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Editorial: Cross-cutting issues in the water, land, energy and food security nexus: Perspectives from Sub-Saharan Africa

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Editorial on the Research Topic
Cross-cutting issues in the water, land, energy and food security nexus: Perspectives from Sub-Saharan Africa

Water, energy, and food are crucial elements for human survival and wellbeing. Nevertheless, they are under increasing pressures owing to escalating population coupled with climatic change (Donkor). The intricately intertwined nature of these resources is such that, with progress in one domain comes implications for the others, which calls for a concerted balance for socioeconomic and environmental sustainability. Hence, the escalating pressures and competing interests associated with the food-water-energy nexus necessitates enhancement of governance and management approaches for sustainable socio-economic development (Nhamo et al., 2018). Moreover, these resources are the worst affected by climate change, and offer a space for addressing issues of adaptation, climate system, human society, and the environment. Harnessing the opportunities in this nexus will be helpful for the goal of sustainability and social resilience. However, despite the acknowledgment that energy, agriculture, and natural ecosystems display widespread interlinkages, the fragmented interventions toward attaining resource security compromise sustainability and security in the other domain (s). It is notable that the silo approach results in shortcomings as problem-solving in a domain tends to cause loopholes, becoming more vulnerable by exacerbating risk in another domain (Mabhaudhi et al., 2019). Addressing the cross-cutting issues in the nexus helps harness linkages, synergies, and trade-offs for tailored measures, enhance resource efficiency, and limit impacts and risks in developing the resources. This includes exploring possible trade-offs and synergies, coupled with tailored and/or viable response measures across different sectors. Furthermore, prioritizing cross-cutting issues is vital for promoting social nexus issues, including women empowerment, climate justice, poverty alleviation, and conserving the rights of socially a d economically vulnerable groups.

The intricate interlinkages between water, energy, and food resources coupled with their crucial impacts on socioeconomic development, healthy ecosystems, human development, and sustainable development (Urbinatti et al., 2020), enabled the water–energy–food (WEF) nexus concept to gain traction after the United Nations General Assembly of September 2015. Several countries, including those of the authors of this special issue, have introduced

diverse measures and are at different stages of implementation of the concept. Wudil et al. (2023) situate their study of food security at the household level to explore determinants vital for reinforcing food security. Together with Raphela and Pillay, these authors highlight the need for food security interventions to be more multi-dimensional such that they facilitate the social, institutional and economic transformation of small scale farmers. This complements the argument of Oduniyi and Tekana who emphasize that information acquisition is an enabler to the adoption of sustainable land management practices (SLMP). The knowledge attained from accessing to information amongst farmers will equip farmers to better prioritize investment in adaptation and mitigation approaches, including climate smart agriculture, to reinforce resilience (Chitakira and Ngcobo; Obirikorang et al.). The importance of governance in the dynamics of the water-energy nexus cannot be overemphasized. Ultimately, steering the nexus toward sustainability pathways requires effective governance (Naude) that is resilient and inclusive as well (Vidal et al.; Imoro et al.).

