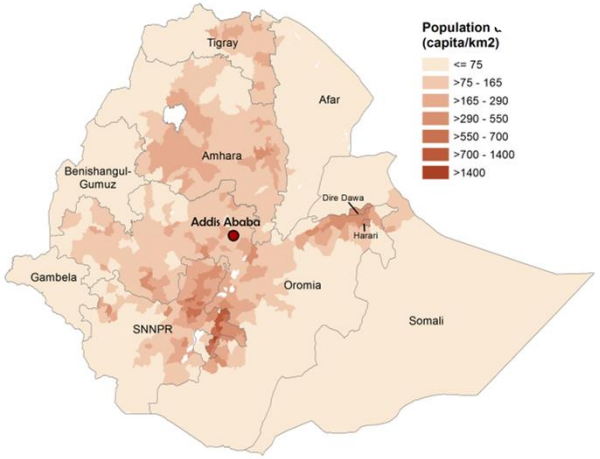
Climate change and its unequal migration responses in the Ethiopian highlands



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Migration, Environment and Climate: What risk inequalities?
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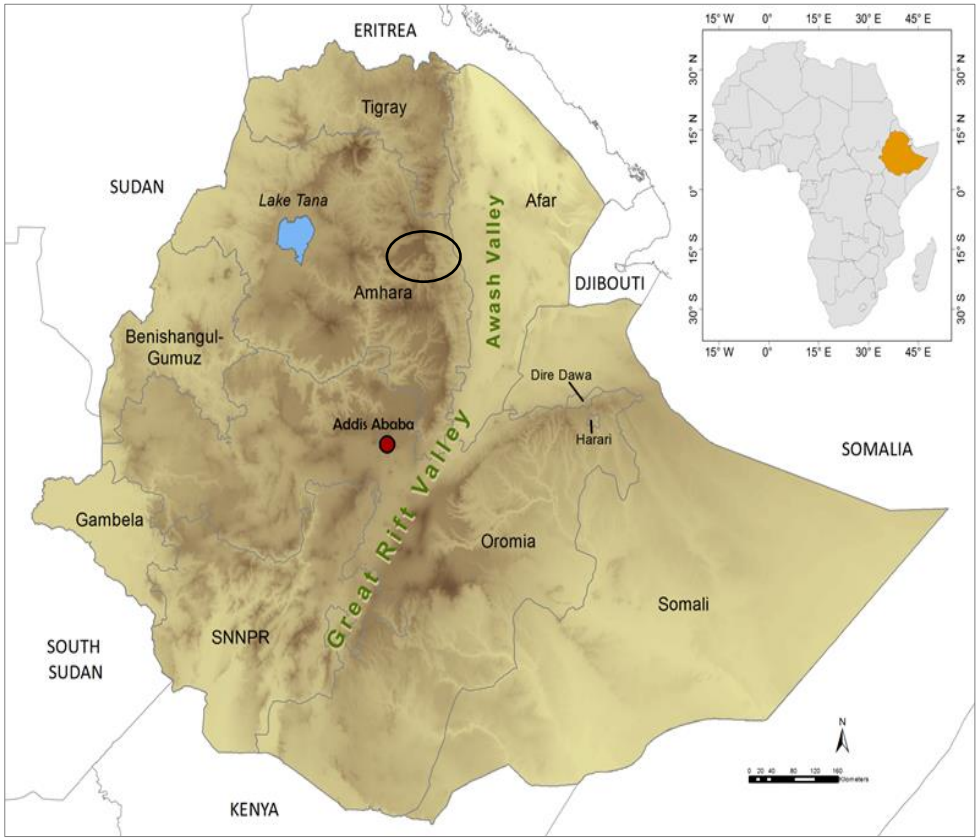
HELMHOLTZ CENTRE FOR ENVIRONMENTAL RESEARCH – UFZ

