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Indigenous Knowledge Systems and Community-Led Innovations: Climate Resilience Practices in Sub Saharan Africa

International Climate Resilience Conference (iCARE) 2025 Conference, Munich

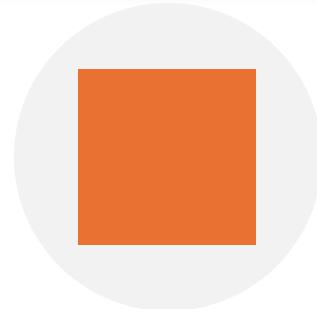
Dr. Tokunbo Alaga Olorundami

York St John University

Outline



**UNDERSTANDING
INDIGENOUS
KNOWLEDGE
SYSTEMS**



**COMMUNITY-LED
INNOVATIONS**



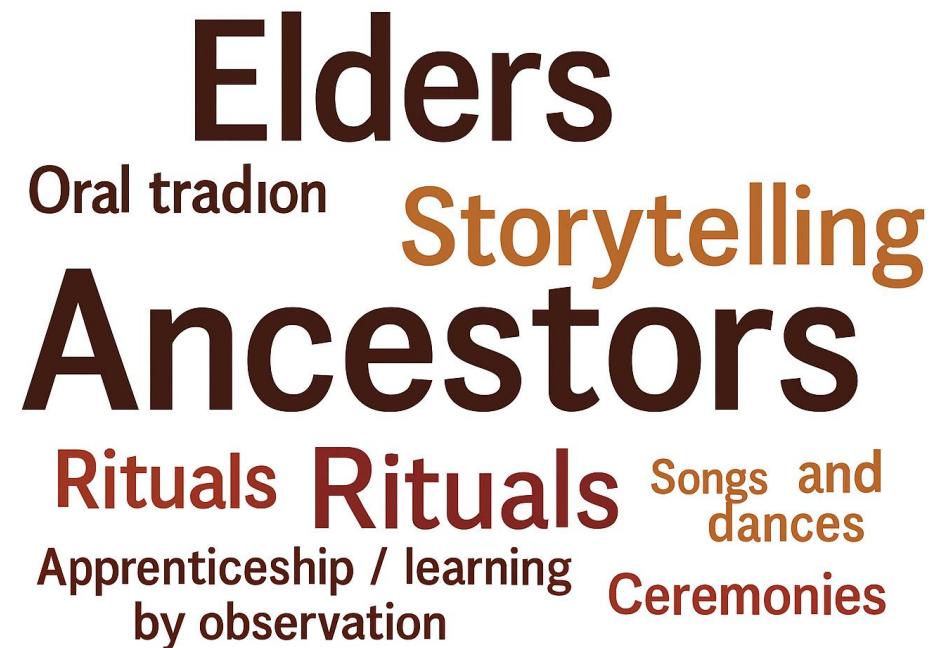
**IMPACTS ON COMMUNITY
AND INDIGENOUS
INNOVATION FOR
CLIMATE RESILIENCE**



**POLICY AND
KNOWLEDGE
INTEGRATION**

1. **Understanding Indigenous Knowledge Systems (IKS): Collectivism & Communitarian Social Organization** -collective norms, communal ownership/rights and the social embeddedness of knowledge transmission, group obligations and mutual aid underpin IKS.

- **Knowledge from Preliterate Society**
- **Community/Clan control over** knowledge production.
- **Cultural Memory Theory** - Oral Traditions and Storytelling
- **Decolonial Epistemology** - resisting epistemic domination and reclaiming indigenous way of knowing



