

Assessing the **Economic**, **Environmental** and **Social** Impacts of Irrigation Schemes, Case study from Rift Valley Basin, Ethiopia (AEESIIS)

Leading institute:

–Arba Minch University, AMIT, WRIED & RDAE

Partner Institutes:

–Hawassa University

–Southern Nations Nationalities and Peoples Regional State,
Irrigation Development and Scheme Administration Agency

–The Regional Government of Oromiya, Bureau of Water and
Energy, Irrigation Water Supply and Land drainage process team

Background information

- Irrigation and rainfed agriculture production is necessary to Ethiopian economy and achieving food security at household level;
- The irrigation area developed up to now forms 6 to 17% of the potential irrigable area at the country level;
- Objective to improve agricultural production, through improved irrigation water use efficiency and agricultural production efficiency (technically & financially sustainable);
- **BUT** existing schemes show low productivity and performance because of their technical problem, poor management and inadequate maintenance;

General objective of the research

- To understand the existing economic, environmental and social impacts of smallholder irrigation schemes at basin level through carefully selected case study schemes.

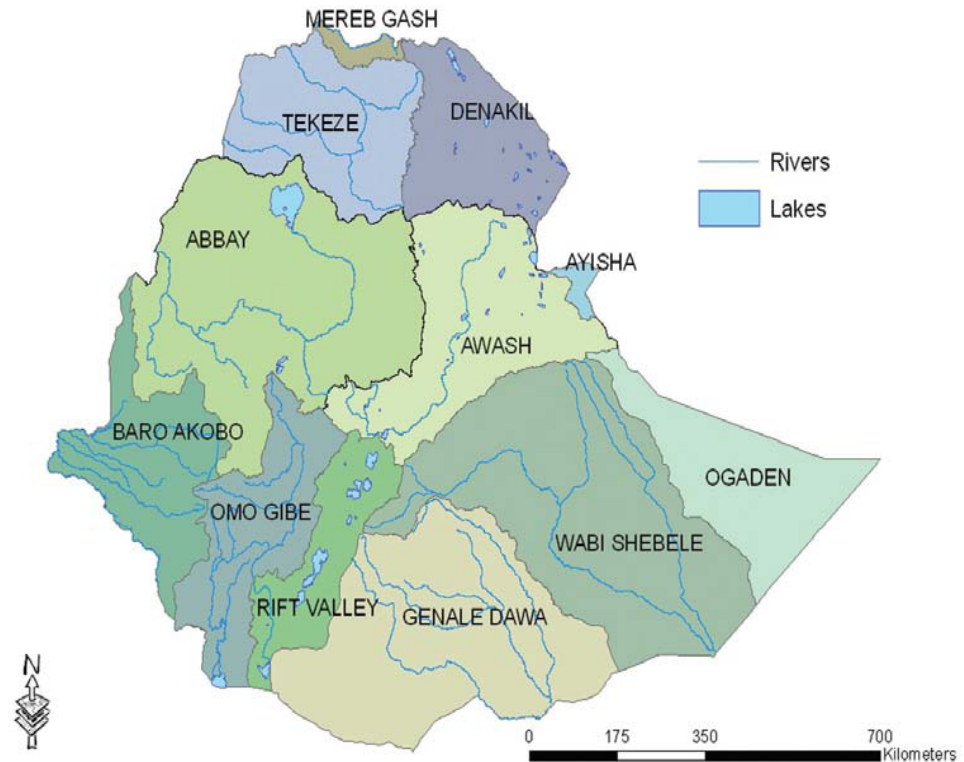
The research follows theme two of IRBM,
[River basin planning](#)

Specific objective of the research

- Assess and quantify the impacts of economic, environmental and social aspects with benchmarking indicators;
- Characterizing the schemes in their level of economic, social and environmental aspects;
- Identify the relationship of these key factors to categorize them to form typology for further analysis;
- Identify means on how to measure these indicators that are workable and easily measurable for future up scaling in a national irrigation system;
- Prepare and develop guidelines for the economic, environmental and social management of smallholder irrigation schemes.

Where is the location of the research?

- research will be carried out in the Rift Valley Lakes Basin (RVLB)
- WHY? high priority that comes from the significant ecological and environmental interest from different sectors
- enormous demand for economic and social development



What Methodology?

Economic, Environmental, Social Impact Assessment
(Maximum of 4 representative irrigation schemes from Rift Valley
Basin of Oromiya & SNNPRS)

