Implementation Roadmap for Downscaling Drought Forecasts in Mbeere using ITIKI

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Africa's Vulnerability to Droughts

- Africa is vulnerable to droughts:
  - Droughts are frequent; e.g., contributed over 50% of the world droughts between 2001 and 2011.
  - Ineffectiveness of the drought monitoring and predicting tools and most economies are driven by rain-fed agriculture
- In Kenya, droughts were experienced in 50% of the years 1980 – 2008; especially in the Arid and Semi-Arid Lands (ASALs)

Role of IK in Drought Forecasts

- National Meteorological Departments issue supply-driven Seasonal Climate Forecasts (SCFs)

- SCFs dissemination format & channels are ineffective

- Over 80% of small-scale farmers in Africa consult Indigenous Knowledge Forecasting systems (IKFs)

- IKFs and SCFs compliment each

About ITIKI

- It is a novel Drought Early Warning System (DEWS) that is designed to works within the unique context of small-scale farmers in Sub-Saharan Africa.

- It is an integration framework in form of a bridge (*itiki*) between IKFs and SCFs.

About ITIKI

◆ ITIKI; acronym for *Information Technology and Indigenous Knowledge* with *Intelligence*

◆ *itiki* (pronounced e-ti-ki) is the name of an indigenous bridge used by Mbeere people in Kenya

ITIKI's Characteristics

◆ Relevant, affordable, sustainable, integrated, resilient, useable, effective, generic, and micro-level; through:

1. Indigenous Knowledge
2. Effective Drought Index (EDI)
3. Wireless Sensor Networks
4. Mobile Phones
5. Artificial Neural Networks and Agents
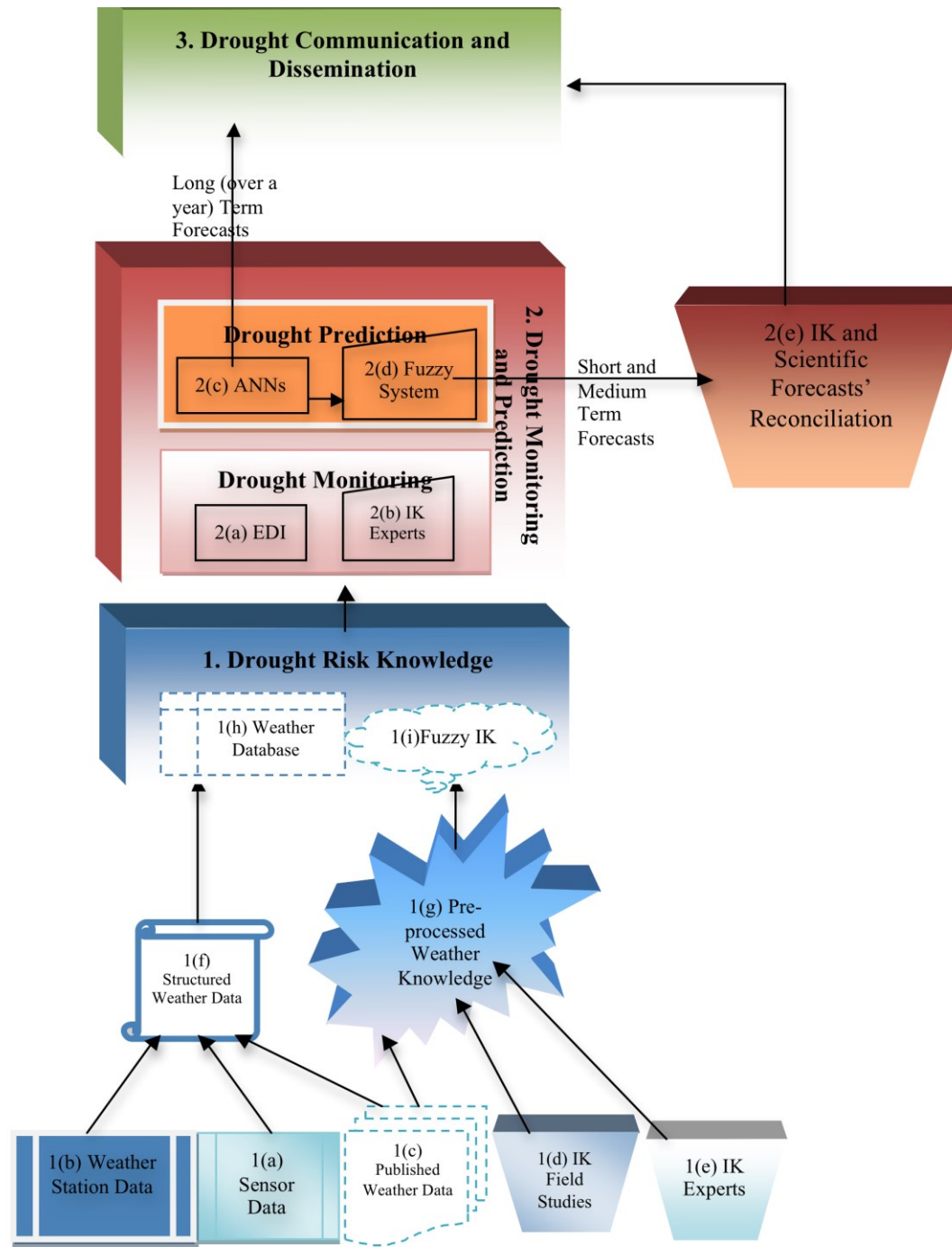
ITIKI Evaluation and Testing

- Tested using a case study of two communities in Kenya
  - Mbeere from eastern
  - Abanyole from western
  - based on content and format of the integrated forecasts, up to 90% of Mbeere respondents gave a score of 'excellent' and also gave commitment to participate in post-tests system's deployment phase.

