

# Farmers' investments in land management in the Central Rift Valley of Ethiopia

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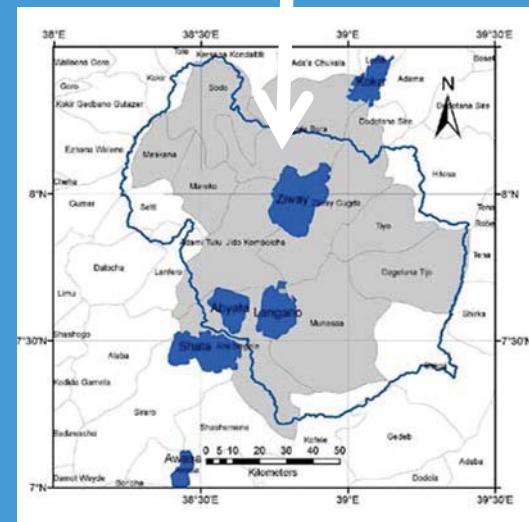
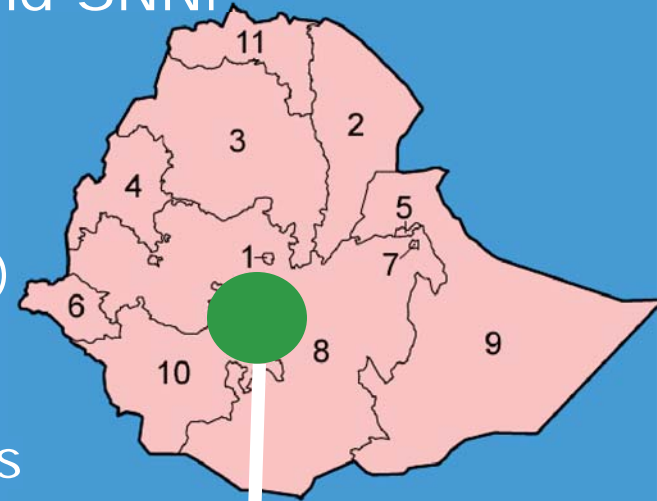
# Outline

- Background
- Problem definition and objectives
- Methodology I, Results- I
- Methodology II, Results- II
- Conclusions



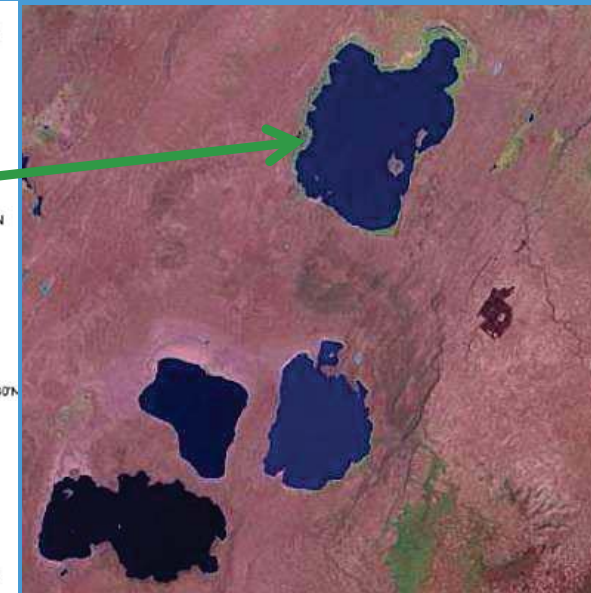
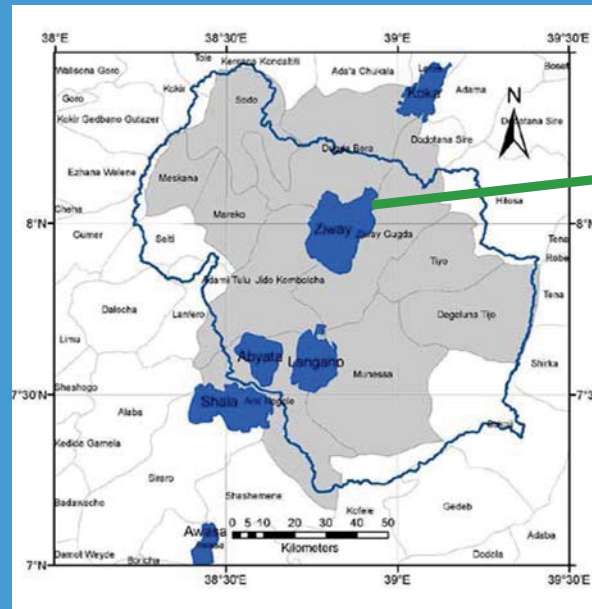
# Background: Central Rift Valley (CRV)

