

**INDIGENOUS KNOWLEDGE SYSTEMS, COMMUNITY BASED CLIMATE
OBSERVATION PRACTICES AND SYNERGIES WITH CLIMATE SERVICES AND
ADAPTATION IN ZIMBABWE**

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“Through its work on culture, UNESCO recognizes and promotes the importance of **cultural knowledge** and **diversity**, with cultural heritage and diversity as crucial drivers for the **societal transformation** and resilience needed in order to respond to climate change and promote sustainable development”. [UNESCO. 2016. **Changing Minds, Not the Climate**. Paris]

Cultural knowledge

Diversity

Societal Transformation

Resilience

**Climate Change and Humanity and Human Societies –
Past, Present and Future**

**Climate Change and Foundational Principles – Moral
and Ethical Issues and Respect for the Human Person,
Human Life and the Human Spirit**

**Climate Change and Human Existence and the
Essence of the Lived Experience of Peoples**

**Facing Realities of Climate Change – Within the Realm
of Communities – Rural and Urban**

**Addressing Development Systems and Paradigms that
have failed and are not sustainable and are exclusive**

THE BIG QUESTIONS:

DO OUR TRADITIONS AND ACCUMULATED EXPERIENCES MATTER?

WHICH ASPECTS OF THESE ARE ESPECIALLY USEFUL TO TAKE US INTO THE LONG TERM FUTURE?

HOW RELIABLE ARE SYSTEMS THAT ARE OUT OF OUR LIVED EXPERIENCES?

WHAT DO WE LISTEN AND PAY ATTENTION TO?

Indigenous knowledge systems embody:

- **articulations and traditions** of African people collectively.
- **human capital** – the people and sum total of our individual minds, bodies, spirit, soul, dreams, visions, knowledge, experience, skills and competencies.
- **social capital** - the strength of our relationships, eg kinships.
- **natural capital** - the free gifts from nature.
- expressed in our **languages and linguistic structures**
- embody our **observations of our environments** and how we have sought to shape these
- Also represent **African lifelong learning systems**

In essence, indigenous systems represent practical realities ethos of livelihood needs and the necessity to sustain African humanity and protect its peoples futures.

They are not at all some quaint and strange superstitions.

In fact they have survived in robust shape because they have been labeled irrational and illogical.

African peoples have survived for millennia on these indigenous systems and forms

Historically, our vulnerabilities, threats, risks, our systems of resilience and adaptation and mitigating of losses to our lands etc have been built on these systems

These systems are hardwired in us and are part of our DNA

Hence IKS foundational and Integral to our livelihoods

They are not appendages peripheral to us. They form the African DNA, including our best standard climate scientists

We should not treat this heritage and accumulated cultural asset as appendages.

They are foundational, the embodiment of what takes us forward.

Why???

Because it is the only set of assets we can guarantee ourselves however weak they seem.

This is essential as we define the climate services we need to develop in the situation of enhanced vulnerabilities due to climate change.

We must seek synergies so we can strengthen the base

IKS comprises three sets of attributes:

a. Ethics, Values, Culture, Identity, Cosmology

b. Factual knowledge

c. Management Systems

ETHICS, VALUES, CULTURE, IDENTITY, COSMOLOGY

Our World Views, ways of Knowing and Learning, how we see the world and create Knowledge Frameworks. They include these tenets:

- **Life Being Cyclical – Hence Seasonal Information essential**
- **Reciprocity: among ourselves and with others. Hence accommodative**
- **Almost all life is animate – sacred sites can be rocks**
- **Covenants are Key – between us and the Creator – the universe**
 - **So we internalize the information on that relationship**
 - **That relationship describes our relationship to each other**

- **Collective existence is indispensable**
 - Hence cultural knowledge includes collective experiences that include information and data on our histories and those things surrounding us - our environments - social, political, biophysical
 - **We are people because we live with other people and share common histories and futures with them**

