Africa RISING in the Ethiopian Highlands

Soil and water management at farm and landscape scale
Lulseged Tamene, Kindu Mekonnen, Petra Schmitter, Zenebe Adimassu, Aster Gebrekirstos, Amare Haileslassie

Key Research Activities & Outputs

- **Stakeholder’s capacity building**: training and cross-learning events (60 farmers; 3 MSc and 2 PhD);
- **Technology identification and piloting**: physical and biological SWC measures, agroforestry and fruit crops, tractor assisted water delivery (2 sites), water lifting technologies (6 solar pumps, 26 rope and washers);
- **Technical support**: on-site training, technology alignment to landscape position, gully treatment, feed/fodder management;
- **Research and documentations**: erosion plots, hydrological stations, diagnostic study of irrigation schemes, socio-economic surveys, irrigation water optimization tool (Wetting Front Detector); landscape management tool (LAMPT)\(^{1}\);
- More than four reports and three drafts prepared for publication and several blog stories.

Current partnerships and future engagements for out scaling

- **Capitalize on existing partnership**: such as BoA, MoA, EIAR, ATA, Universities to enhance technology uptake and implementation;
- **New partnership**: Expand our partnership with others such as GIZ, SLM, AGP for convergence;
- **Continue engaging community**: participation of community is vital for landscape scale intervention. We will continue engaging then in a participatory manner;
- **Strategic partnership**: Identify strategic stakeholders such that our interests converge and technologies developed by the project can be picked up for upscaling.

Examples of Findings

- Soil erosion is a serious problem in the intervention sites. Implementation of integrated soil & water conservation practices at landscape scale reduced soil loss by over 400%. At plot level, management practices implemented at cultivated fields reduced soil loss by 87% compared to non-treated plots;
- Miss-management of irrigation water and poor access to inputs undermined introduction of high value crops. Improved water lifting technologies enhanced farmers ability to irrigate high value crops and improve household nutrition. Irrigated fodder biomass increased by 14% dry weight when farmers were guided in their irrigation practice by the wetting front detectors.

How would this continue in AR-Phase II

- Continue implementing action research base on identified gaps (technology, research, engagement etc.), the project will;
- Build on existing and expand new partnership to co-implement and facilitate out-scaling;
- Continue & expand capacity development and knowledge sharing;
- Focus on interventions that have positive rewards to smallholder farmers (e.g., feed friendly SLM practices, irrigating cash crops, value chain for market integration);
- Promote innovative water harvesting practices and link to simple and environmental friendly water lifting technologies;
- Facilitate sustainable implementation of ‘integrated systems approach’ at farm and landscape levels;
- Develop decision support tool to facilitate targeting and out-scaling.

Implications of the research outputs for generating development outcomes

- Perception, skills and practices of farmers, practitioners and policy makers, in the intervention area, have changed and this has facilitated technology adoption (e.g. training on water harvesting);
- Evidences generated (technologies, research, tools) helped influence farmers’ practices and policy decision as well as planning;
- Technologies identified, tested and ready for out-scaling (e.g. integrated soil and water conservation practices; water lifting technologies)

---

\(^{1}\) Simulation of soil loss rate with a) ‘business as usual’ practice and different management options such as (b) areas of slope>25\(^{\circ}\) conserved, (c) areas treated, (d) hotspot areas of more than > 10 t ha\(^{-1}\) conserved, and (e) all options combined.