Ecosystem approach

Farming system approach

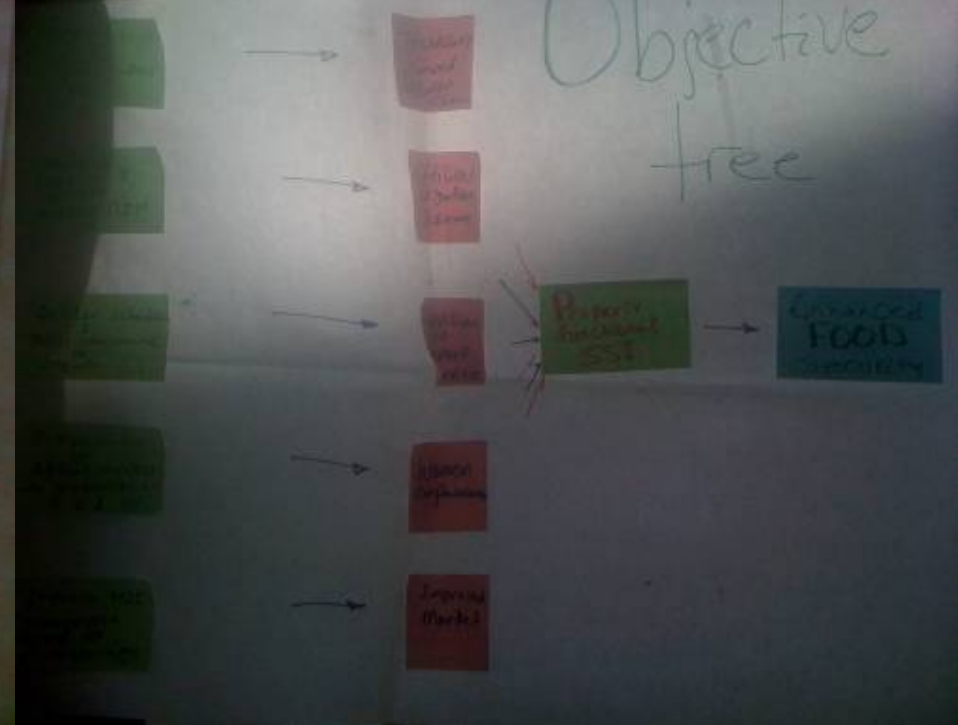
Participatory approach

Consultation with farmers, focus groups,
government scheme implementers

Environment and socio
economic impact, conflicts
with US/DS users

Farm and scheme level impacts on
productivity, environment,
economic and societal aspects

- Assess and quantify the impacts of economic, environmental and social aspects related to smallholder irrigation schemes
- Prepare and develop guidelines for the economic, environmental and social impacts of smallholder irrigation scheme



The research team has developed objective tree, problem tree, out put matrix... during the DDAR training and stick to these rules during the implementation phase of the research



- Oromiya Region:
- Gedemso 01, Gravity
 - Argeda, Gravity
- SNNPRS:
- Bedene Alemtena, Gravity
 - Ebala, Gravity
 - Wendo Genet, Gravity

Methodology **continued...**

- **Data collection and analysis**

- Primary and/or secondary data collection from farmers, local and regional experts with questionnaires, FGD, learning by doing;
- Access and excel will be used for data base;
- SPSS (XLSTAT) for statistical analysis;
- CROPWAT and WEAP (Water Evaluation and Planning system) models;
- GIS for mapping;
- Any other ...still it is open until the first stakeholder meetings

Procedural steps to be followed

- Analyse of literature at farm, scheme and basin level of smallholder irrigation schemes;
- Developing conceptual framework for economic, social and environmental aspects of smallholder irrigation schemes (1st stakeholder meeting);
- Learn from the field visits and data sets different scenarios at farm, scheme and basin level;
- Adopt the developed indicators to summarize the findings of the research;
- Out scale the research to other similar basins (2nd stakeholder meeting);
- Synthesizes and disseminate the findings through workshops, developing guidelines and different knowledge transferring methods.

Expected outcome of the research

- *To the governments and donors* it creates the policy dialogue forums to inform the economic, social and environmental impacts of smallholder irrigation schemes;
- *To implementers* it gives methods to evaluate the economic, social and environmental impacts of smallholder irrigation schemes;
- *To water use groups* it gives understanding for the institutional aspects at the scheme level;
- *To smallholder farmers* it gives strategies for selecting and applying appropriate techniques for different scenarios at farm level.

- **Progress of the work**

- The grant agreement is refined with UNESCO-IHE,
- Communications has been started with stakeholders and DDAR training refined most of the objectives,
- documents on related works are collected,
- M.Sc. research proposals are prepared in line with objective of our work (2 students are working),
- Case study sites are selected.

- **Problems encountered**

- Financial procedures;
- Managing money in the government account without flat rate or 6 to 10 % charges (especially when it is shared with in four institutions);
- Delay of works
 - conflicts with irrigation season,
 - peak institutional works,
 - inflation rate-high cost for vehicle renting from the institutions.

Project period

Activities	Nov 2010	Dec 2011	Jan 2011	Feb 2011	Mar 2011	Apr 2011	May 2011	Jun 2011	Jul 2011	Aug 2011	Sep 2011	Oct 2011	Nov 2011	Dec 2011
Logistic preparation and 1 st stakeholders meeting	✓													
Data collection		✓	✓	✓										
Data compilation and processing				✓	✓	✓								
Data analysis and conclusion						✓	✓	✓						
Result and recommendation									✓	✓	✓	✓		
Communication with stakeholders and 2 nd stakeholders meeting						✓	✓					✓		✓
Workshop /seminars together with stakeholder meeting						✓						✓		✓

Research Team

- **Dr. Mekonen Ayana** is senior lecturer at Arba Minch University in the department of Water Resources and Irrigation Engineering since 2002;
- **Mr. Ermias Alemu (PhD candidate)** is currently a PhD student since February 2007 in Water Management Department of AgroParisTech-University Montpellier II, Montpellier, France.
- **Mr. Adugna Enyew** has M.Sc. in Rural Development and agricultural extension from Haramaya University and staff of RDAE department;
- **Mr. Mihret Dananto,** Hawassa University. He has a B.Sc. from Debu University, Awassa in Agricultural Engineering and Mechanization. He has a M.Sc. in Water Resources Engineering from Vrije Universiteit Brussels;
- **Mr. Gezahegn Wajebo** is currently a process owner of core process in Irrigation Development and Schemes Administration Agency of Southern Nation Nationalities People Regional state;
- **Mr. Yoannes Geleta** has a Diploma in Irrigation Engineering, BA in Management and MA in Environment and Development. He is working as a senior water management expert in OWRB;
- **Mrs. Shitaye Lemma** has MSc degree in Agriculture, specialized in Soil Science from Tashkent State University. She has worked more than 16 years in irrigated soil management and gender issues. She will address the gender and other cross cutting issues in our research group.

Thank you !!!

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