CreativeDrought: An interdisciplinary approach to building resilience to drought

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INTRODUCTION: Drought events have devastating impacts worldwide, causing water and food insecurities in many developing countries where resilience to natural hazards and change is low due to a myriad of reasons (poverty, inequality, limited access to information, etc). With climate change and increasing pressures from population and societal change, populations are expected to **experience future droughts outside of their historic range**. There is a need for a more holistic approach to building resilience to future drought. A **stronger interdisciplinary approach** can incorporate the local cultural context and perspectives into drought and water management, and communicate information effectively to communities.

AIM: This pilot project "CreativeDrought" uses a novel interdisciplinary method to build resilience to future drought in a rural South African community by combining hydrological modelling from the physical sciences and engaging communicative approaches from social sciences to **co-produce narrative stories about possible future droughts and adaptation**.
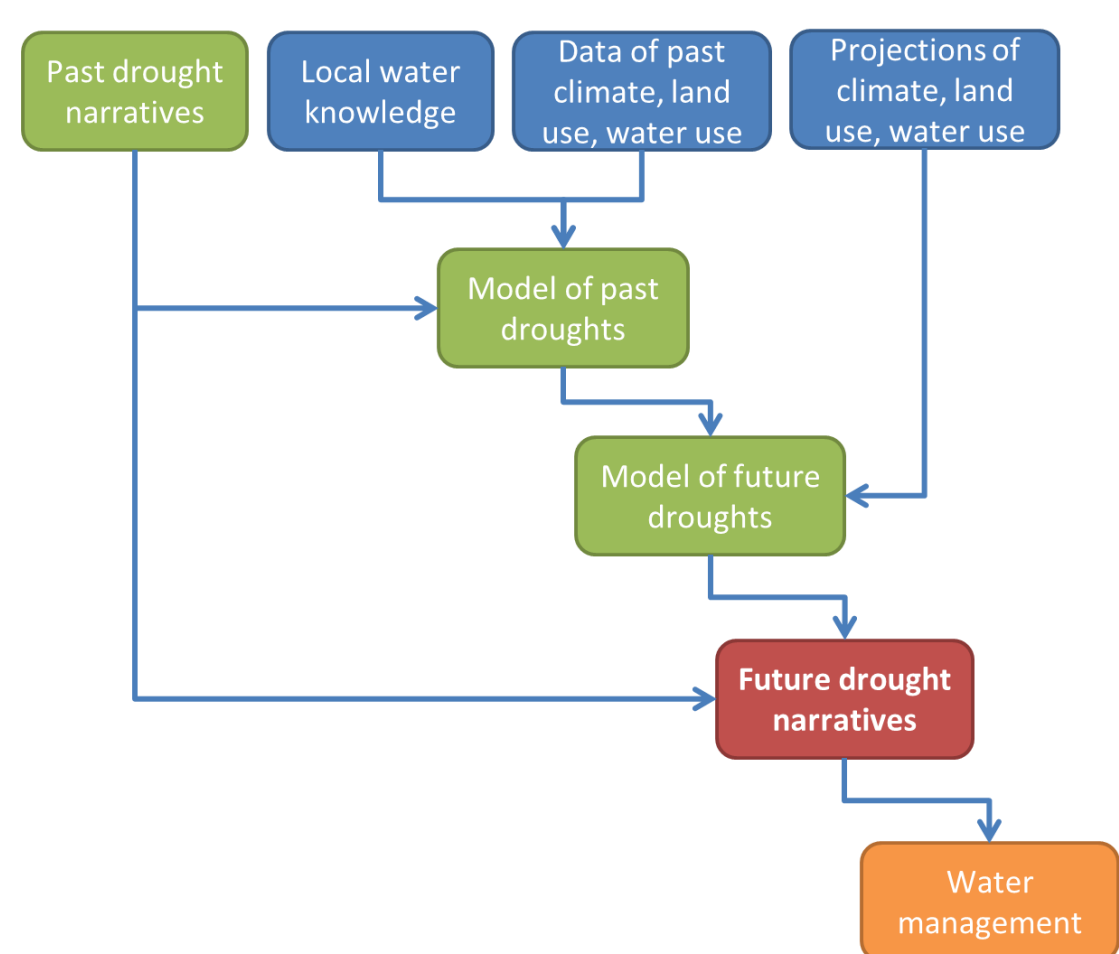

