Africa RISING in the Ethiopian highlands: Experiences on Sustainable Agricultural Intensification (SAI)

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Africa Research in Sustainable Intensification for the next Generation (Africa RISING) program

- USAID funded project
- Operational in three African regions
- Principal focus: Sustainable intensification (SI) of mixed farming systems to contribute to climate smart development, gender integration, improved nutrition, inclusive agricultural sector growth, private sector growth and research and capacity building (FtF focus areas)
- Duration: 2012- Sept 2016 and Oct 2016-2017
Africa RISING in the Ethiopian highlands—First phase

- Implemented in eight research kebeles across the four main highland regions (Amhara, Oromia, SNNPR, Tigray)

- Partners: 9 CGIAR centers, 4 local universities, 4 regional and 2 federal research institutions, 4 woreda agriculture offices, NGOs, innovation laboratories (SIIL, ILSSI, PHIL, LSIL) … and farmers.
Systems understanding/diagnosis: Tools and methods

- Rapid Telephone Survey (RTS)
- Livelihood survey using SLATE
- Participatory Community Analysis (PCA)
- IMPACTlite survey: hhs detailed characterization
- Survey on Agro-ecological knowledge, community knowledge groups – AKT5 tool
- FEAST and TECHfit
- Market/ Value chain studies
Major constraints and challenges identified in Africa sites

- Climate variability;
- Low crop yields (< 1 t ha\(^{-1}\));
- Soil fertility depletion, erosion and poor drainage;
- High price and poor access to fertilizer;
- Crop pests, weeds and diseases;
- Post harvest losses (30-40%);
- Lack of improved farm implements;
- Acute shortage of animal feed;
- Poor access to veterinary drugs and animal health services;
- Seasonal water shortages;
- Poor household nutrition;
- Shortage of wood for fuel;
- Weak links to markets.
Thematic areas formulated: seven broad areas

1. Feed and forage development.
2. Field crop varietal selection and management.
3. Integration of high value products into mixed farming systems.
4. Improved land and water management for sustainability.
5. Improving the efficiency of mixed farming systems through more effective crop-livestock integration.
7. Knowledge management, exchange and capacity development.

Addressed through 17 action research protocols implemented in collaboration with volunteer farmers.
Irrigated/rain-fed fodder

Crop residue management and utilization

Faba bean/forage intercropping

Fodder and fertilizer trees/shrubs
Africa RISING action research interventions: Crops and related

PVS on major crops

Community based seed multiplication

Management of enset bacterial wilt

Crop production and storage
Africa RISING action research interventions: Fertilizer recommendation fine tuning

- Crop responses to various combinations of fertilizer blends (N, P, K, S, Zn, Bn) in wheat-based cropping systems quantified;
- Soil-specific best fertilizer blends and rates for wheat have been identified for the research kebeles;
Africa RISING action research interventions: Water

Water harvesting, lifting and saving - ponds, rope and washer, pulley system and solar pumps
Africa RISING action research interventions: Mechanization

- Two wheel drive tractor for pumping water, transportation of produces from farms, cultivation and planting crops
Africa RISING action research interventions: High value fruit trees

- HVT varieties of avocado and apple performed very well and fruits profusely in less than two years with variation across varieties and sites.
Africa RISING action research interventions: Watershed management

- Implementation of integrated SWC practices at a micro watershed scale have reduced soil loss by over 80% in the AR watersheds;
- At plot level, management practices implemented in cultivated fields reduced soil loss by 87% compared to non-treated plots;
Farmers engaged in AR action research: 2014-2015

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<td><strong>Total number of farmers in 2014</strong></td>
<td>160</td>
<td>154</td>
<td>202</td>
<td>193</td>
<td>709</td>
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<tr>
<td><strong>Total number of farmers in 2015</strong></td>
<td>366</td>
<td>189</td>
<td>214</td>
<td>230</td>
<td>999</td>
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<tr>
<td><strong>Women headed households in 2014 (%)</strong></td>
<td>20</td>
<td>23</td>
<td>17</td>
<td>16</td>
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<tr>
<td><strong>Women headed households in 2015 (%)</strong></td>
<td>19</td>
<td>18</td>
<td>23</td>
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R4D innovation platforms - 4 sites and 8 research kebeles

Zonal, regional and federal?

