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Date: January 13th,

The Programme Director,
United Nations Economic Commission for Europe

Attn:

Peter van der Keur
Chair
EGRM Groundwater Resources Working
Group

Attn:

Dario Liguti
Director
Sustainable Energy Division
UNECE

Dear Sir/Madam,

Public Comments on Draft UNFC Supplemental Specifications for Groundwater Resources

Introductions

I am Dr. Raimi Morufu Olalekan (**MNES, REHO, LEHO, FAIWMES**) currently a lecturer in the department of Environmental Management and Toxicology, Federal University Otuoke, Bayelsa State, Nigeria. My current research interests focus on environmental epidemiology, pollution control management, hydrogeochemistry, groundwater pollution, groundwater quality, health risk assessment, water and gender, chemicals & health, environmental public health policy & practice, environmental justice & health equity, physical activity & environment, noise & health, building health & resilient communities, children's environmental health, emerging fields in environmental health, energy systems & policy, food & the environment, nature & human health, clean air, water & soil, climate change & human health, health impact assessment, water pollution and management, environmental impact assessment, waste management, institutional capacity building, policy and governance issues, environmental management, risk and vulnerability assessment, hazard mitigation, and resilience building etc.

Comments

The Draft UNFC Supplemental Specifications for Groundwater Resources is paramount in addressing contemporary challenges related to water resources, aligning with global sustainability goals, and providing a comprehensive framework for responsible and efficient groundwater management in the 21st century. The Draft UNFC Supplemental Specifications for Groundwater Resources are crucial in the 21st century for several reasons:

1. **Water Security:** As global populations rise and climate change impacts water availability, clear specifications for assessing and managing groundwater resources become essential. The draft provides a framework to ensure sustainable utilization, contributing to long-term water security.
2. **Sustainable Development Goals (SDGs):** Groundwater is integral to achieving various SDGs, such as ensuring clean water and sanitation (Goal 6) and promoting sustainable cities and communities (Goal 11). The draft aligns groundwater management with broader international development objectives.
3. **Resource Management:** With increasing demands on water resources, effective management is vital. The draft outlines specifications that assist in categorizing and evaluating groundwater projects, aiding decision-makers in resource allocation and optimizing sustainable development practices.
4. **Environmental Impact:** The document addresses environmental considerations, including the E-Axis Score, which evaluates the environmental viability of groundwater projects. This is crucial in the 21st century, where environmental sustainability is a global priority.
5. **Social and Economic Impacts:** By considering socially necessary groundwater projects and economic viability through the G-Axis Score, the draft ensures that projects not only meet technical standards but also contribute positively to local communities and economies.
6. **Adaptation to Technological Advances:** The 21st century witnesses rapid advancements in technology. The draft allows for flexibility and adaptability by providing guidelines on applying key instructions within the UNFC framework, ensuring relevance in the face of technological progress.

While the draft dive into some potential positive aspects, which are highlighted below:

1. **Comprehensive Groundwater Overview:**
 - Appreciate the comprehensive overview of groundwater, providing a clear understanding of its importance and relevance in various contexts.
2. **Alignment with Sustainable Development Goals (SDGs):**
 - Acknowledge the document's alignment with SDGs, demonstrating a commitment to addressing global challenges and contributing to sustainable development.
3. **Clear Need for Supplemental Groundwater Specifications:**

- Highlight the document's ability to articulate the necessity for supplemental specifications, addressing gaps in existing frameworks and ensuring a more nuanced understanding of groundwater resources.
- 4. **Consideration of Socially Necessary Groundwater Projects:**
 - Appreciate the inclusion of socially necessary groundwater projects, emphasizing a holistic approach that takes into account the societal impact of such projects.
- 5. **Adherence to General Scheme for Project Classification:**
 - Recognize the document's adherence to a general scheme for project classification, promoting consistency and comparability across different groundwater projects.
- 6. **Guidelines on Application of Key Instructions in UNFC:**
 - Applaud the provision of guidelines on the application of key instructions within the UNFC framework, ensuring clarity and facilitating effective implementation.
- 7. **Robust Project Evaluation Framework:**
 - Highlight the robustness of the project evaluation framework, particularly in the classification of groundwater categories and the scoring system along the E, F, and G axes.
- 8. **Environmental, Social, and Economic Viability Assessment:**
 - Appreciate the incorporation of the E-Axis Score, emphasizing the importance of assessing environmental viability, and the G-Axis Score, addressing the economic and social impact of groundwater projects.
- 9. **Flexibility for Technological Advances:**
 - Acknowledge the document's flexibility, allowing for adaptation to technological advances by providing guidelines on the application of key instructions.
- 10. **International Standards Alignment:**
 - Highlight any specific instances where the draft aligns with established international standards, emphasizing its commitment to global best practices in groundwater resource management.

All these positive aspects, contribute to advancing groundwater resource management.