Figure 1: Conceptual diagram of new methodology to generate future drought narratives

METHODS: We combine the two disciplines of hydrology and social science through a series of steps (Figure 1):
i) engage with local rural community to **collect narratives** on drought experiences through small group interviews (3-5 people) [March-April 2017];
ii) generate a **hydrological model (SHETRAN)** based on existing data, collected narratives & village observations [March – July 2017];
iii) identify key **future scenarios** with the community [June 2017];
iv) return to the community and communicate the results of the scenarios to **create new future** drought narratives [July 2017]; &
v) use this new data to **enhance local** water resource management [Oct 2017].

RESULTS: Extracts of the collected past narratives & the application of the SHETRAN model to generate future drought narratives

SHETRAN model

Field observations
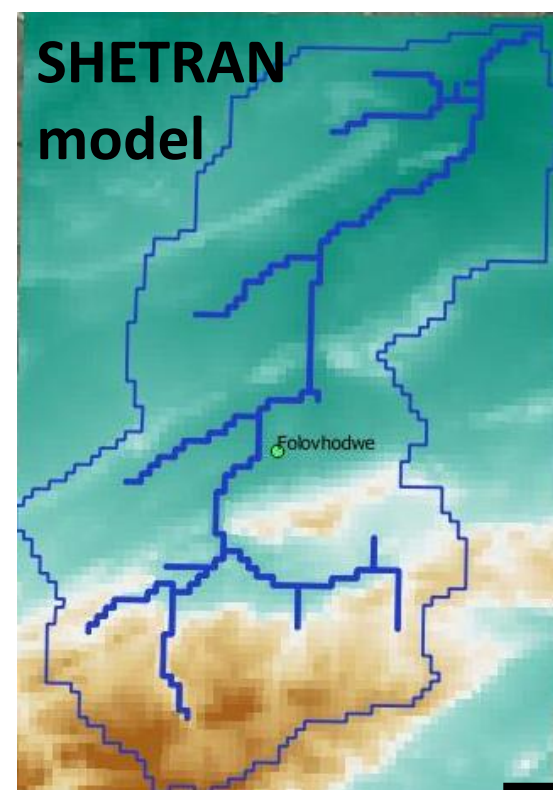
"It was difficult – the river was dry, we used to dig near the river to try and get water" (Smallholder farmers)

"On the days when the water comes out of the tap, we have to queue all night to get the water, because by the morning we won't get any water" (Young mothers)

