

Forecasting, thresholds, and triggers for droughts in Mozambique

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DROUGHT CENTRAL
Osservatorio Siccità

DROUGHT

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**A creeping and complex phenomenon with
different types of impacts.**

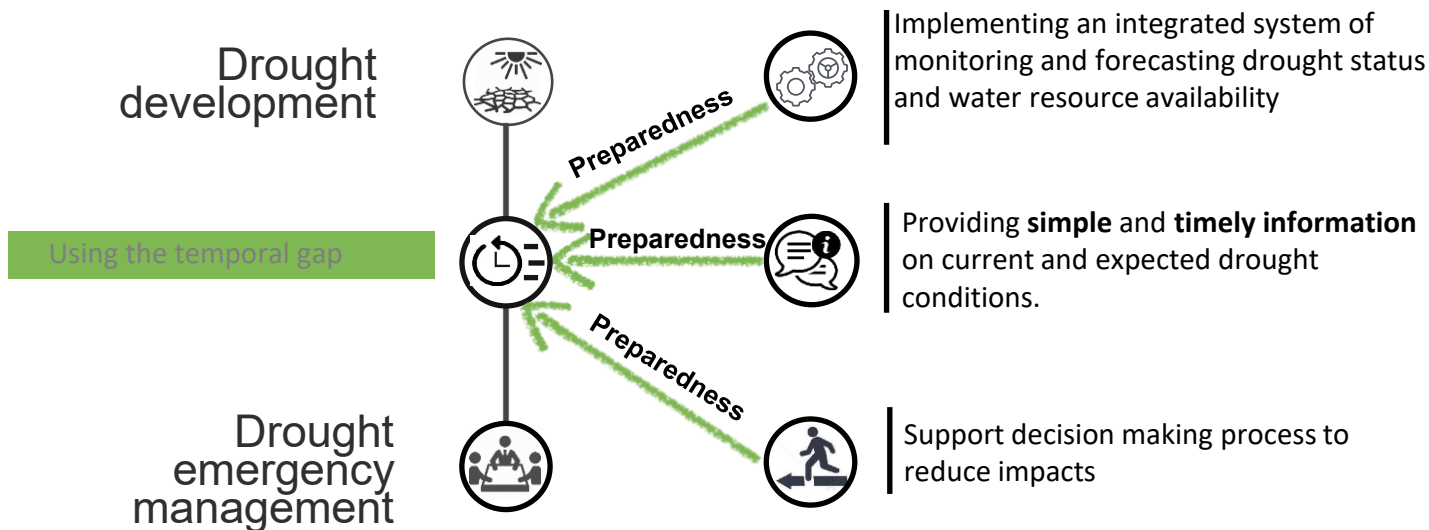


Proactive Solution

Preparedness



Measures which enable governments, communities and individuals to respond rapidly and effectively to disaster situation



As a slow-onset stressor, a **drought** event is a powerful **paradigm** and an **ideal training ground** for testing and refining novel **climate change resilience strategies**.

SOME BASIC CONCEPTS

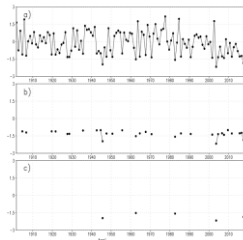
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Data and Information to support end users



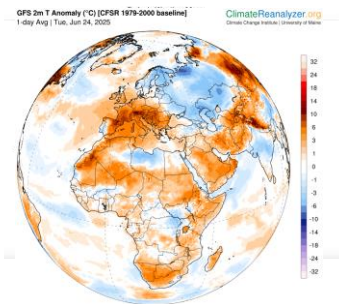
A STORY OF CHOICES

Past Obs



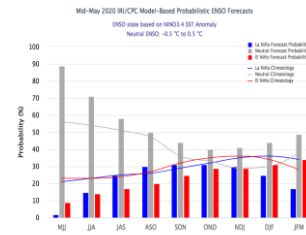
What we know

Real Time Status



Where we are now?

Future Scenarios



What should do we expect for the future?

