Using Digital Tools to enter new adaptation domains in cocoa and coffee climate adaptation planning

Poster ID 727

ACLIMATAR

Climate change threatens the viability of smallholder cocoa and coffee farming globally, with shifting agro-climatic zones and crop-specific hazards posing significant challenges.

We present lessons learned from the human-centered co-development process of our climate adaptation tool, ACLIMATAR, that links climate projection data to actionable adaptation advice for cocoa, coffee and tea farmers.

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Supplementary material

https://adaptation.aclimatar.org/

1. Data does not speak for itself, and barriers to adoption of data driven approaches to climate adaptation are high.

- **Climate projection** data is **complex** and hard to interpret for a layman's audience.
- **Manuals** on climate adaptation and climate-smart farming exist for some countries, but tend to be **disconnected from** decision-relevant **data** sources.
- **Stakeholders** perceive both, **short** and **long term** planning as **relevant timescales**, but lack **data** for decision making.

2. Mainstreaming climate adaptation into sustainability operations requires a consistent framework for capacity building, data provision and scaling.

- Action on climate adaptation practices needs to **combine** a **strategic vision** with **actionable advice** ready for implementation.
- Climate adaptation is **one topic amongst many** in the daily operation of field officers and country management boards; therefore clear connections to other topics such as renovation, pest and disease control, good agronomic practices, etc. need to be made.
- Tools that are developed need to be fit in the **organizational context** of the user/client to ensure uptake.

3. Interactive tools serve as intellectual device to initiate discussions about climate adaptation.

- **Tangible tools** that can be explored autonomously by users to understand past changes and future projections help to **link** to local **perceptions** and provide a **future perspective**.
- Soft and hard **barriers to adaptation** can be identified once future outlook and proposed adaptation options are brought together, triggering the institutional change needed.

Discussion:

- Cross-country validation and work on **climate analogous** to enable learnings from present agronomical practice in other countries and advance towards future resilience across the tropical belt.
- Entering **more immediate adaptation domains** & **integration** with other **farm-decision making contexts** to operationalize climate adaptation action in the present.
- Balancing data **quality** and **uncertainty** disclosure without compromising trust in the data; maintaining a clear overall **message** to enable users to take bold decisions where needed.
- Advertising and **scaling ou**t is time consuming, but creates impact and ongoing user engagement will surface future **learnings**.

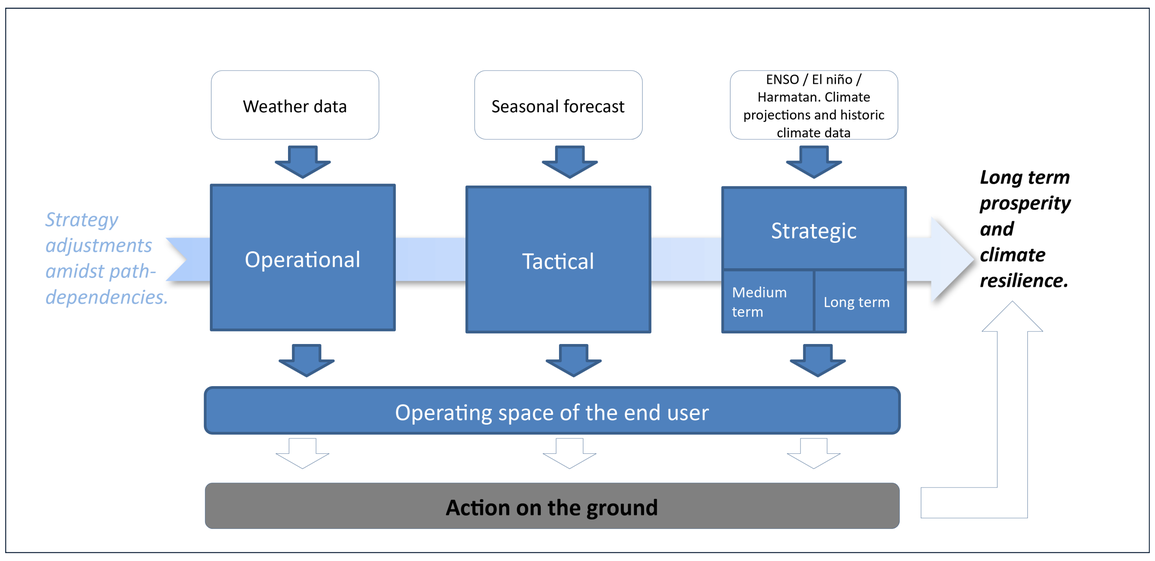

Fig. 1: Adaptation domains of climate adaptation planning in perennial crops and operation space of end-users. ACLIMATAR contributes to the strategic long term vision of end-users and is important for general climate change sensitization by providing also a backwards looking perspective. (Own elaboration, cf. Giraldo et al. (2023))

Conclusion:

Climate change information products need to be made relevant to decision-making.

- 'Closer' adaptation timeframes require integration in operational and tactical farm operations planning/ the local household livelihood strategy ('nested operation spaces').
- Climate adaptation work in perennial crops requires a strategic vision but needs to start now.
- Human Centered Design (HCD) and User research (UX) are paramount to problem-solution fit.

About: ACLIMATAR

Languages supported: English, Spanish, French.

Coverage: 2 Macro-Regions: Latin America (Central America + Col, Per, Ecu) and Africa (West and East Africa). 3 Crops: **Cocoa** (CdI, Gha, Nig; Central America AND Col, Per, Ecu) ; **Coffee** (Central America; Key, Tza, Uga) ; **Tea** (Tza, Uga)

Users and Use: Targeted user group: Management level + Field Officers. Views provided are i) Hazard view (Prcp, Temp, selected hazards), ii) Shifting Agro-climatic zones, iii) Resulting impact gradient, iv) Strategic advice and recommended climate adaptation practices. Log-in space with multi-location upload; Possibility to download reports in pdf format.

Complementary materials: User tutorials, Learning course, Workshop guidelines, API.

Methods:

ADAPTATION PRACTICES:

Adaptation practices were selected to be readily available; sourced from extension manuals and complemented by field workshops for validation, assigning priorities or complementing where national manuals were incomplete.

CLIMATE DATA SOURCES:

We combined public available data from the CHIRPS/ CHIRTS, WorldClim and the Adaptation Atlas, amongst others, with curated GPS data sources of known crop locations. Data is sliced into ‚past', ‚current' and ‚future' (mid-century) timeframes. CMIP5 and CMIP6 are used in an intermediate emission scenario. Data processing followed the approach outlined in Bunn et al (2019).

TOOL DEVELOPMENT AND LEARNING PROCESS:

The tool was developed following a user-centric approach and integrating elements from Human Centered Design. Extensive engagement with Rainforest Alliance country offices and connecting to pre-existing adaptation work in the regions; complemented by local workshops.

Learnings were made as part of extensive conversations and interviews with national Rainforest Alliance country office staff, feedback from field-extensionists, in-country workshops and engagements with stakeholders at industry gatherings.

References:

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Giraldo, D., Clarkson, G., Dorward, P., Obando, D., & Ramirez-Villegas, J. (2023). The development of a farmer decision-making mind map to inform climate services in Central America. *Frontiers in climate*, *5*, 1235601.

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