FACTUAL KNOWLEDGE

Phenology as observed by urban and rural communities

- Bird phenology**
- Animal phenology**
- Plant phenology**

Short term weather forecasts and prediction - incidence of rains

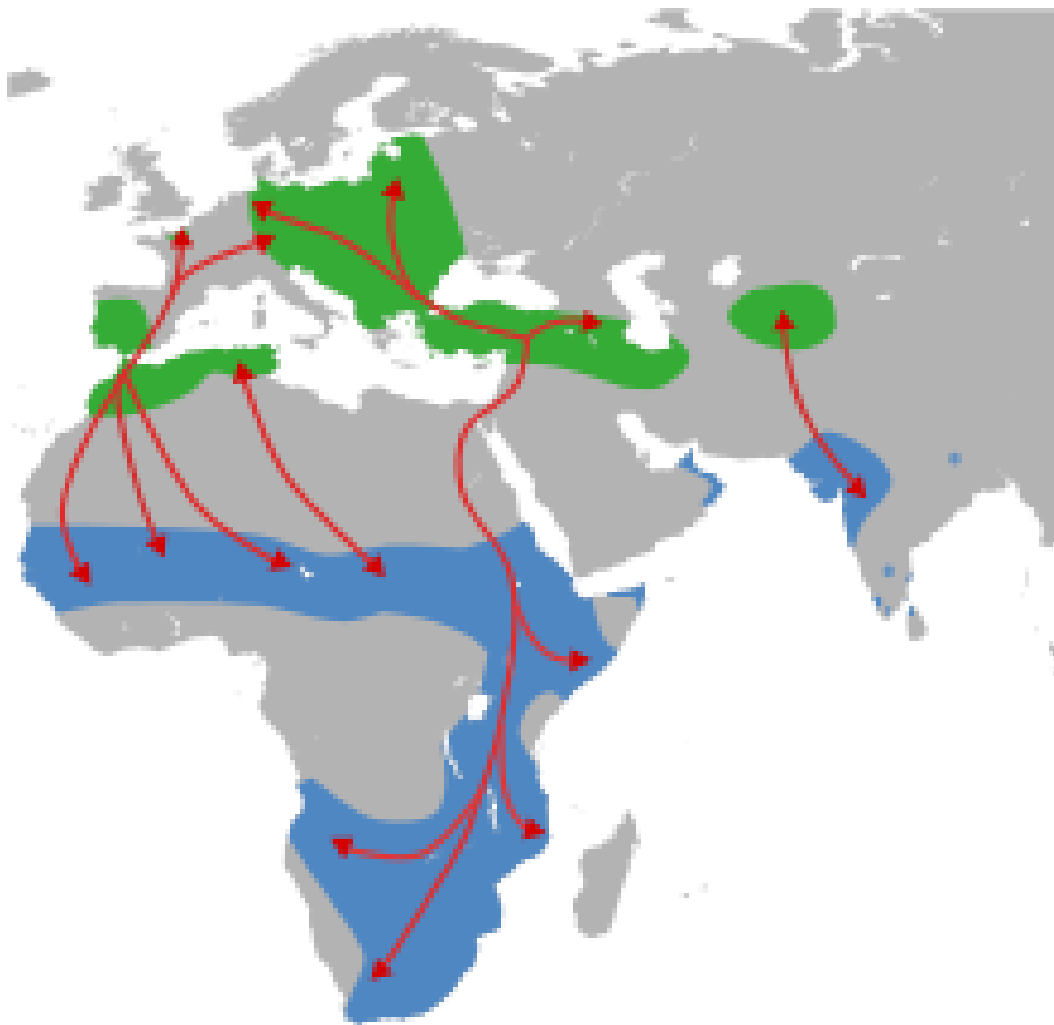
Atmospheric conditions as observed by communities – Milky Way and other stars.