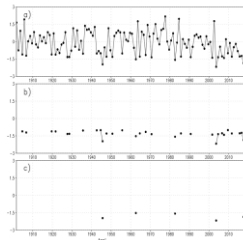
Safe conditions
then
business as usual

Unsafe conditions
then
actions are needed

Linking knowledge to the action by
“**bridging**” information through boundaries
of monitored and modelled systems.

A STORY OF CHOICES

Past Obs

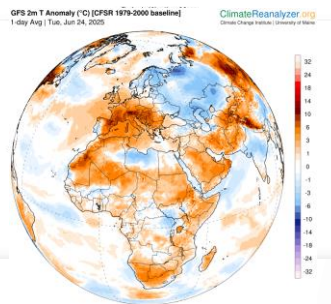


What we know

- Critical Issues #1
- Unsmooth transitions
 - No near real time
 - ...



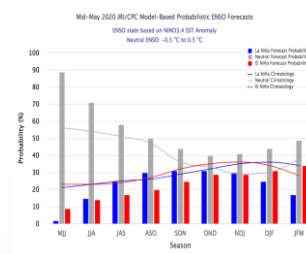
Real Time Status



Where we are now?



Future Scenarios



What should do we expect for the future?

- Critical Issues #2
- Unsmooth transitions
 - Low level of conceptual coherence
 - ...

Often the available tools are “partially useful” or “uncomfortable”.

AN OPERATIONAL EXAMPLE

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**World Food Programme (WFP) activating
anticipatory action (AA) against droughts**

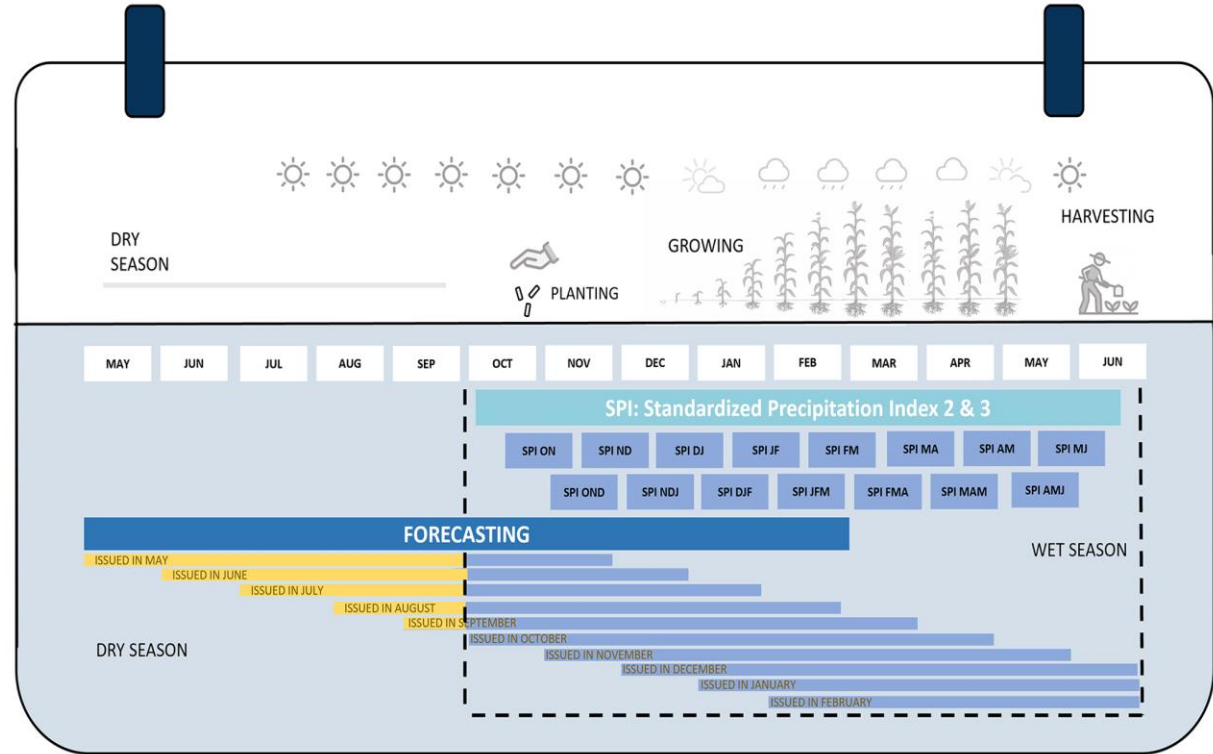
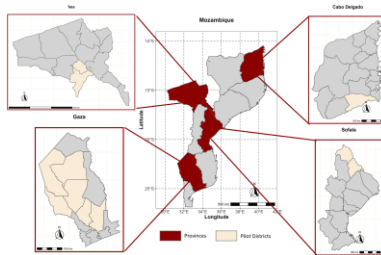


