From Climate Risk Data to Climate Finance
The Economics of Climate Adaptation (ECA) in Ethiopia

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Questions from Decision Makers

What is the risk exposure of different assets?
> vulnerable people, livestock, natural resources...

What measures can be done to reduce the exposure?
> 26 measures considered (green, grey, monitoring)

How to finance these measures, which one are cost-efficient?
> strong stakeholder involvement, KFW, community, academia
initiated by

Recent ECA Studies

A project implemented on behalf of
managed by
funded by on behalf
in cooperation

United Nations University UNU-EHS
Institute for Environment and Human Security

InsuResilience Solutions Fund
Frankfurt School of Finance & Management
KfW
Federal Ministry for Economic Cooperation and Development
ETH Zürich
Asian Development Bank
ECA offers a **UNIQUE FRAMEWORK** for the flexible identification of cost-effective climate adaptation measures.

Powered by **CLIMADA**, the ECA framework links hazards, vulnerable assets and potential damages, quantifying them into monetary values.
ECA systematically evaluates and offers an optimal climate adaptation measures portfolio FOR DECISION MAKERS.

ECA builds a smart-mix portfolio of different adaptation measures, weighting costs and benefits of the different options to enable synergies and leverage local conditions.
Hazard footprint and risk model

Expected economic and human losses under current and future scenarios

Cost-benefit analysis of adaptation measures
The outcomes of ECA inform climate adaptation strategies and policies, **UNLOCKING CLIMATE FINANCE.**

National adaptation plans
Local adaptation strategies

Adaptation Strategies

Funding Agencies
International cooperation
Development banks
Global funds

ECA outcomes inform local and national adaptation strategies. The quantification of climate risk and the ranking of potential benefits align with the requirements of international funding agencies and other investors.
Drought Risk in Afar and Somalia, Ethiopia
Drought Model - Validation

- 1951-91 used for probability density function
- 1,000 simulations for 1991-2020 used for validation of SPI
Assets

No monetary value for people
Drought Risk in Afar and Somalia, Ethiopia

**Annual Expected Damage (AFAR) in 2050 (USD m)**

- Risk Today: 35
- Economic Growth: 134 (+381%)
- Climate Change: 49 (+138%)
- Risk (2042): 217 (+520%)

**Most Effective Measures (AFAR)**

a) AFAR: USD Benefits for a Moderate Climate (RCP4.5)
Drought Risk in Afar and Somalia, Ethiopia

Benefits of “Establishment of Communal Seed Banks”

Benefits of “Wetland restauration”
Challenges and Outlook

• Drought modelling with limited data availability (few records and decentralized data storage)
• Overestimation of Rainfall in certain cases
• Few data for valuation of Ecosystem (low resolution)
• No return periods simulations readily available
Thank You!

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