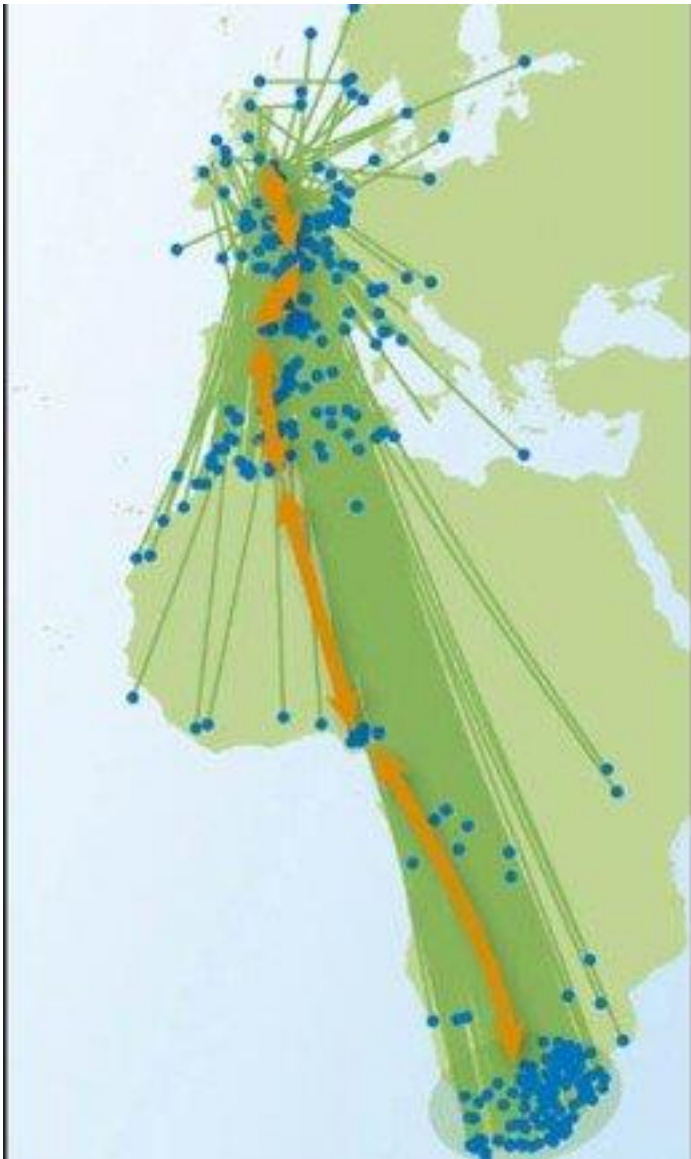
Astronomic and meteorological features used by communities to observe climate and weather conditions

Lunar cycles and the incidence of specific atmospheric conditions

Atmospheric conditions illustrating climate and weather conditions

- **Local biological conditions as noted by communities, especially indicator plants and trees as indicators of climate change and variability**
- **Animal and insect behaviors that connote specific weather conditions with a very diverse range of biota from ants to large mammals**
- **Biotic species and factors**
- **Abiotic factors - local geomorphology, soil moisture and changes over time, wind conditions and directions, the rainbow**
- **Local ecosystems and climate conditions**
- **Intertwined Complexes: health, agriculture, learning systems, religious needs**
- **Linkages between global/regional scale and local scales: eg. Migratory systems of birds**









MANAGEMENT SYSTEMS

- a. Common Property Management Systems**
- b. Social Networks – kinships, reciprocity, stress management processes**
- c. Leadership systems – mixes of spiritual and**
- d. Conflict management arrangements**
- e. Collective Lifelong Learning**
- f. Fables, myths, legends in which lie histories of past climate phenomena which can help in understanding people's responses to current situations**
- g. Oral histories that tell impacts of past stresses and opportunities in the physical environment**
- h. General social histories and narratives on atmospheric conditions**

- i. Language and Linguistics, Discursive Tools - specific terminologies and nomenclatures, naming conventions to describe weather and climate phenomena.**
- j. Fables, myths, legends in which lie histories of past climate phenomena which can help in understanding people's responses to current situations**
- k. Oral histories that tell impacts of past stresses and opportunities in the physical environment**
- l. General social histories and narratives on atmospheric conditions**

m. Adaptation Strategies

Short term

- **adaptation and change in terms of social-ecological resilience**
- **adaptive capacity of communities to deal with climate change.**
- **responses to changes in land-based activities which are coping mechanisms**

Long-term strategies.