WFP Anticipatory Actions: setting the scene

What is AA implemented by WFP?

- An innovative approach whereby predefined actions are “taken ahead of predicted hazards to prevent or reduce acute humanitarian impacts before they fully unfold”;
- It requires linking forecast triggers to predefined action plans and prearranged funding;

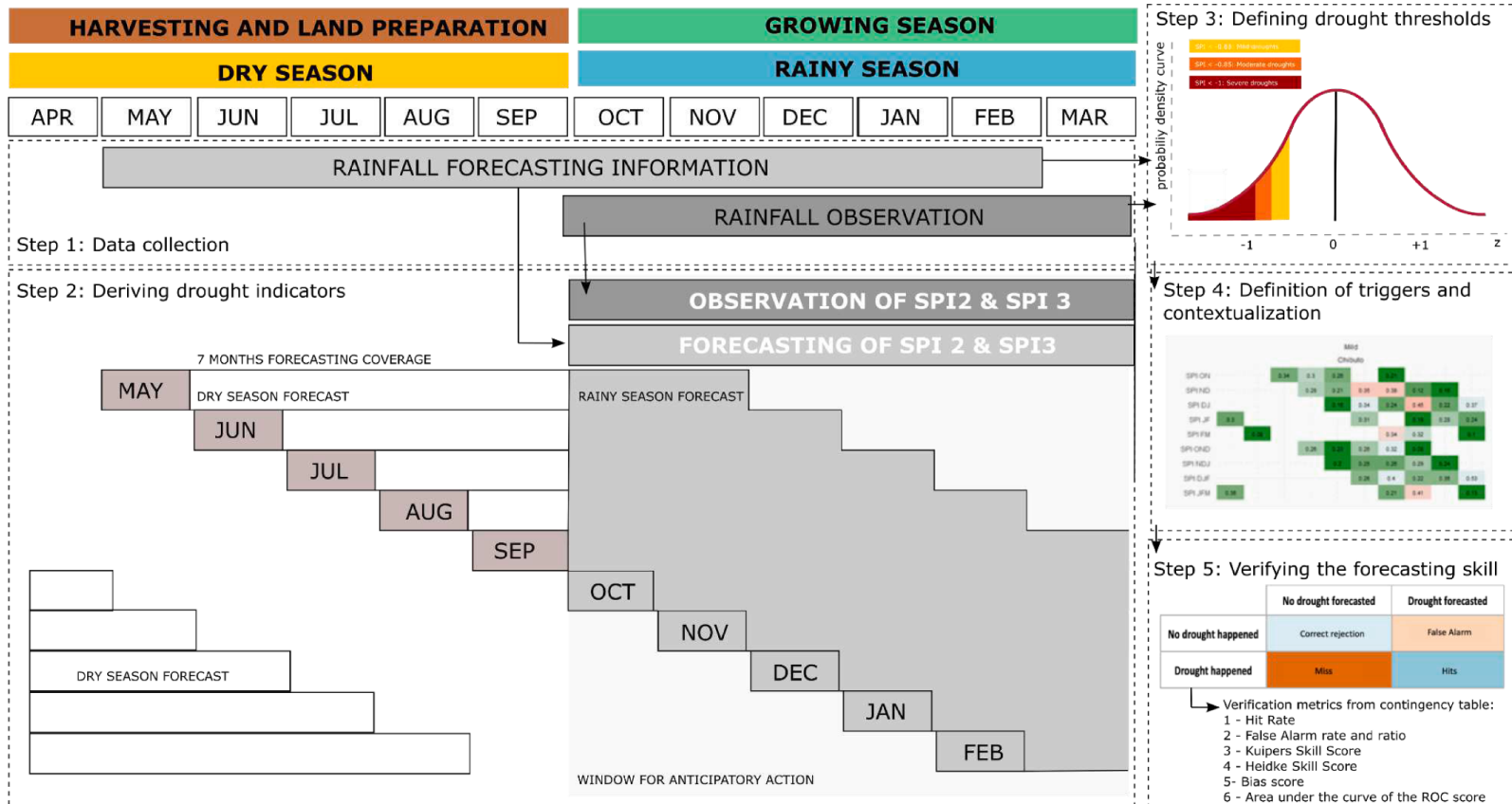
Our contribution was focused in supporting the climate service component development.



