

Africa's Future Counts: Renewables & the Water-Energy-Food Nexus in Africa

RES4Africa Foundation Flagship Publication 2019 Summary

Brief intro: Access to water, energy and food is vital for human wellbeing, economic growth and sustainable development. Despite Africa's vast resource wealth, over 600 million Africans lack access to energy, 737 million have no access to safely-managed drinking water, and 374 million witness severe food insecurity¹. As African societies and economies are expected to grow, urbanize, and change lifestyles, so the demand for basic resources will multiply, while Africa's vulnerability to climate change will further stress resource scarcity.

Water, energy and food are the building blocks of economic and societal development and are strongly interlinked. The interrelations between these supply systems, as captured by the Water-Energy-Food (WEF) Nexus, are manifold: **Water** is central to all human needs, to energy generation, and every phase of agricultural production; **Energy** is required to extract, process and distribute water, as well as power agricultural and agribusiness processes: and **Food** or agriculture requires vast amounts of water and energy for production, processing, distribution, storage and disposal of food products. These sectoral interdependencies are particularly challenging for Africa where widespread resource infrastructure is still lacking, hampering agricultural productivity, industrial development, and poverty reduction.

Key argument: The WEF Nexus offers an innovative perspective on overcoming energy access gaps by considering how energy can both enable development and solve resource challenges. In this view, energy acts as an enabler of increased food security, agricultural productivity and improved access and management of water resources for human and productive uses. A WEF integrated approach can lead to business cases for investment that reimagine how energy connects with water and food to respond to essential development needs. Applied at scale, this can trigger captive energy access demand, increase economic productive capacity, and set African communities and economies on a path towards sustainable development. Once realised, the WEF nexus has the transformative power to build new energy access markets and to enable the development impact that is needed to meet the SDGs.

What are the potential opportunities by shifting to WEF prism? The WEF Nexus can deliver impact in many ways, especially if powered by renewable energy technologies. Firstly, WEF-based approaches can catalyse the creation of captive markets and diversification of local economies by advancing productive uses. It can stimulate last-mile connectivity and bottom-of-pyramid energy demand in rural and peri-urban communities, thereby enhancing energy access market attractiveness. Secondly, the WEF Nexus can help to address sectoral

¹ IEA(2017), FAO (2018a), UN SDG Indicators (2019)

trade-offs and enables improved resource management benefitting productivity, efficiency, resource security, and value chain sustainability of water, energy and food supply chains. Thirdly, the WEF Nexus can enable virtuous development cycles by helping rural and peri-urban users gain access to previously lacking resources. Access to basic resources brings people and communities into the economy and spurs socio economic development; Fourth, the WEF Nexus can advance the agricultural sector, which is at the heart of Africa's economy. Most of Africa's population relies on agricultural production both as a source of employment and income generation. Ensuring long-term development and poverty eradication will depend in part on the ability to grow and industrialize the agricultural sector and advance development to rural areas. WEF Nexus cases can foster new agricultural opportunities that contribute to the expansion of agricultural and agri-food production cycles (e.g. farming, poultry and fishing value chains) which in turn drive agricultural and industrial development. Moreover, if powered sustainably, WEF Nexus approaches can reduce carbon footprints and lower pollution across sectors. In sum, the WEF Nexus can foster environmental and socio-economic impact and contribute to achieving progress on the SDGs by 2030.

Recommendations: WEF Nexus applications should be enabled to explore scalability and resulting development impact. Energy sector actors should consider integrating the WEF Nexus as a strategy for market discovery, resource management, and sustainable development. An inclusive and supportive WEF Nexus business environment needs to be induced including well-designed regulatory frameworks that allow for the integration of solutions into the grid, should it arrive, but also cross-sectoral planning, co-ordination and financing to ensure that the necessary infrastructure, technical and financial knowledge and capacity, and access to markets are in place. Efforts should be dedicated to capacity building to ensure project and market longevity. Information gaps should be filled by documenting cases and lessons learned. Moreover, innovative integrated collaboration between energy, water and agricultural sector players as well as other key stakeholders is needed to break away from silo-based action and mainstream WEF approaches.

The report is developed in collaboration with Enel Foundation.

For more information, please visit www.res4africa.org or write to communication@res4africa.org

Renewable Energy Solutions for Africa (RES4Africa) Foundation promotes the deployment of large scale and decentralized renewable energy in African markets to meet local energy needs for growth. RES4Africa gathers a member network from across the clean energy value chain and supports the creation of an enabling environment for renewable energy investments and strategic partnerships.



Contact:

Via Ticino, 14
00198 Rome
T +39 06 8552236
F+39 06 85832954
www.res4africa.org