Here's a list of the recommended published papers authored by my humble self, along with a brief explanation of how each contributes to the understanding and development of groundwater resource classification:

1. Olalekan AS, Adewoye SO, Henry SO, Olaniyi OA, **Raimi MO** (2023). Comprehensive understanding of hydrogeochemical evaluation of seasonal variability in groundwater quality dynamics in the gold mining areas of Osun state, Nigeria. *Int J Hydro.* 2023;7(5):206–220. DOI: 10.15406/ijh.2023.07.00359.
 - **Contribution:** This paper provides insights into hydrogeochemical evaluation and seasonal variability in groundwater quality, offering valuable information on the dynamic nature of groundwater characteristics. It can enhance the draft's discussion on factors influencing groundwater quality and the need for a nuanced classification system.
2. **Raimi, M.O.**, Oyeyemi, A.S., Mcfubara, K.G., Richard, G.T., Austin-Asomeji, I., Omidiji, A.O. (2023). *Geochemical Background and Correlation Study of Ground*

Water Quality in Ebocha-Obrikom of Rivers State, Nigeria. *Trends Appl. Sci. Res.* 18(1), 149-168. <https://doi.org/10.17311/tasr.2023.149.168>.

- **Contribution:** This paper contributes by presenting a geochemical background and correlation study of groundwater quality. It adds value to the draft by providing insights into the geochemical aspects of groundwater, aiding in the development of criteria for classification based on geochemical characteristics.
3. **Raimi, O.**, Ezekwe, C., Bowale, A. and Samson, T. (2022) Hydrogeochemical and Multivariate Statistical Techniques to Trace the Sources of Ground Water Contaminants and Affecting Factors of Groundwater Pollution in an Oil and Gas Producing Wetland in Rivers State, Nigeria. *Open Journal of Yangtze Oil and Gas*, 7, 166-202. doi: [10.4236/ojogas.2022.73010](https://doi.org/10.4236/ojogas.2022.73010).
 - **Contribution:** The paper utilizes hydrogeochemical and statistical techniques to trace sources of groundwater contaminants. This can enrich the draft's discussion on methodology, especially in the context of identifying sources and factors affecting groundwater pollution, contributing to the refinement of classification criteria.
 4. **Olalekan MR**, Olawale HS, Clinton IE and Opasola AO (2022) Quality Water, Not Everywhere: Assessing the Hydrogeochemistry of Water Quality across Ebocha-Obrikom Oil and Gas Flaring Area in the Core Niger Delta Region of Nigeria. *Pollution*, 8(3): 751-778.
 - **Contribution:** This paper assesses the hydrogeochemistry of water quality in an oil and gas flaring area. Its findings can contribute to the understanding of groundwater quality in regions affected by industrial activities, informing the draft's discussion on socially necessary groundwater projects and their classification.
 5. **Raimi, M.** and Sawyerr, H. (2022) Preliminary Study of Groundwater Quality Using Hierarchical Classification Approaches for Contaminated Sites in Indigenous Communities Associated with Crude Oil Exploration Facilities in Rivers State, Nigeria. *Open Journal of Yangtze Oil and Gas*, 7, 124-148. doi: [10.4236/ojogas.2022.72008](https://doi.org/10.4236/ojogas.2022.72008).
 - **Contribution:** The paper employs hierarchical classification approaches for contaminated sites, offering a methodological perspective on groundwater quality assessment. It can enhance the draft's discussion on classification methodologies, particularly in the context of contaminated sites and indigenous communities.
 6. **Raimi OM**, Sawyerr OH, Ezekwe CI, Gabriel S (2022) Many oil wells, one evil: comprehensive assessment of toxic metals concentration, seasonal variation and human health risk in drinking water quality in areas surrounding crude oil exploration facilities in rivers state, Nigeria. *International Journal of Hydrology*. 2022;6(1):23–42. DOI: 10.15406/ijh.2022.06.00299.
 - **Contribution:** This paper provides a comprehensive assessment of toxic metals concentration and seasonal variation in drinking water quality. It contributes valuable information to the draft's consideration of environmental, social, and economic viability, emphasizing the importance of SDGs and health risk assessment in groundwater classification.
 7. **Raimi, MO.**, Sawyerr, HO., Ezekwe, IC., & Gabriel, S. (2022). Toxicants in Water: Hydrochemical Appraisal of Toxic Metals Concentration and Seasonal Variation in

Drinking Water Quality in Oil and Gas Field Area of Rivers State, Nigeria. In P. H. Saleh, & P. A. I. Hassan (Eds.), Heavy Metals - New Insights [Working Title]. IntechOpen. <https://doi.org/10.5772/intechopen.102656>. ISBN 978-1-80355-526-3.

- **Contribution:** This paper provides a specific data on toxic metals concentration, insights into seasonal variations, and a focus on an oil and gas field area. These contributions strengthen the document's foundation for developing classification criteria related to environmental, social, and economic viability of groundwater resources.

These papers collectively contribute a wealth of information on various aspects of groundwater quality, geochemistry, contamination sources, and health risks, enriching the content of the draft and providing a solid foundation for the development of groundwater resource classification criteria.

I express my willingness to collaborate further or provide additional assistance as needed. If there are specific areas where more information or clarification is required, or if you would like further assistance in integrating these insights into the draft, please feel free to reach out. I am here to support the refinement and enhancement of the UNFC Supplemental Specifications for Groundwater Resources.

Yours Sincerely,

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