Based on:

Guimarães-Nobre G., Pasqui M., Quaresima S., Pieretto S., Lemos Pereira Bonifácio R. M. (2023). Forecasting, thresholds, and triggers: Towards developing a Forecast-based Financing system for droughts in Mozambique. CLIMATE SERVICES, vol. 16, p. 105-138, ISSN: 2405-8807, <https://doi.org/10.1016/j.cliser.2023.100344>.

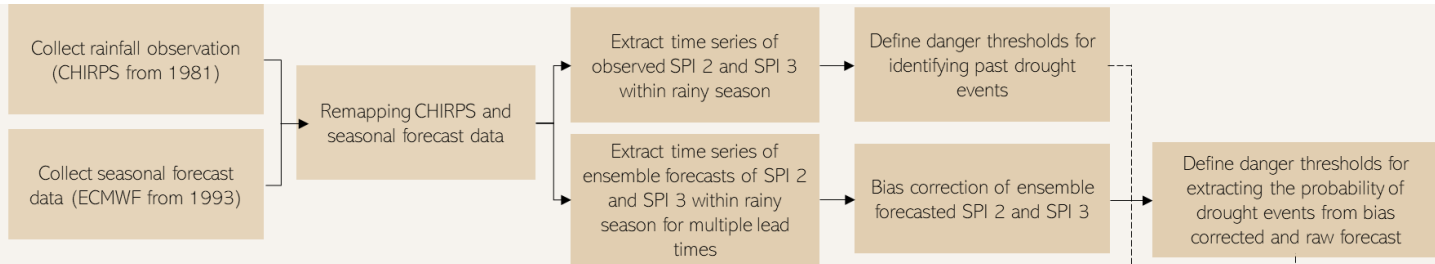
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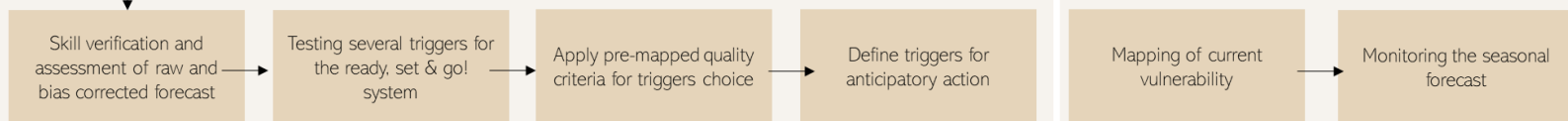
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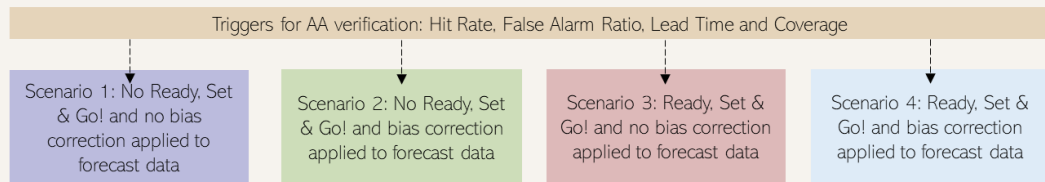