Elders
Oral tradition

Storytelling

Ancestors

Rituals

Songs and dances

Apprenticeship / learning by observation

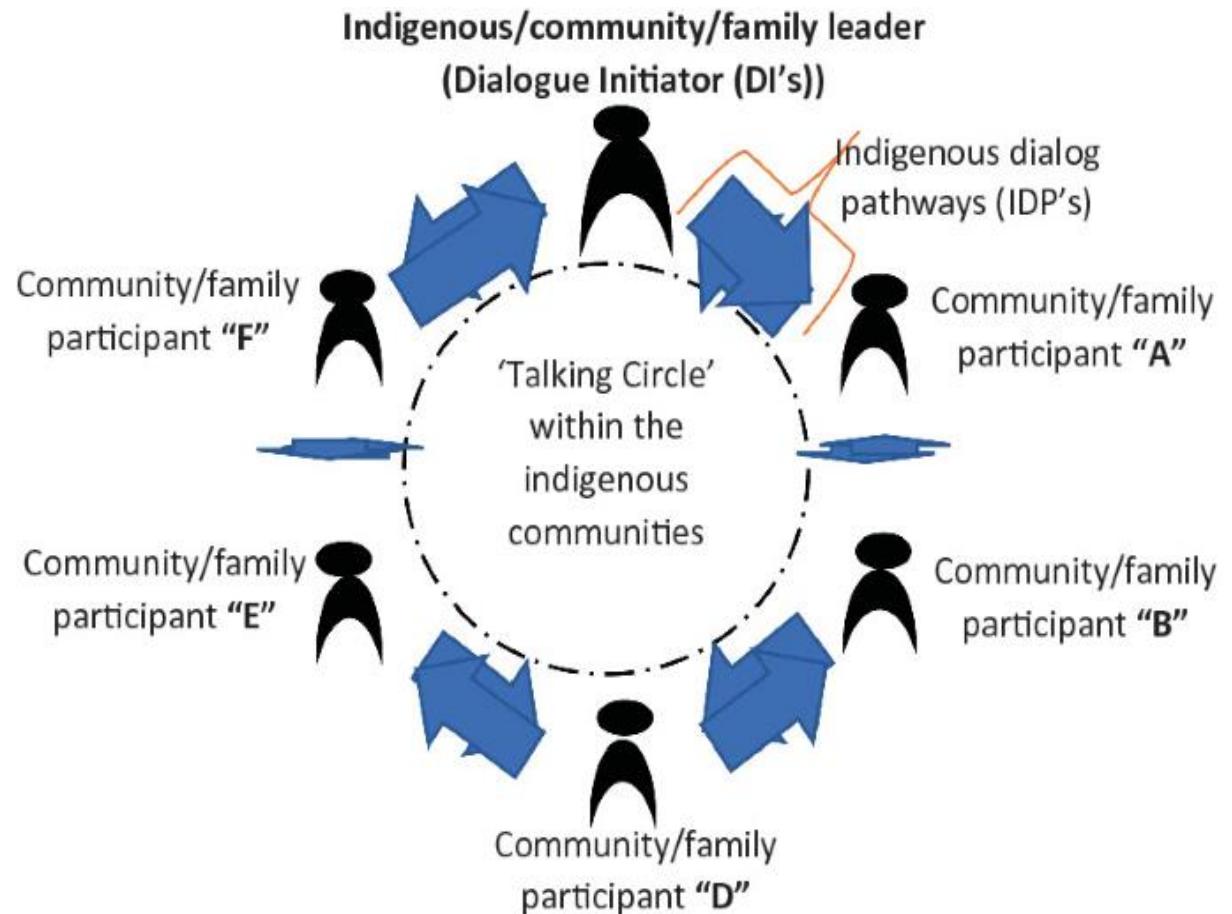
Ceremonies

Preservation and Adaptation of IKS

- Cultural transmission
- Custodians / knowledge keepers
- Sacred spaces
- Clan or family heritage
- Codification in languages
- Documentation and archiving (modern preservation)

2. Community-Led Indigenous Innovations: Building Resilience

- **The Luhya community in Kenya** (pastoralism and drought adaptation)
- **The Chewa tribe in Malawi** (agriculture and sacred ecological practices)
- **The Fulani herders in West Africa** (mobility, pasture, and water management)
- **The Tonga, Ilala, Toka, Subiya, Lozi, Lunda People of Zambia** (agroforestry, spiritual ecology, and climate prediction)
- **The Hausa People North-Eastern Nigeria** (indigenous conservation and Animal preservation)
- **Adde People in Ekinrin-Adde- North-Central Nigeria**: Nigeria (indigenous water conservation and cultural governance, climate prediction)