- CRV=1.3 Million ha, population≈1.5 Million
- Two Administrative regions: Oromia and SNNP
- Agriculture predominantly rain-fed
  - ❖ Land degradation  
(water erosion & soil fertility depletion)
  - ❖ unreliable rainfall
  - ❖ Limited use of improved technologies
- Land productivity is very low



# Background...

- Irrigation agriculture is constrained by water shortage due to:
  - Floriculture and horticulture farms
  - Recreations areas
  - Parks
  - Climate change
- Therefore, improving rain-fed agriculture is crucial



# Problem definition and objectives

- Investments in land management are required to overcome low productivity and frequent crop failure
- Land management investments are effort made by farmers in order to control water erosion and soil fertility depletion
  1. water erosion control → soil/stone bunds
  2. soil fertility control → organic and inorganic fertilizers
- However, farmers' investments in land management are quite limited in the CRV of Ethiopia

Why?



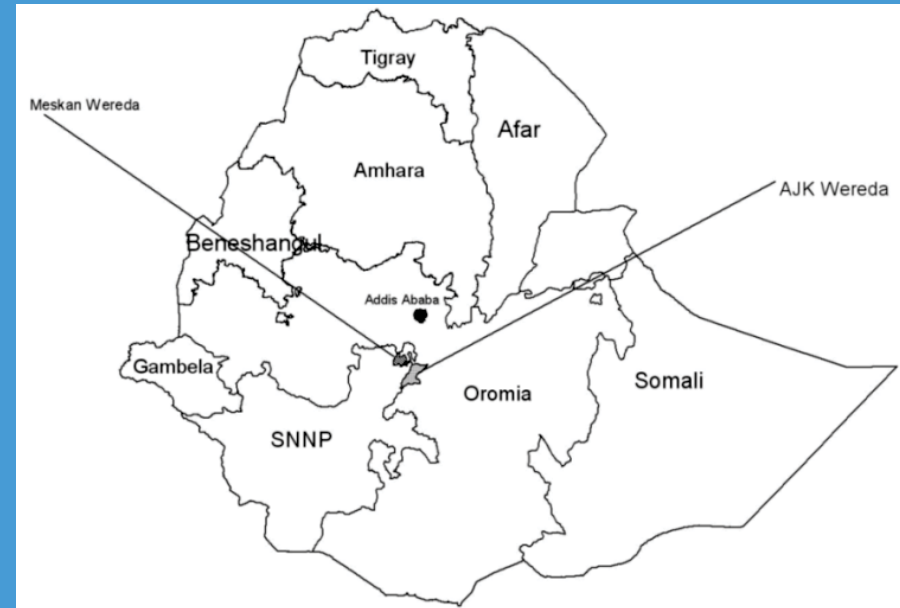
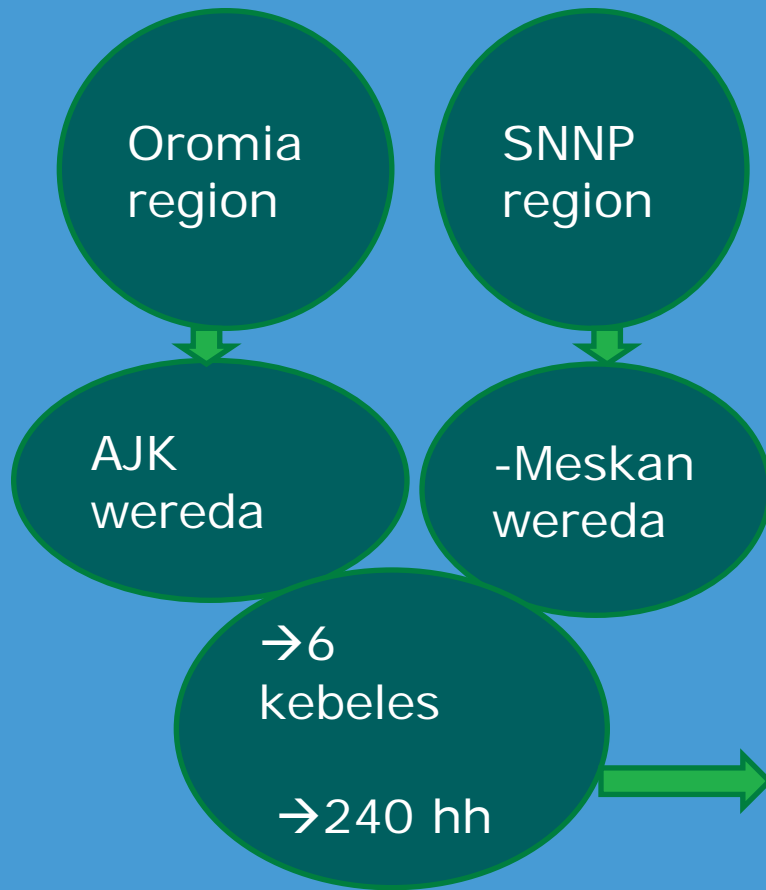
# Problem definition and objectives