PART 1: DATA (PRE-)PROCESSING



PART 2.1: FORECAST APPLICATION AND DECISION-MAKING

PART 2.2: OPERATIONAL



PART 3: SENSITIVITY ANALYSIS INCLUDING FOUR SCENARIOS

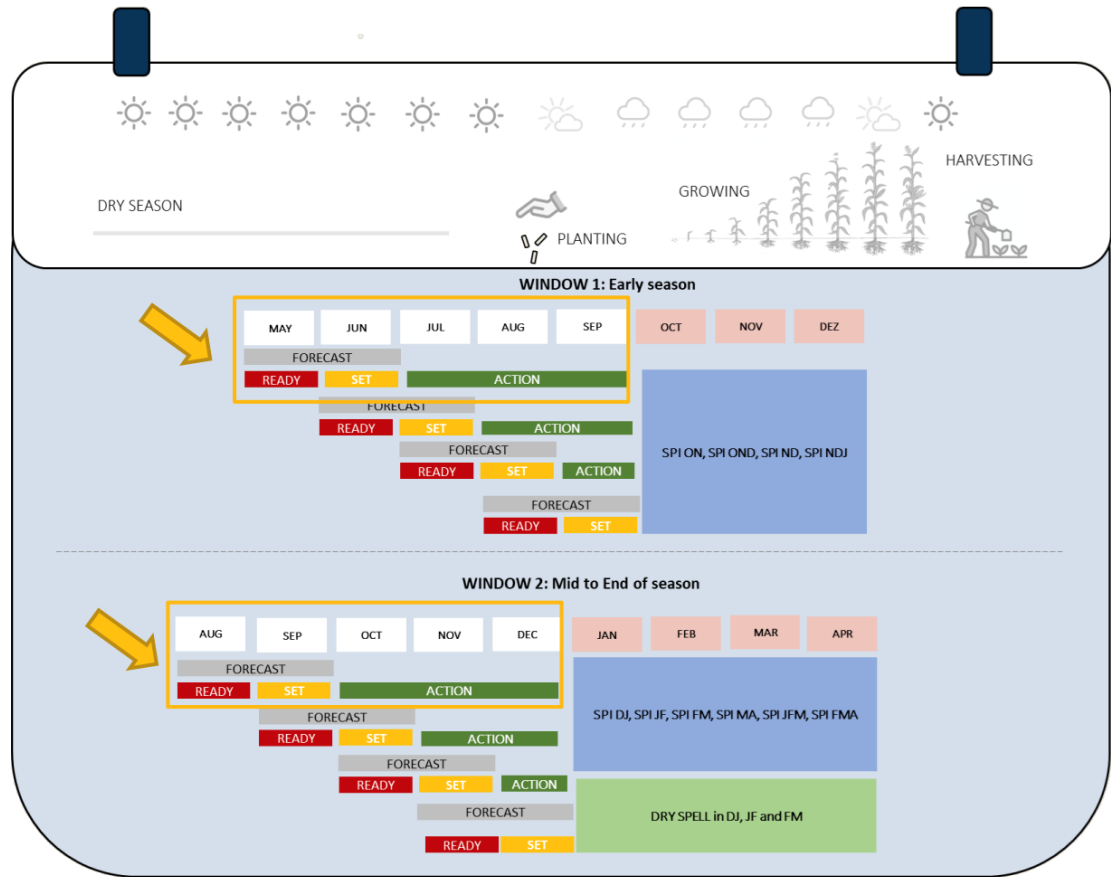
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Mechanism of implementation

- The main goal is to **implement anticipatory action** against droughts within the window of opportunity between a forecast of a hazard and its onset
- AA is implemented if the chosen triggers are exceeded for two consecutive months (Ready + Set)