Adaptation at multiple scales at community and individual levels such as networks for sharing food and other resources, and intercommunity trade which are culturally ingrained mechanisms.

n. Emerging co-management institutions

Integrated Climate Services

- 1. Need for a Framework for integrating Diverse knowledge and information systems.**
 - a. Combination of ways of knowing can lead to new innovations, knowledge
 - b. opportunities for adaptation through mutual learning (co-learning) and mutual knowledge generation (co-production)

- 2. Integration of Citizen Science with Standard Science**
 - a. community based weather observation is well established providing significant information
 - b. Skilled residents provide essential information from observations and experience. This is vital especially during stress periods.
 - c. Local observation eg bird and plant phenology
 - d. Climate related dendrology and local historians

Integrated Climate Services

3. **Collective lifelong learning experiences** are a vital resource very much underutilized at this stage in the standard systems
 - a. Learning at all is essential. Much is unknown such the behaviours in the short and long term of ITCZ, Monsoons in West Africa, El Nino/La Nina and their impact and linkages on and within local contexts
4. Hence the issues of **multiple scales** must be known – eg El Nino at Global level, plant phenology at local level. Similarly other global circulatory systems can be corroborated.
5. **Communication systems** within communities for purposes of handling and passing on weather and climate information. **Common languages** and nomenclatures needed. **Develop environmental dictionaries in local languages reflecting local expressions for scientists**

WHAT DOES ALL THIS GIVE US?

- a. Synergies addresses the inadequacies in both systems and mutually reinforcing – e.g. **dendrology and climate change reinforced by local histories OR use of digital technologies to record IKS**
- b. Linkages between the global/continental circulatory systems and local community levels
- c. Co-learning and co-creation of information.
- d. Co-management of knowledge e.g. systematic monitoring at local levels should include locals
- e. Shared Communication Systems: Common languages created
- f. Contributing to fundamentals of African development and progress.
- g. Culturally appropriate adaptation strategies. Through mutually beneficial partnerships, indigenous peoples and scientists can cooperatively work to reduce climate change impacts while maintaining communities

IN CONCLUSION

IKS is a foundational issue

A reality issue

Existential in form

So is the science of climate

So are issues of adaptation

In all these communities gather climate information and data. They must. We all do.

The forms and formats for each other's data we do not always understand as scientists and ordinary people. This is our challenge.

The bigger challenge is perhaps, do we want to learn these? Do we think we must do so? Are we amenable to learning from those who have different means of organizing environmental data and information?

Paradigm shift essential. Perhaps inevitable.

A new paradigm/new epistemology /different ontologies are emerging in the name of IKS.

Let us learn and re-learn them. For it is foundational to people's lives and livelihoods.

IKS represent enduring and not peripheral and ephemeral features

They are permanent even as they change

- Leonard, A., Parsons, M., Kofod, F. and Olawsky, K. 2013. The role of culture and traditional knowledge in climate change adaptation: Insights from East Kimberley, Australia Sonia
- Adger, W.N et al. 2012. Cultural dimensions of climate change impacts and adaptation. Nature Climate Change.
- Conway, G. 2008. The Science of Climate Change in Africa: Impacts and Adaptation page 3]
- Terry Williams & Preston Hardison. 2013. Culture, law, risk and governance: contexts of traditional knowledge in climate change adaptation. Climatic Change (2013) 120:531–544. DOI 0.1007/s10584-013-0850-0]
- Berkes 2009; Nakashima et al. 2012).