FONA Social-Ecological Research BMBF

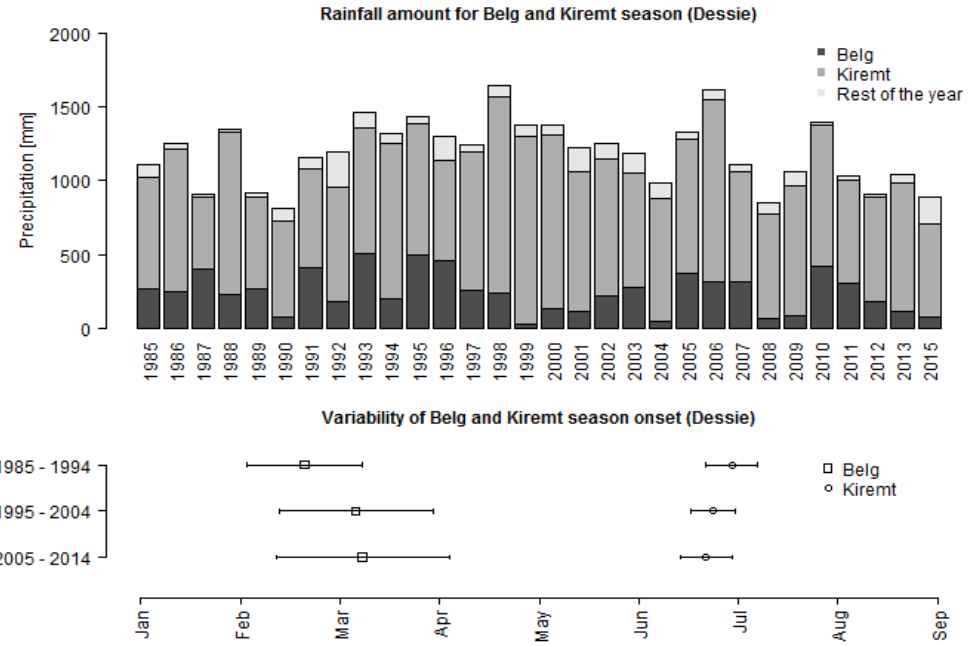
Socio-ecological pressure in the Ethiopian highlands

- Rainfall: -20%
- Droughts: >40 million AP since 2000 (2015/2016!)
- Substantial warming
- Land degradation
- Food insecurity
- Rapid population growth and migration



Case study: South Wollo, Northern Ethiopian Highlands

- Altitude: 1400-3700masl (high agro-ecological heterogeneity)
- Mixed subsistence, rainfed agriculture
- ⌀ land size: ~ 0.5ha
- ⌀ household size: 5-6
- Bimodal rainfall pattern and increasing variability, especially for belg onset



Research aim

To understand subsistence farmer’s decisions to migrate as response to rainfall variability and drought considering socio-economic conditions.

Research design

- Multi-site approach (8 villages, 3 agro-ecological zones)
- Quantitative Household Survey (n=313), 2016
  - 2015 drought (impacts, responses),
  - Land use, management, land productivity,
  - Livelihoods, strategies,
  - Migration
- Qualitative approach, 2017
  - Interviews with regional experts (n=6)
  - Focus Groups within villages (n=18)
  - Household interviews (n=42)
  - Interviews with returnees (n=20)
  - ➢ Qualitative Comparative Analysis (QCA)

Drought

Non-Drought

Qualitative **C**omparative **A**nalysis (QCA)

What is a QCA?

- Set-theoretic approach to compare causal patterns

for a medium number of cases in a systematic way (Ragin, 1987)

How to analyze data with QCA?

1. **Define an outcome**

Out-migration: migrating family member in past 5 yrs, > 1month

- Migrating households: n=20
- Non-migrating households: n=22

Qualitative **C**omparative **A**nalysis (QCA)

2. Defining conditions based on theoretical knowledge and empirical evidence

• Household engaged in off-farm activities (Offfarm)	• Perceived land size is too small for household needs (LandScar)
• Household is fully belg dependent (BelgFully)	• Village has own market or asphalt road (MarketRoad)
• Migration experience within household (MigratExper)	