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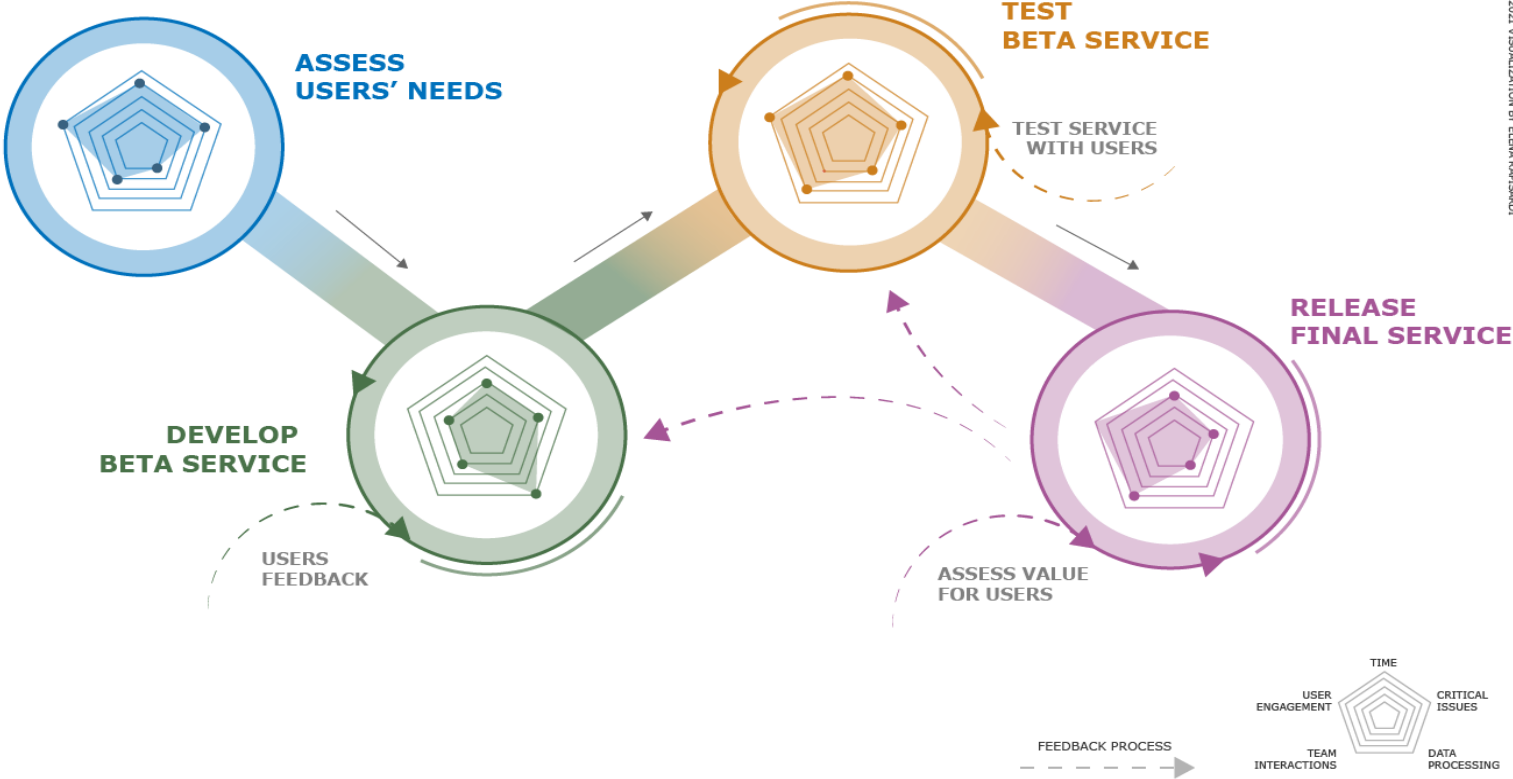
CONCLUSION

