The success of energy policies is often predicated on its cascading to the community level (Ananga, Naiga, Agong, Njoh & Vickers, 2021; Gebreegziabher, Mekonnen, Gebremedhin & Beyene, 2021). Energisation projects are likely to succeed if the people at the other end of policy continuum, especially those who are marginalised

through energy deprivations, are involved early on in the planning and execution of energy projects. Collaborative research, analytical work and technical cooperation can boost Global South countries' efforts for universal access to sustainable energy.

Special Issue Contributions

In this Special Issue, Ifegbesan and Makonese in “Energy preferences for household cooking in Burundi” investigate the use patterns and determinants for household fuel in Burundi. Here, firewood is mainly used by the poorest people, with the type of residence, gender of household head, age of household head, wealth index, and highest education level all influencing the type of fuel used. Jack and Jack in “Nigeria’s energy crisis and the sustainability question” examine the nature of Nigeria’s energy crisis. The energy shortages have stifled socio-economic growth but consequent to this has emerged other forms of negative coping behaviour such as artisanal refining of crude oil with multiple economic, social, health and environmental implications. Abu and Orisa-Couple in “Energy poverty, burns and health risks in Port Harcourt Metropolis, Nigeria” indicate a preponderance of burns due to kerosene explosions from cooking stoves and storage of fuel at home. Taliep in “A community engagement model for an inclusive just energy transition in the South” argues that community engagement is essential to ensuring energy justice and the transitioning to alternate forms of energy, focusing on South African experiences of a Transformational Model of community engagement which highlights the importance of multiple perspectives, prioritised needs of community stakeholders, interrogation of power imbalances, and enhanced working collaborations. Finally, Andrews in “Paraffin, a burning issue for economically vulnerable people” argues that the human and societal costs of paraffin use far outweigh that of the cost of the fuel itself. The economic case is a critical aspect in reconsidering the use of paraffin and other fossil fuels for domestic use.

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