FG = Farmer Group
Research attachment – 30 MSc and PhD students generating evidences and information on various topics, and trainings, visits and others: > 10,000 participants
Communication and learning

- The AR team published 403 products (146 blog posts, 89 reports, 62 presentations, and numerous posters, reports, briefs and brochures highlighting the project R4D activities.
- The AR team produced 16 manuscripts during a write-shop and submitted to peer reviewed journals. Eight are already published in peer reviewed international journals.
- AR in Ethiopian highlands won an award, sponsored by the USAID Learning Laboratory in 2015, for its success in collaborating, learning and adapting around its innovations.
- AR work in Ethiopia has generated significant media coverage at international, national and regional levels ([http://www.businessinsider.com/ethiopia-is-experiencing-one-of-the-worst-droughts-in-50-years-2016-5](http://www.businessinsider.com/ethiopia-is-experiencing-one-of-the-worst-droughts-in-50-years-2016-5))
Africa RISING in the Ethiopian highlands – Second phase

- Phase I: an action research project;
- Outcome evidence is robust but generated at limited scale with a high level of investment per beneficiary;
- Phase II: research will continue but move towards backstopping a portfolio of development partnerships;
- Who are the development partners?
  - MoA, AGP, ATA, other ministries;
  - NGOs (GRAD-REST, Inter Aide France, CRS);
  - Private sector (Maltsters, Kalyti Pasta and Macaroni);
  - Other bilateral donors (GIZ, ADA, IDC);
  - Other USAID investments (ICARDA Malt Barley and Bean Project, BPBL, ?);
- Preliminary targets: 0.7 million direct beneficiary hhs with the potential to scale to a further 3.4 million hhs.
## Africa RISING in the Ethiopian highlands: moving from phase I to phase II.

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<tr>
<th>Operational issue</th>
<th>Phase I</th>
<th>Phase II</th>
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<tr>
<td>Scale of area covered</td>
<td>Limited to few woredas and kebeles.</td>
<td>Extending to more woredas, and kebeles with coordination at zonal/ regional level.</td>
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<tr>
<td>Research approach</td>
<td>Generic research on technology identification, testing and validation.</td>
<td>Primarily research to backstop scaling initiatives with development partners (DPs).</td>
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<td>Partnership</td>
<td>Primarily with disciplinary experts and farmers.</td>
<td>Moving towards stronger DPs.</td>
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<td>Scaling</td>
<td>Ad hoc dissemination and scaling arising from technology generation and demonstration activities.</td>
<td>Systematic horizontal and vertical scaling of phase I innovations with DPs.</td>
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<td>Targets</td>
<td>Direct beneficiaries engaged in technology development and numbering thousands (high cost per beneficiary).</td>
<td>Direct beneficiaries engaged via DPs and numbering hundreds of thousands (&lt; $50 per household).</td>
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<td>Innovation platforms</td>
<td>Implemented at kebele and woreda level.</td>
<td>Participating in or seeding IPs at regional and national levels.</td>
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<td>Capacity development</td>
<td>Focused more on student attachments to support the action research interventions</td>
<td>Students will be attached to support the research in development innovations</td>
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<td>Site coordination teams</td>
<td>Based in woredas with specific responsibilities for the research conducted in that woreda.</td>
<td>Broader role to support the backstopping research and manage development partnerships at zonal level and beyond.</td>
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<td>Monitoring and evaluation</td>
<td><em>Ad hoc</em> monitoring via field visits and innovation platform meetings. Largely case study based and opportunistic.</td>
<td>Greater quantitative emphasis. Formal beneficiary tracking system to capture formal/ informal technology dissemination. Implement SI indicator framework.</td>
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Conclusion

- Stepwise approach to SI appears to be the reality for many farmers in Africa RISING sites.
- Tailoring technologies to the local farm and landscape situation is important to see SI happening.
- Partnership is key to move forward and bring the desired impact from SI.
Partnership - CGIAR centers and local partners
Africa RISING program communication tools

- Website: http://africa-rising.net/
- Wiki space: http://africa-rising.wikispaces.com/events
- Flickr: https://www.flickr.com/photos/africa-rising/sets
- Presentation: http://www.slideshare.net/africa-rising
- Documents and outputs: http://cgspace.cgiar.org/handle/10568/16498
Africa Research in Sustainable Intensification for the Next Generation

africa-rising.net