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Notes for discussion

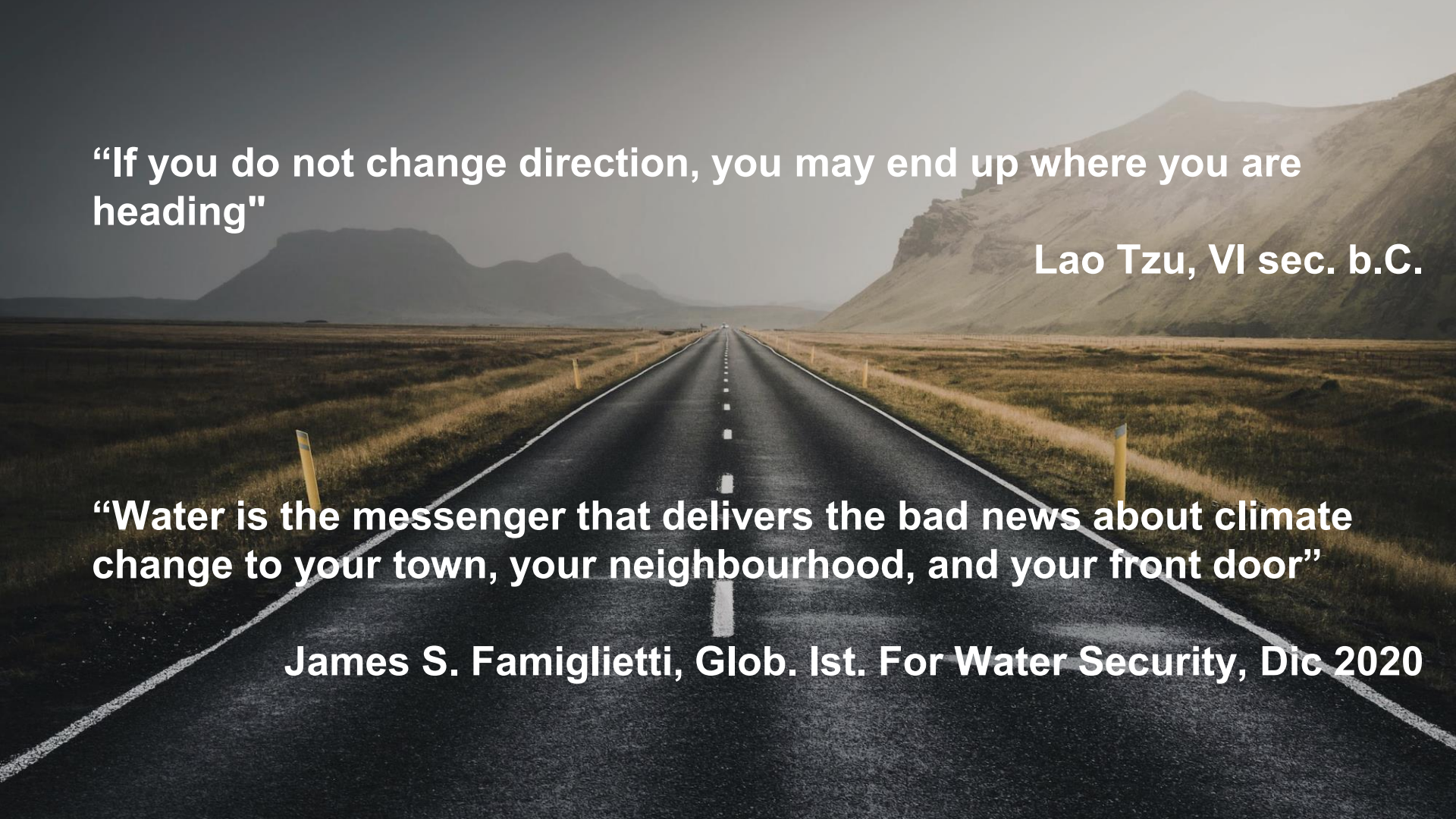


Co-design & Co-development with Users



Notes for Discussion

- Think / Act “Glocal”
- Strengthen communities **informed-behaviours** frameworks besides **informed-decisions** frameworks;
- “**Social learning**”: support action and products to fill the gap between individual knowledge and scientific knowledge;
- “**User needs**” is not just a “**glamour**” keyword;
- Strengthen **social negotiation processes** e.g. in water management: **options** could emerge from communities as a result of conflicts resolution;
- There is a need to identify methods or approaches to measure and evaluate the impacts of actions/policies.



“If you do not change direction, you may end up where you are heading”

Lao Tzu, VI sec. b.C.

“Water is the messenger that delivers the bad news about climate change to your town, your neighbourhood, and your front door”

James S. Famiglietti, Glob. Ist. For Water Security, Dic 2020

Get Connected



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