Therefore, three objectives:

- explore farmers' perceptions of land degradation (water erosion and fertility depletion)
- Test the association between farmers' investments in land management and their perception of land degradation, and
- identify factors that determine farmers' decisions concerning *how much* to invest in land management practices.



# Methodology I



- KI interview
- Focus group discussion
- Observation
- Household survey

# Methodology I...

## Perceptions

Do farmers perceive water erosion as a problem? (yes/no)

Do farmers perceive soil fertility depletion as a problem? (yes/no)

Investments

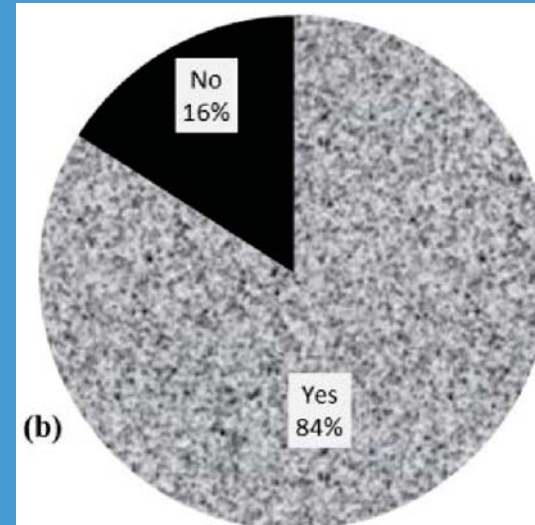
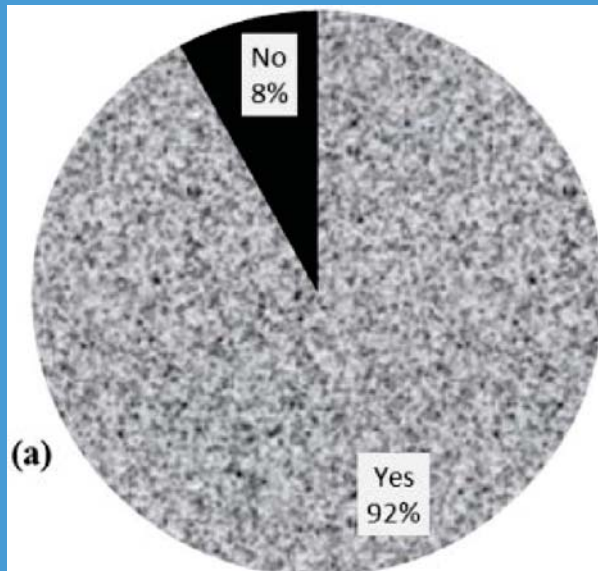
Investments in water erosion control (yes/no)