The results of this issue have underscored the essence of the concept in foregrounding the interconnectedness of resources and informing policy coherence toward sustainable development. Ultimately, the water-energy-food nexus and the inter-linkages amongst the three resource domains, coupled with the underlying synergies, conflicts and trade-offs require sustainable management. Although the essence of the WEF nexus concept is globally acknowledged as demonstrated by its integration into policy and legislative instruments, its operationalization leaves much to be desired. For example, the findings from the articles in this Research Topic show that its adoption is approached from diverse angles from one country to the other. This can be attributed to differing factors owing to differing geopolitical factors including environmental, the priority attached to it, and socio-economic issues (Nhamo et al., 2020). It is noteworthy that the African Union's Agenda 2063 (The Africa We Want), which serves as the continent's blueprint and master plan, aims to transform Africa into the powerhouse premised on inclusive and sustainable development amongst others. The Agenda 2063 strategic framework on sustainable development relates very much with the United Nations sustainable development goals. Both the Agenda 2063 and the SDGs acknowledge the vital role of the WEF resources in supporting social and economic wellbeing. However, the rising inequality and poverty traps of the vulnerable on the continent further exacerbate water, food, and energy insecurity (Ebhuoma et al., 2020; Tantoh et al., 2021). Moreover, exploiting these resources excessively for food production, energy provision, and water provision results in widespread pollution, deforestation and degradation in many areas of the continent. The need for integrated planning for the continent to overcome these challenges cannot be overemphasized as the final decade of action to deliver the SDGs gains momentum. Governments on the continent will therefore need to give focus to cross-sectoral coordination to overcome fragmented implementation of interventions, which further dissipates resources and compromises regional resilience. The SDG 17 seeks to reinforce implementation measures and strengthen partnerships toward attaining global sustainable development. Such partnerships are crucial to the exchange of ideas, successes and best practices in policy formulation and implementation of the nexus concept. In this regard, there is opportunity to learn from successful case studies on combining multiple policies and tailored measures regarding the water-energy-food nexus (Oduniyi and Tekana). This will help in overcoming the pervasive vagueness, confusion and lack of policy direction in principle and operationalization of the nexus concept. This is more so as this study's findings highlight the lack of cross-sectoral linkages and pervasive silos policy formulation and implementation approach (Imoro et al.). Moreover, the dearth of understanding on the linkages between water-energy-food resources causes concentration on achieving unique goals in a sphere rather than realizing collective and integrated nexus goals. Going forward it is important to enhance awareness, build institutional capacity, increase investment, and strengthen political will toward activities of the WEF nexus. There is also the n d to enhance multi-stakeholder and multi-sectoral platforms toward increased dialogue and evidence-based decision-making regarding the nexus.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

References

Ebhuoma, E. E., Simatele, M. D., Leonard, L., Osadolor, O. E., Donkor, F. K., and Tantoh, B. H. (2020). Theorising indigenous farmers' utilisation of climate services: lessons from the oil-rich niger delta. *Sustainability* 12:7349. doi: 10.3390/su12187349

Mabhaudhi, T., Nhamo, L., Mpandeli, S., Nhemachena, C., Senzanje, A., Sobratee, N., et al. (2019). The water-energy-food nexus as a tool to transform rural livelihoods and well-being in southern africa. *Int. J. Environ. Res. Public Health*. 16:2970. doi: 10.3390/ijerph16162970

Nhamo, L., Ndlela, B., Mpandeli, S., and Mabhaudhi, T. (2020). The water-energy-food nexus as an adaptation strategy for achieving sustainable livelihoods at a local level. *Sustainability* 12:8582. doi: 10.3390/su12208582

Nhamo, L., Ndlela, B., Nhemachena, C., Mabhaudhi, T., Mpandeli, S., and Matchaya, G. (2018). The water-energy-food nexus: climate risks and opportunities in southern africa. *Water* 10:567. doi: 10.3390/w10050567

Tantoh, H. B., McKay, T. T. J. M., Donkor, F. E., and Simatele, M. D. (2021). Gender roles, implications for water, land, and food security in a changing climate: A systematic review. *Front. Sustain. Food Syst*. 5:707835.

Urbinatti, A. M., Benites-Lazaro, L. L., Monteiro de Carvalho, C., and Giatti, L. L. (2020). The conceptual basis of water-energy-food nexus governance: systematic literature review using network and discourse analysis. *J. Integr. Environ. Sci.* 17, 21–43. doi: 10.1080/1943815X.2020.1749086

Wudil, A. H., Ali, A., Aderinoye-Abdulwahab, S., Raza, H. A., Mahmoud, H. Z., and Sannoh, A. B. (2023). Determinants of food security in Nigeria: Empirical evidence from beneficiaries and non-beneficiaries rice farmers of the Kano River Irrigation Project. *Front. Sustain. Food Syst. Sec. Land, Livelihoods and Food Security*. doi: 10.3389/fsufs.2023.999932