Agricultural extension service in Ethiopia: Achievements and challenges and case study on Customized extension

DECEMBER, 2020
Presentation outline

▪ Brief account of the historical evolution of Extension Advisory Service in Ethiopia

▪ Lesson learnt from the past extension services

▪ Current extension service
  o Principles
  o Policy framework and organization
  o Performance

▪ Case study on customised extension (REALISE program pilot)

▪ The way forward
Agricultural Extension Service in Ethiopia

Extension service started in Ethiopia since 1953 and has passed through a number of stages

- Land grant extension system associated with the then Alemaya College of Agriculture and Mechanical Arts (1954-1963)

- MoA was established in 1963 and the mandate of extension service provision transferred to this institution
  - Comprehensive Package Programs (area based programs e.g. CADU and WADU)
  - Minimum Package Projects (cascading comprehensive package programme to reach more woredas and number of smallholder farmers): MPP1 (1971-1975); MPP2 (lasted up to 1985)
  - Peasant Agricultural Development Program (1986-1995) using modified T&V extension approach
  - SG-2000- use of demonstration plots along with enhanced application of agricultural inputs and trainings

- Participatory Demonstration and Training Extension Systems (PADETES), Current Regime (since 1995-2010)
Lessons learned from the past extension services

- Absence of participation of the very people for whom the extension service have been designed.
- Lack of complementary institutional support services such as input supply and credit services.
- The extension advisory service was biased against the livestock subsector.
- The service was accessible to farmers located only a few kilometres from both sides of all weather roads.
- Emphasis was given to few producers, cooperatives and state farms
- The promotion of standard message and advisory service (marginalization of the poor, women and youth)
Agricultural Extension under the Current Government

- After coming to power in 1991, the Ethiopian People's Revolutionary Democratic Front (EPRDF) adopted Agricultural Development Led Industrialization Strategy (ADLI) in 1994.

- Within the framework of ADLI, a new extension approach, Participatory Demonstration and Training Extension System (PADETES) has been adopted in 1995.

- PADETES aimed at (Berhanu, 2006; Belay, 2017);
  - increasing productivity and production of smallholders
  - empowering farmers to be active participants in the development process
  - increasing food self-sufficiency, increasing the supply of raw materials for domestic use and export
  - enhancing the rehabilitation and conservation of natural resource base, and encouraging farmer organizations.
The principle of PADETES

- PADETES is agro-ecology based and followed a package approach
- The program initially started with technology packages for wheat, maize, sorghum and teff in high rainfall areas.
- Later, it expanded its area coverage and number of technology packages (livestock, high value crops, post harvest technology, and agro-forestry).
- Components of the Extension package
  - crop production packages (cereals, pulses, fruits and vegetables) including crop protection and irrigation
  - livestock production technologies (feeds, modern beehives, dairy, fattening, animal health, fishery, poultry, apiculture)
  - natural resources management (agro-forestry, soil conservation and water harvesting)
Policy Framework and Organization of the Extension Service

- ADLI is a National Policy Framework to maintain national food security and improving rural livelihood
- At Federal level, the Ministry of Agriculture (MoA) is responsible for
  - formulating national extension intervention related policies,
  - coordinating interregional extension, and
  - providing technical advice and training services
  - Providing financial support
- At the Regional State level, Bureau of Agriculture (BoA) is responsible for implementation of the PADETES through its zonal, district and local level offices
- Woreda (district) level Office of Agriculture (WOA)-strong extension team unit established
- Kebele is the smallest administration unit in Ethiopia- specialised Development agents (crop, livestock and natural resources)
Policy Framework and Organization of the Extension Service

- PADETES is based on demonstrating technologies and training farmers on agricultural technologies.

- For this reason, one farmers training center (FTC) is established in each kebele.

- FTCs serve as:
  - centers of extension service and information (knowledge hub)
  - places where modular training to farmers are given
  - demonstration of entrepreneurship

- To realize this, three Development Agents (DAs), one each in the areas of crop production, livestock production and natural resource management are placed at each FTC.

- To deliver knowledge, PADETES makes use of farm visit, farm and home visit, use of model farmers, demonstration of farm technology and demonstration plots and mass media approaches.
Effectiveness of PADETES

- Reached many farmers equitably (35-40% of the farmers in Ethiopia)
- About 12,500 FTCs established throughout Ethiopia, and about 83,000 DAs have been trained in total, with a reported 56,000 staffed on location (MoA, 2017).
- Increased production of grains
- Increased numbers of participating households in extension packages
- Many farmers became millionaires under this system (Model farmers).
- Increased use of fertilizer and improved seed
- Transformation from production oriented extension to market oriented extension
- Studies (example Dercon et al. 2008) shows poverty level of the participant households decreased and rural poverty reduced (WB, 2018).
The customised extension experience of REALISE programme

BENEFIT is a portfolio of 5 agriculture programmes financed by the Netherlands Embassy in Addis Ababa