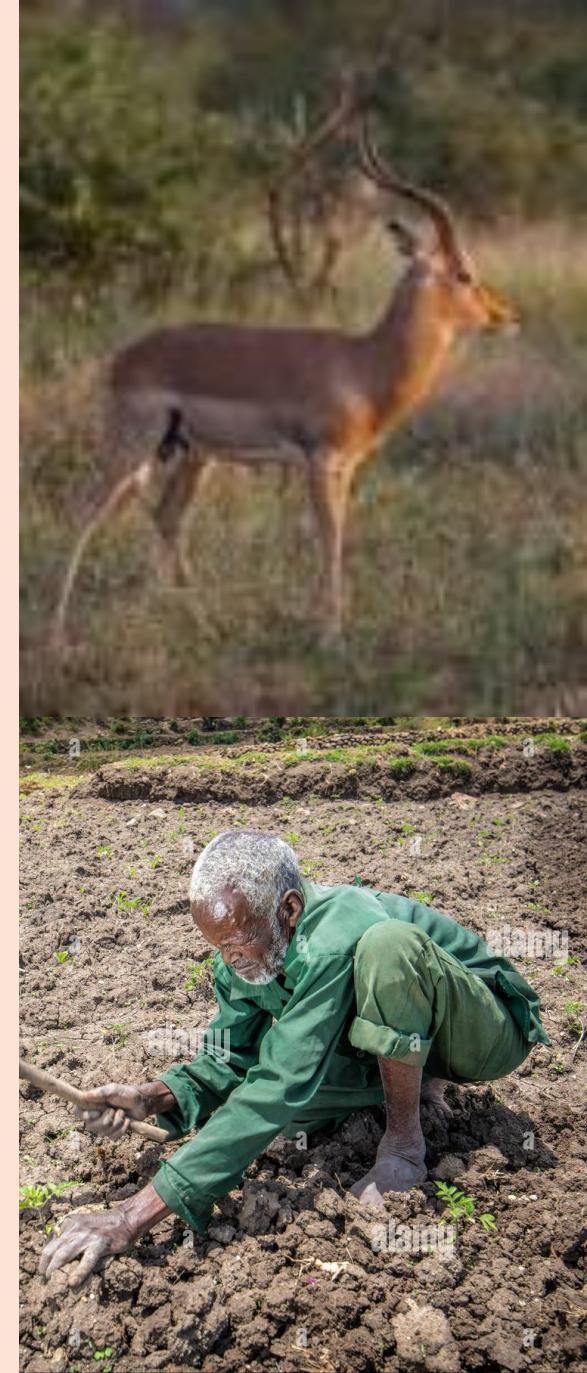




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2. Climate Prediction

- Pregnant impalas ingest certain leaves that induce termination of the pregnancy
- Birds crying out (Ornithology Phonics)
- Migrating Birds
- Following the wiseman's move
- Smoky Hills



2. Climate Prediction

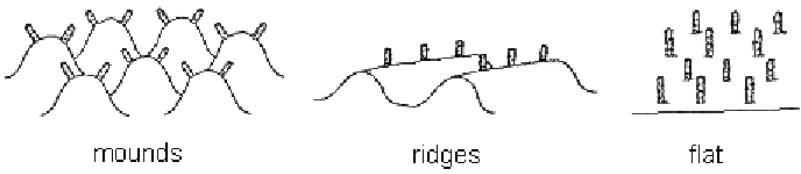
Abundance of wild fruits in the bush a long drought are viewed as an indication that the drought is coming to an end





Agricultural Produce Preservation in Indigenous Farming systems

- Pest burning (stalk borer) and Ash spraying - pesticide
- Natural herbs such as aloe vera, long pod cassia (called mululwe in native Tonga) are ground into a paste and mixed with water after which the solution is sprayed on crops to eliminate pests such as aphids.



[Indira J Ekanayake](#)



Flood Resistance Farming for Yam and Cassava

Planting on raised rows and furrows alongside, not just for good yield but for drainage of excess water.

Communal Innovation for Water Preservation and Conservation

The use of folklores to
enforce conservation and
preservation of the natural
spring through the night



RITUAL OF OMIGBO - A LEGACY POND OF ADDE PEOPLE IN EKINRIN-ADDE, NIGERIA

- It was brought from the original Omigbó in Abudo. Undisputedly, the Aofin Abudos are the exclusive custodians of Omigbó just like Àdàñ Dance.

"The care for Omigbó is believed to sometimes bring rain down whenever there was a prolonged dry season and farmers were desirous of rainfall. Yes, I can confirm this belief of our people. I had personally witnessed such occasions while growing up" (Falake-Arotile, S.O. 2018).





