

THANK YOU FOR JOINING THIS UNDP & IBM PUBLIC CONSULTATION

BRIDGING THE ENERGY DIVIDE: LEVERAGING NEW TECHNOLOGY TO LEAVE NO ONE BEHIND



Co-hosted by the UNDP Integration and Sustainable Energy
Communities of Practice



Summary Report (as of 9 May 2024)

OVERVIEW

Enhancing access to sustainable energy for the most vulnerable requires leveraging the latest technology to identify, at a granular level, those on the brink of exclusion. Acknowledging the transformative power of geospatial data, UNDP partnered with the [IBM Sustainability Accelerator](#) to harness the latest technologies, such as cloud compute and satellite data, to fully utilize the UNDP [GeoHub](#)'s capabilities in displaying electricity access forecasts and revealing hidden spatial inequalities in energy transition.

Between 9 April and 5 May 2024, the global UNDP/ IBM consultation helped showcase, explore, and collect feedback on the two innovative solutions developed as part of the IBM-UNDP partnership - the Clean Energy Equity Index (CEEI) and the Forecasting Electricity Access (FEA) tool. A range of experts and practitioners working on sustainable energy, inclusive growth, and related fields shared insights to review and illustrate how this important initiative could benefit their work, how it could be tailored or changed to be more relevant to users in different contexts, and shared practical tips and recommendations to make these tools better fit for purpose.

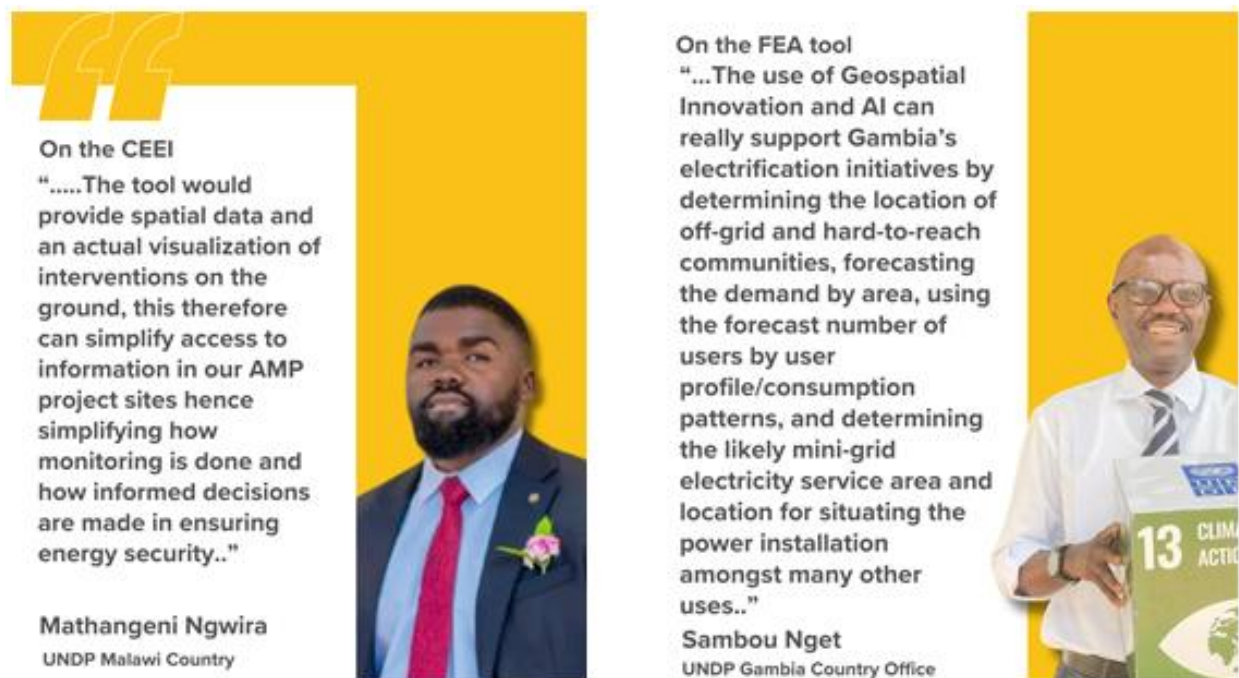
KEY HIGHLIGHTS

The assets developed as part of the UNDP/ IBM collaboration serve as powerful tools for targeting, monitoring, and advocating for energy access and a just transition, assisting countries in advancing their development and climate goals. Contributors highlighted the significant potential of both tools in enabling and data-driven planning and for infrastructure development, scenario modelling and forecasting energy yields, attracting private sector investment, and supporting development in key sectors such as agriculture and mining. Contributors recommended providing capacity-building support to enable users to interact and obtain correct insights generated by the CEEI and FEA tools.

Here are a few key takeaways from the consultation:

- **Addressing inequity in the energy transition**, particularly between rural and urban areas, requires reaching different social groups, considering socioeconomic factors, and ensuring the geographical distribution of energy access. Strategies to address these inequities include community involvement, equitable electrification planning, and considering distributive energy justice. The importance of replacing thermal electricity plants with renewable energy sources, such as solar, wind, and hydropower, was noted as a step towards addressing equity in the energy transition.
- **Overcoming challenges in energy access and transition:** In countries like Haiti, challenges include a heavy reliance on imported fossil fuels, limited infrastructure, financial constraints, and high costs of renewable energy solutions, despite abundant potential in solar, wind, and hydroelectric power. In the context of Burkina Faso, private sector interest in energy investments is low due to perceived unprofitability and risks and UNDP has worked to implement regulatory reforms and an energy monitoring platform to stimulate private investment. In Mauritania, the reliability of demand forecasting is crucial as it impacts whether the project is bankable and therefore financed by the public or private sector, emphasizing that data collection in remote areas is often hindered by accessibility issues.