Including:

- CASCAPE: best practices for 65 AGP woredas in 4 regions
- ISSD: Integrated Seed Sector Development Project in 107 woredas in 4 regions
- SBN: Sesame Business Network in 14 woredas in 2 regions
- ENTAG: Business linkages for Ethiopian and Netherlands agri companies
- REALISE: Taking CASCAPE and ISSD best practices to 61 PSNP woredas and targeting 100,000 PSNP clients,
REALISE Programme Outcomes

- Developed best practices implemented by farmers for food and nutrition security
- Increased availability, timely delivery and use of quality seed
- Enhanced Capacity
- Innovated Systems
The nature of REALISE program

- REALISE isn’t targeting neutral program (the program must target at least 80% of PSNP beneficiary households in its target woredas)

- The PSNP households experienced (REALISE baseline study, 2018):
  - On average 3 to 9 months of food gap. The PSNP households DDS is low (consume less than 5 food groups)
  - The average grain productivity is a third of Non-PSNP farmers
  - Characterised by poor resource endowment (landholding, livestock ownership, capital)
  - The participation of PSNP households in extension package program and their access to advisory services are very low

- The PSNP programme livelihood component performance is inadequate (PSNP mid term evaluation) – expectation to perform is high
# Customized and conventional agricultural extension services (REALISE review)

<table>
<thead>
<tr>
<th>Features</th>
<th>Customized extension service</th>
<th>Conventional extension service</th>
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</thead>
<tbody>
<tr>
<td>Orientation</td>
<td>Tailored made extension service and technology supply</td>
<td>Commodity or package orientation</td>
</tr>
<tr>
<td>Customization</td>
<td>Services vary from person to person; they can be customized.</td>
<td>Products or technologies supplied in standard package.</td>
</tr>
<tr>
<td>Targeting of customers/clients</td>
<td>Segmentation (identify bases, PSNP/NPSNP, wealth, production orientation)</td>
<td>Assume farmers are more or less homogenous</td>
</tr>
<tr>
<td></td>
<td>Targeting (refine selection criteria, select target)</td>
<td>Develop homogenous product/package</td>
</tr>
<tr>
<td></td>
<td>Positioning (positioning each segment, develop mix: 4P)</td>
<td>Take it or leave it – “one size fits all” approaches</td>
</tr>
<tr>
<td>Promotion</td>
<td>Validation, demonstration, pre-scaling</td>
<td>Demonstration, scaling</td>
</tr>
<tr>
<td>Focus</td>
<td>Clients</td>
<td>Technology/packages value</td>
</tr>
<tr>
<td>Impact</td>
<td>High productivity, profit, client satisfaction</td>
<td>Inequality, poor adoption</td>
</tr>
<tr>
<td>Precondition</td>
<td>Well define client profile (client assessment, matching,)</td>
<td>Undifferentiated due to homogenous client assumption</td>
</tr>
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</table>
“One fits for all advisory service is no more feasible for heterogenous community”. Inclusive and tailored made extension is the call of the day

BENEFIT-REALISE PROGRAM PREMISE
Rationnally of customization of extension services

- First, this approach can distribute resources and public services in a more equitable and efficient manner than untargeted or unsegmented interventions.
  - Though the targeting process itself requires resources, untargeted interventions may allocate a disproportionate share of benefits to those who are relatively better off. The model farmers approach is a classical example in Ethiopia (deRoo, 2019).
  - A growing emphasis on pro-poor interventions has increased interest in segmentation/special targeting of interventions.

- Second, segmentation can help meet potential beneficiary needs better. By considering characteristics important to a beneficiary group, organizations can potentially provide technologies and services more likely to be adopted by beneficiaries.
REALISE program designed and piloted one timad package for the PSNP households

- The PSNP households have less landholding (ranging from landlessness to 0.6 ha)
- The seed and fertilizer pack take into account half a hectare that excludes most of farmers having less landholding
- The standardized package is unaffordable and the poor have less access to finance services
- Risk management not in place

REALISE solution

- We designed ‘1000 Birr’ or less costly package for a timad of land size
- The cost of the package minimized (micro-packaging of seed, combination of compost and inorganic fertilizers, basket of option for varietal and crop choices, practical training, technical backstopping)
- Validation and testing conducted on various innovation and practices
Seeds are widely available in the right quality, diversity and quantities.

Validated, demonstrated and pre-scaled practices developed with and delivered to farmers.

Locally defined options to increase productivity under different (climate) scenarios.

Extension is able to deliver information and advice about improved practices to PSNP farmers (and non-PSNP farmers).

Other activities:
- Youth employment options
- Nutrition education
- Vegetable gardening
- Papaya distribution

Pilots with unemployed youth demonstrate scalable options. Households have vegetables and fruits.

Not all years can be food secure: drought, desert locusts, etc.
- For every PSNP farmer there will be at least 2 non-PSNP farmers that will follow suit.
- Some areas have more than 1 season/yr which adds to food security.