Investments in fertility depletion control (yes/no)

Ch-square test of association



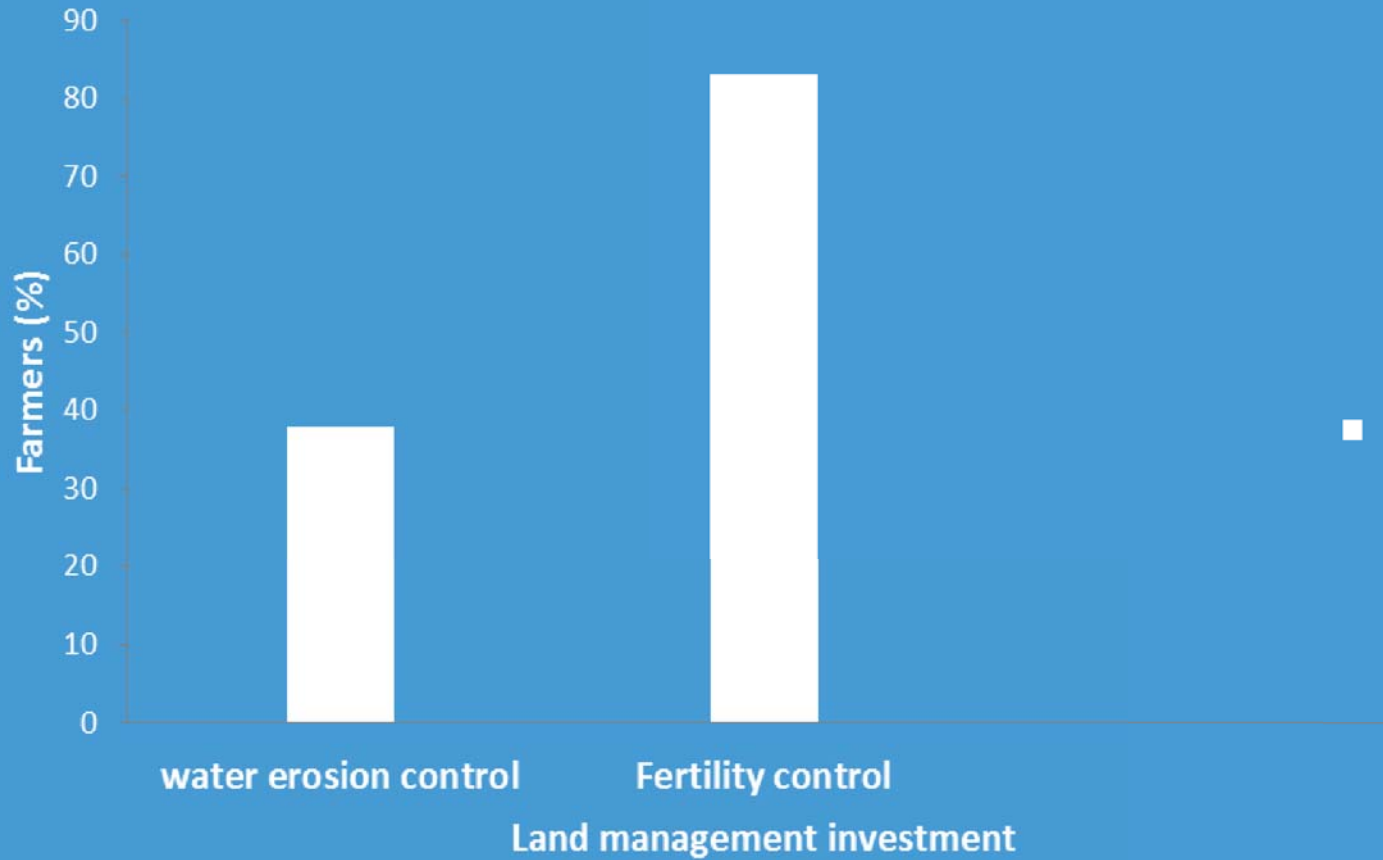
# Results I: farmers' perception



(a) Do farmers perceive water erosion as a problem?