- **Leveraging geospatial innovation and AI to harness the CEEI and FEA tools** for inclusive energy access. Contributors emphasized this would help identifying off-grid communities, forecasting demand, prioritizing regions for sustainable energy projects, optimizing infrastructure deployment, and assessing vulnerability to natural disasters and climate change impacts. Such tools can support microplanning to enhance electricity access, facilitate the transition to renewable sources where needed most, and promote sustainable energy access and inclusive development.
- **Utilizing multi-dimensional and localized data specific to individual countries** in the CEEI and FEA tools. This data could capture various factors influencing electricity access, such as the state of energy infrastructure, population growth rates, urbanization trends. This would lead to more accurate forecasts tailored to each country's unique energy landscape, enabling informed decision-making and the development of more targeted sustainable energy strategies. Contributors emphasized the need to broaden the range of renewable energy sources considered by the CEEI, including hydropower, geothermal, biomass, and tidal energy, if data availability permits.
- **Incorporating socio-economic indicators in CEEI and FEA tools** to address localized energy needs effectively was highlighted as key to analyze energy access across different socioeconomic groups. Noting that the CEEI currently does not disaggregate population data by socioeconomic groups, contributors emphasized that socioeconomic indicators, including population data, income levels and education and urbanization rates are crucial for understanding disparities in access to electricity and forecasting electricity access.



- **Building on the complementarity with existing tools**, such as the [Global Tracking Framework \(GTF\) survey](#) supported by UNDP and the World Bank, would offer comprehensive data on electricity and modern energy solutions, aiding microplanning for energy access initiatives. Existing tools developed at the national level like the [Integrated Energy Planning \(IEP\) platform](#) and the Ministry of Energy's electrification master plan in Malawi can also complement this effort, providing valuable insights into energy access and inform energy interventions and the focus on mini-grid development.

PARTICIPATION

29 participants from 20 countries participated in the consultation, representing a range of profiles including data science, geospatial, renewable energy, environment and climate change, and economic policy experts as well as representatives from civil society and academia, with the following breakdown:

Location of participants



Gender distribution



Special thanks to our co-moderators from UNDP, IBM, and Stony Brook University and the valuable contributions from Bernardin Uzayisaba, Da Qun Xiang, Evrard Karol Ekouedj, Gaijoun Gaybueh, Hudoykul Hafizov, Jules Kikanda, Kafula Kamiji, Karim Ahmed, Kigha Benyoh, Mathangeni Ngwira, Phiwo Ngwenya, Pierre Antoine, Sambou Nget Samuel Adunreke, Seif Emad and Serges-Roberteau Tchoffo.

LAUNCH EVENT

The high-level launch event  [Bridging the Energy Divide: Leveraging New Technology to Leave No One Behind](#) (9 April 2024) featured keynote speakers from UNDP and IBM and helped better understand how emerging geospatial technologies are contributing to informed decision-making for a just energy transition and sustainable development.

Here are a few key takeaways from the high-level launch event:

- Although global electricity access has improved, with 675 million people lacking access in 2021 compared to 1.1 billion in 2012, access is still quite unfair, with many communities left behind due to various factors.
- UNDP and the UN aim to accelerate access to clean, affordable energy for 500 million people and promote a just energy transition through collaboration with a broad range of partners.
- As part of IBM's Sustainability Accelerator, UNDP aims to enhance its geospatial technologies and capabilities to inform micro planning and investments in energy access and transition. This endeavor contributes to fully unleashing the benefits of electrification on the SDGs.
- The products generated through this partnership - the Clean Energy Equity Index, and the Forecasting Electricity Access tool – will be integrated into UNDP's one-stop shop for geospatial data and analytics, the [GeoHub](#) hosted on the UNDP [Data Futures Exchange](#) (DFx) platform.



NATASHA VAN RIJN
Resident Representative, UNDP Madagascar

With only 35.1% electricity access rate, unevenly distributed between rural (10.9%) and urban (72%) areas, Madagascar grapples with inequality in energy access. While fossil fuels (53%) and hydroelectric power (39%) dominate, biofuels pose environmental concerns. Leveraging tailored tech solutions can address Madagascar's energy access challenges. Granular data from geospatial technologies facilitates informed decisions to ensure equitable access, particularly in remote areas with sparse infrastructure, enabling the deployment of suitable power generation methods like solar or wind.

SNEHAL SONEJI
Resident Representative, UNDP Comoros

In Comoros, most energy needs are met by diesel generators, with limited solar usage due to its unsuitability as a base energy source. Challenges such as outdated infrastructure, poverty, and corruption exacerbate the situation, but there's potential in harnessing renewable sources like geothermal, wind, and solar. Advanced technologies can revolutionize data collection and tailor energy solutions to Comoros' specific needs, especially across its three separate islands. Initiatives like the Africa Minigrids Program offer pathways to scale up sustainable energy solutions, crucial for both domestic and productive uses, amidst climate uncertainties.

RELEVANT LINKS

- [Sustainable Energy for All \(SE4ALL\)](#)
- [Africa Mini-grids Program \(AMP\)](#)
- [UNDP Rome Center for Climate Action and Energy Transition](#)
- [Access to Clean and Renewable Energy \(ACRE\)](#) in Malawi

This launch event and consultation was co-hosted by the UNDP Integration and Energy Communities of Practice. Any questions about this consultation can be addressed to nadine.ravaud@undp.org and geoffrey.omedo@undp.org.