"By that time you had to force yourself to wake up at 4am to go to the river to dig for water. Otherwise you wouldn't have water for cooking or drinking" (Ex-miners)
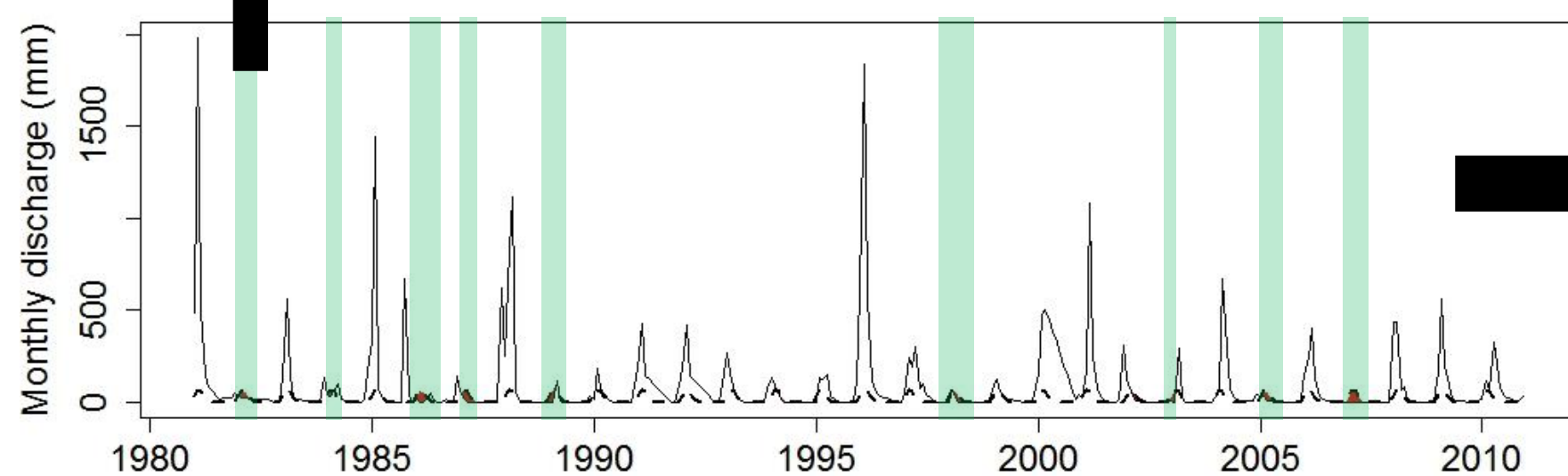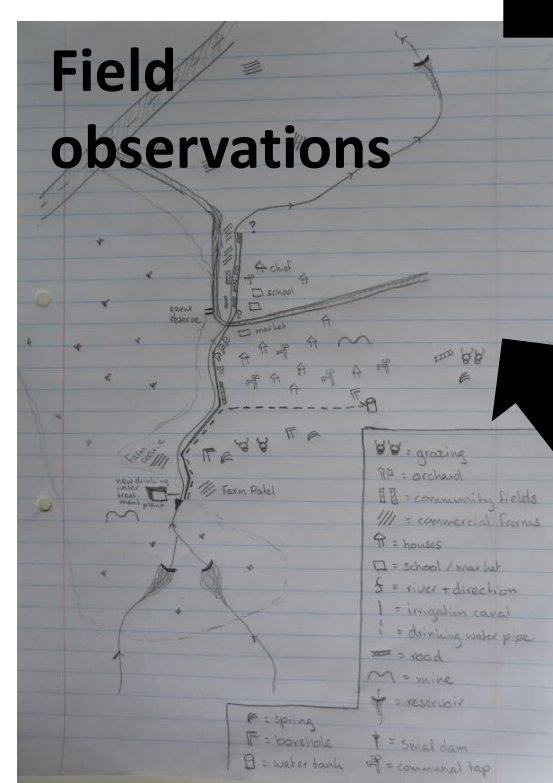
Figure 2: Example drought analysis on the Limpopo river – drought events identified (green)

Data collected in the field = information on catchment characteristics, hydro-met data records, water use

MODELLING SCENARIOS:
- Projected climate change
- Population increase
- Increase in agriculture
- Changes in irrigation methods
- Changes to water sources
- Without dams

Model scenarios for future years. Used to stimulate discussions in future narratives workshops (July 2017)

Community future drought narratives. Exploring future adaptation and building resilience

"What I have learnt is when we are doing farming, like maize, to save some maize... save some money so if there is a problem like a drought, I can live" (Smallholder farmers)

KEY MESSAGE: The hydrological model will be used here as a **tool for prompting discussion** and creation of future narratives, rather than for predicting future droughts. It is an important approach to getting the community to engage with the **idea of the future** and how their actions can help them adapt to possible future droughts.

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https://creativedrought.wordpress.com/