(b) Do farmers perceive soil fertility depletion as a problem?

# Results I: farmers' investments



# Results I: farmers' perception Vs investments

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## Do farmers' perceptions matter?

Chi-square analysis of these data showed **no association** between perception and investments in land management practices; even not for soil fertility control measures,

## What other factors affect farmers' investments?



# Methodology II

HH survey

All investments were standardized into ETB at plot level (n=738)

Aggregate into household level (n=240)

Categorize household characteristics (1-3)

Categorize household level investments (1-3)

Factor Analysis

Pearson correlation



# Results II: Factors affecting farmers' investments



# Rotated component matrix for the household characteristics (n=240)

| Household characteristics  | Household level factors |                          |                       |                |                               |
|----------------------------|-------------------------|--------------------------|-----------------------|----------------|-------------------------------|
|                            | Resources endowment     | Experience and knowledge | Access to information | Social capital | Availability of family labour |
| Land per EAFM              | 0.788                   |                          |                       |                |                               |
| Land fragmentation         | 0.747                   |                          |                       |                |                               |
| Land size                  | 0.74                    |                          |                       |                |                               |
| Land per capita            | 0.738                   |                          |                       |                |                               |
| Livestock size (TLU)       | 0.737                   |                          |                       |                |                               |
| TLU per capita             | 0.695                   |                          |                       |                |                               |
| Number of oxen             | 0.605                   |                          |                       |                |                               |
| Age                        |                         | 0.859                    |                       |                |                               |
| Farming experiences        |                         | 0.842                    |                       |                |                               |
| Education                  |                         | -0.725                   |                       |                |                               |
| Distance to DA's office    |                         |                          | 0.932                 |                |                               |
| Distance to Wereda town    |                         |                          | 0.514                 |                |                               |
| Relatives within Kebele    |                         |                          |                       | 0.724          |                               |
| Relatives outside Kebele   |                         |                          |                       | 0.562          |                               |
| Friends within Kebele      |                         |                          |                       | 0.546          |                               |
| Migration                  |                         |                          |                       | 0.496          |                               |
| Friends outside Kebele     |                         |                          |                       | 0.429          |                               |
| Family members             |                         |                          |                       |                | 0.792                         |
| Economically active family |                         |                          |                       |                | 0.588                         |

# Results II: Factors affecting farmers'...

Pearson correlation coefficients of household level factors with investments in land management

| Factors                  | Coefficients |
|--------------------------|--------------|
| Resources endowment      | 0.216**      |
| Access to information    | 0.154*       |
| Social capital           | 0.156*       |
| Family labor             | 0.239**      |
| Experience and knowledge | 0.026        |

- \* Correlation is significant at 0.05 level (two-tailed),
- \*\* Correlation is significant at 0.01 level (two-tailed)



# Conclusion

Significant proportion of farmers perceive that land degradation in the form of water erosion and soil fertility decline is a problem on their plots

Nevertheless, farmers' awareness of both water erosion and soil fertility decline as a problem **is not significantly associated** with their investments in land management

Farmers investments are influenced by the households' resource endowments, access to information, social capital and availability of family labor



# conclusions...

Of these factors, ***households' resources endowment*** is a major factor that determines investments in land management.

Therefore, land management strategies should be integrated within a comprehensive rural development strategy that **improves farmers' livelihoods and their *financial capacity***

The use of **community mobilization** for land management activities requiring much labour is crucial

More effort is need to involve **Development Agent** in promoting land management technologies



# Thank you!