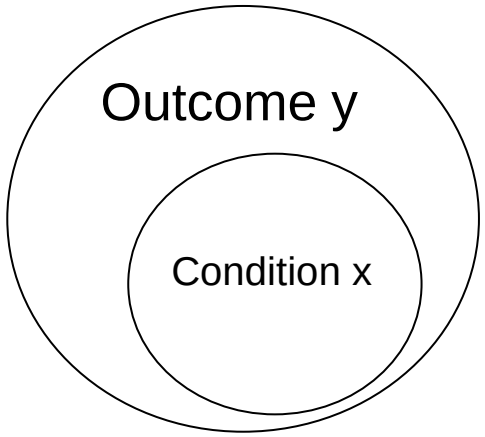
3. Calibration: assigning set memberships on cases

HH ID	Offfarm	MigratExper	LandScar	…	Out-migration
1	0	1	1		1
2	1	0	0	…	0
3	1	1	1		1
4	…	…	…	…	…

Qualitative **C**omparative **A**nalysis (QCA)

3. Identification of **sufficient conditions** (x) for out-migration (y)

Sufficiency (x → y)



Example

Land scarcity (x) is a subset of out-migration (y)

- When household is land scarce, out-migration occurs
- Land scarcity is a sufficient condition for out-migration

Migration in non-drought situations

Sufficient conditions

Solution term	**MigratExper * (~BelgFully + Offfarm) → Out-migration**	
Solution coverage	85 % (17 out of 20)	
Causal pathway		
Raw coverage		
Cases covered		

* = AND
+ = OR
~ = absence of
→ = sufficient for

Migrating households (positive cases) **:** n = 20
Non-migrating households (negative cases) : n = 22

Migration in non-drought situations

Sufficient conditions

Solution term	**MigratExper * (~BelgFully + Offfarm) → Out-migration**	
Solution coverage	85 % (17 out of 20)	
Causal pathway	MigratExper * ~BelgFully	
Raw coverage	75 %	
Cases covered	15 out of 20	

* = AND
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Migrating households (positive cases) **:** n = 20
Non-migrating households (negative cases) : n = 22

Migration in non-drought situations

Sufficient conditions

Solution term	**MigratExper * (~BelgFully + Offfarm) → Out-migration**	
Solution coverage	85 % (17 out of 20)	
Causal pathway	MigratExper * ~BelgFully	MigratExper * Offfarm
Raw coverage	75 %	70 %
Cases covered	15 out of 20	14 out of 20

* = AND
+ = OR
~ = absence of
→ = sufficient for

Migrating households (positive cases) **:** n = 20
Non-migrating households (negative cases) : n = 22

Migration in non-drought situations

… households with migration experience *and* which are not only depend on belg seasons choose to migrate

… households with migration experience *and* activities outside agriculture choose to migrate

… social networks and diversification options for livelihoods are crucial for the ability of people to migrate

Local drought impacts

Drought impacts	Abasokotu (n=156) *Percent*	Guguftu (n=157) *Percent*
Food shortages	73	89
Decrease of wealth	26	46
Health issues	3	8
Impairment of education	5	13
Reduced spending capacity	10	18
Increasing market prices	1	11
Other impact	2	15
No impact	8	1

Drought response strategies

Strategy	Abasokotu (n=156) *Percent*	Guguftu (n=157) *Percent*
Non-farm work (total)	39	29
Daily labour	61	72
Trade	16	24
Wage employment	15	2
Injera baking	8	2
Food aid	65	99
Livestock sales	46	77
Other assets sales	30	4
Migration	1	20

Migration in drought situations

- The relevance of migration as an immediate response to drought varied between places
- Belg dependency determines migration decisions
- Drought triggered short-term migration to close destinations to cover immediate needs (coping)
- Drought-related mobility hardly, if at all, enables farmers to create savings. Instead, it is rather meant to cover the main food gaps (coping)

Conclusions I

- Migration as rule, not as exception
- Migration as important livelihood strategy (adaptation) in all agro-ecological zones
- Agro-ecological conditions cause unequal socio-economic impacts of rainfall variability and drought, and as such shape the decision to migrate or to stay

Conclusions II

- In drought situations, migration as important strategy to cope with risks (belg season dependency)
- Under normal conditions, more diversification options through usage of additional rainy season or available activities outside agriculture enable migration
- Social factors are key to migration decisions
- Importance of the local context in migration processes