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Feeding Neem (*Local name: Dogonyaro*) Tree Leaf and Tree-back to
Cows to Survive many Days without water

Two Homesteads for Flood Resilience: Common with Flood- Prone Indigenous Communities in Zambia



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3. Impacts on Community and Indigenous Innovation for Climate Resilience

Climate change as a Disruptive force to Indigenous systems of innovation

Threats and Challenges IKS

- Colonization
- Western education systems
- Urbanization
- Loss of language
- Modernization / globalization
- Cultural erosion

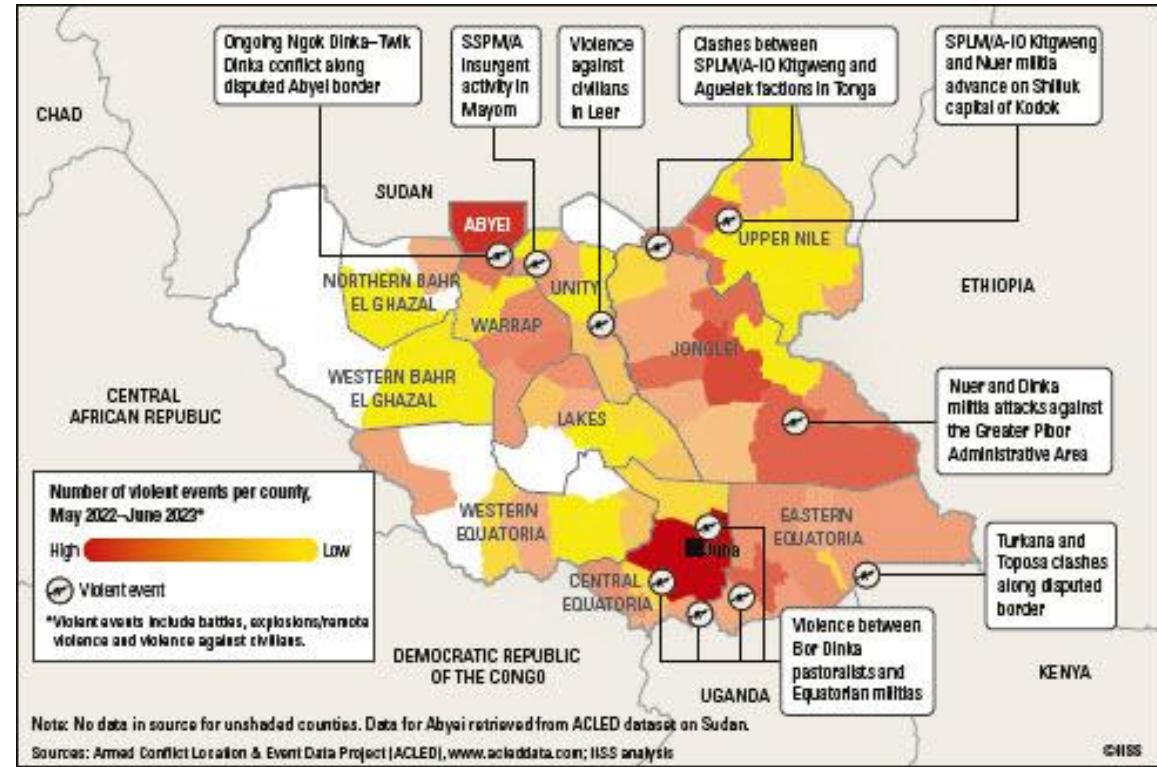




Emerging Nexus of frugal innovation in Climate Resilience

Emerging and fast Developing Climate Induced Banditry

- Aina, F. and Olorundami, T. (2025) Local Climate Action in Fragile Settings and Common Trends in Climate-Induced Armed Conflicts Across Nigeria.
 - Ecological failing increasing recruitments of youth into bandit groups
 - Families in vulnerable communities are building negative resilience to Climate change



4. Policy and Knowledge Integration

- **Participatory Policy Frameworks:** In countries like Kenya and South Africa, national climate policies are beginning to recognize Indigenous knowledge as a critical input for local adaptation planning.
- **Co-production of Knowledge:** Universities and research institutions are increasingly engaging Indigenous elders and community scientists in data collection and climate modelling.
- **Legal and Ethical Protection:** Safeguarding Indigenous intellectual property and ensuring benefit-sharing from traditional practices and resources.
- **Educational Integration:** Incorporating Indigenous ecological knowledge into school curricula to sustain its transmission to younger generations.