300% yield increases creates prospect of food self sufficiency on 1 timad (0.25 ha).
PSNP households can greatly reduce their reliance on food aid

If:
• GoE research and extension to focus on PSNP clients
• Tailoring input packages for 0.25 ha (ONE TIMAD)
• Use 1 MT/Timad compost to replace 50% of fertilizer requirement and to reduce cost of input package
• Area and season specific crop and variety selection that responds to actual rainfall conditions in a certain area.
• On average the 772 Birr investment on wheat lead to a 19,322 Birr income. The resultant yield will feed a family of 5 for 1 year.
## Food security per food crop for average family with one cropping season per year (2100Kcal/p/yr)

<table>
<thead>
<tr>
<th></th>
<th>Wheat</th>
<th>Hybrid maize</th>
<th>Teff</th>
<th>Beans</th>
<th>Onions</th>
<th>Sweet potato</th>
<th>Potato</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average on farm yield (2019/20 meher rains) in kg/ha <strong>improved varieties - fertilizer</strong></td>
<td>4,000</td>
<td>7,000</td>
<td>2,000</td>
<td>2,400</td>
<td>30,000</td>
<td>29,300</td>
<td>35,000</td>
</tr>
<tr>
<td>Baseline yield October 2018 in kg/ha mostly <strong>local varieties no fertilizer</strong></td>
<td>1,200</td>
<td>900</td>
<td>500</td>
<td>700</td>
<td>21,000</td>
<td>6,024</td>
<td>5,600</td>
</tr>
<tr>
<td>% increase</td>
<td>233%</td>
<td>678%</td>
<td>300%</td>
<td>243%</td>
<td>43%</td>
<td>386%</td>
<td>525%</td>
</tr>
<tr>
<td>Ha land needed to produce required calories</td>
<td>0.26</td>
<td>0.16</td>
<td>0.49</td>
<td>0.45</td>
<td>0.30</td>
<td>0.14</td>
<td>0.18</td>
</tr>
<tr>
<td>Total cost input package seed fertilizer compost</td>
<td>EB 701</td>
<td>716</td>
<td>528</td>
<td>390</td>
<td>618</td>
<td>926</td>
<td>3,681</td>
</tr>
<tr>
<td>% kcal self sufficient from 1 timad (0,25 ha)</td>
<td>93%</td>
<td>155%</td>
<td>50%</td>
<td>55%</td>
<td>83%</td>
<td>174%</td>
<td>139%</td>
</tr>
<tr>
<td>% kcal self sufficient if crop is sold and maize is bought</td>
<td>101%</td>
<td>129%</td>
<td>77%</td>
<td>797%</td>
<td>318%</td>
<td>513%</td>
<td></td>
</tr>
</tbody>
</table>
REALISE evidence for one timad package: Land needed to be caloric self sufficient for a family of 5 (2100 kcal/person)

<table>
<thead>
<tr>
<th>When crop is eaten</th>
<th>When crop is sold and maize is bought</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet potato</td>
<td>Onions 0.04</td>
</tr>
<tr>
<td>Hybrid maize</td>
<td>Potato 0.04</td>
</tr>
<tr>
<td>Potato</td>
<td>Sweet potato 0.06</td>
</tr>
<tr>
<td>Wheat</td>
<td>Faba Bean 0.18</td>
</tr>
<tr>
<td>Food Barley</td>
<td>Ground nut 0.20</td>
</tr>
<tr>
<td>Onions</td>
<td>Wheat 0.25</td>
</tr>
<tr>
<td>Faba Beans</td>
<td>Teff 0.27</td>
</tr>
<tr>
<td>Late maturing sorghum</td>
<td>Food barley 0.28</td>
</tr>
<tr>
<td>Finger millet</td>
<td>Beans 0.37</td>
</tr>
<tr>
<td>OPV maize</td>
<td>OPV maize 0.37</td>
</tr>
<tr>
<td>Ground nut</td>
<td>Mung bean 0.40</td>
</tr>
<tr>
<td>Beans</td>
<td>Late maturing sorghum 0.48</td>
</tr>
</tbody>
</table>
What is next for REALISE

Reaching more farmers (provided that funding is available)
  ◦ close the food gap months
  ◦ increase diet diversity
  ◦ facilitate PSNP beneficiaries graduation

Provide input where and when asked for in PSNP 5

Work on policy with MoA and EIAR
  ◦ MoA: PSNP farmers focused extension approaches
  ◦ EIAR: Pro-poor agricultural research
What is next from extension advisory services perspective

- Making extension advisory service inclusive is critically important: food security, poverty reduction, ensuring inclusive development
- Building adequate institutional capacity to innovate and deliver demand based services is necessary (it needs resources and commitments)
- Strengthening research-extension linkage, intersectoral coordination
- Enhancing pluralistic extension advisory services (public, private, NGOs)
- Strengthening south to south cooperation and experience sharing