About Mbeere People

◆ They live in former Mbeere District, which is classified under the ASALs

◆ 168,000 population occupying 2,093 km^2 of land;

◆ no single weather station

◆ With an average of 750mm (most parts receive less than 550 mm); they practice rain-fed marginal farming and livestock (agro-pastoralists) keeping

ITIKI Implementation Road-Map

- ◆ Strategy:
  - ◆ A focus group made up of 12 people representing 12 villages
  - ◆ Bi-Weekly meetings to discuss IK indicators and SCFs from KMD
  - ◆ To compliment IK with sensors and rain gauges
  - ◆ ITIKI so far used for the OND rain season

ITIKI Implementation Road-Map

◆ Operational Framework
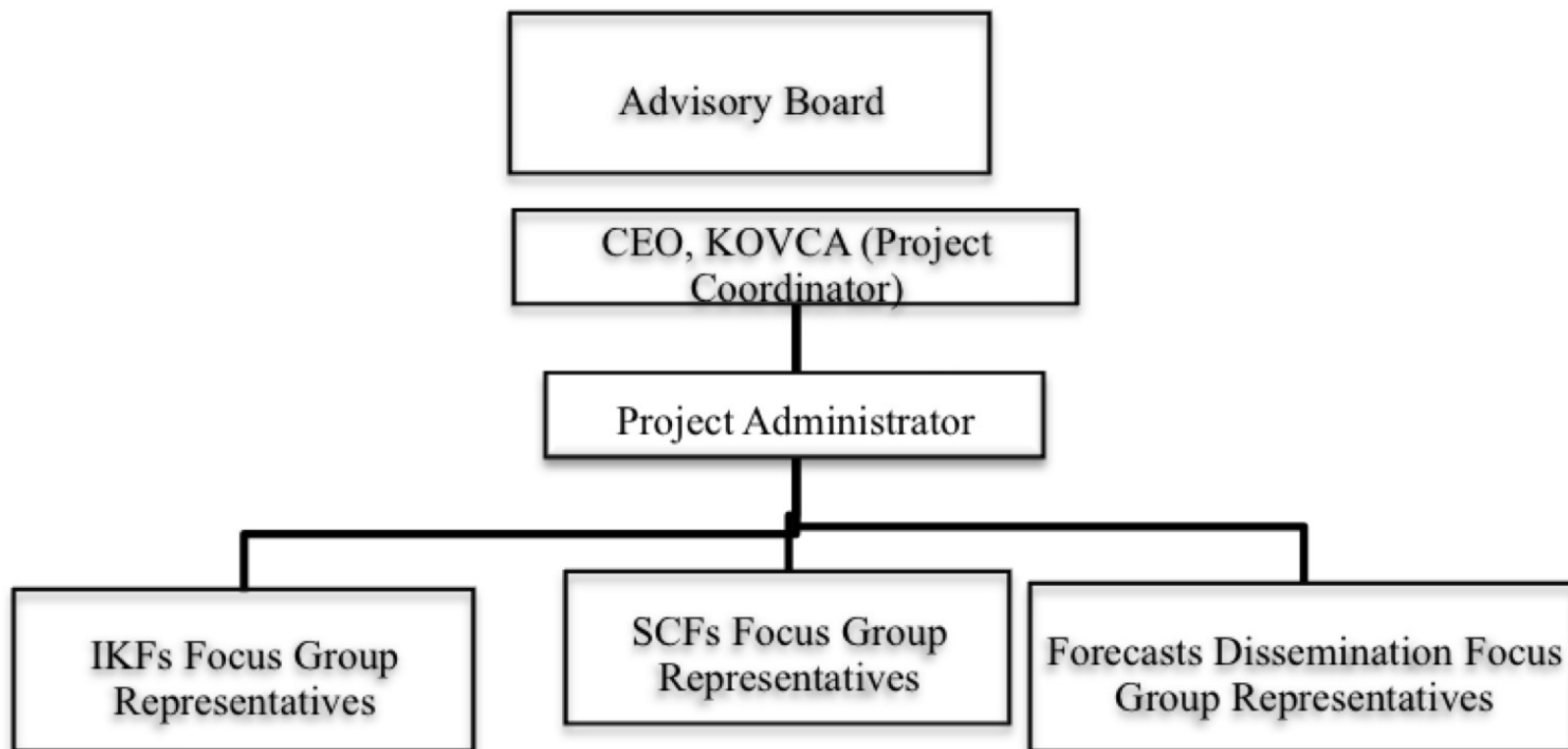
Preliminary Findings and Further Work

- Some Findings:
  - Based on OND 2012 season, IK provided more accurate forecast than SCFs
  - ITIKI played a key role in downscaling SCFs' aspects of forecasts' 'implications'

- Further Work:
  - Installation of rainfall stations being planned
  - Entrenchment of ITIKI within an organization
  - Evaluating forecasts for MAM 2013 underway

Thank you