Participatory Innovation Development and Extension in Ethiopia: A Case Study

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Abstract
This paper describes a case study of the implementation of the process of participatory innovation development (PID) in Ethiopia. PID is an unconventional method to agricultural Extension and research efforts. It is an approach that promotes an engagement in a process that strengthens the capacities of agricultural services to support community-lead initiatives. This method is based on local innovation, social learning, and farmer-led experimentation. In this case study fieldworkers examined the creation of the Bedasa Grain Bank as a socio-economic local innovation. The researchers assessed the potential for participatory innovation development; i.e., Extension training and collaborative research. Through the use of participatory tools farmers, members of the Bank, identified strengths and challenges in scaling up their innovation; and developed a plan to investigate marketing and other training possibilities for capacity building. Although this study describes a context-specific case, the wider sharing of innovations discovered and developed by promoting local innovation provide ideas and inspiration for local experimentation elsewhere, so that new ideas can be adapted to other settings.

Keywords: Agricultural Development, Extension, Local Innovation, Participatory Approaches, Rural Development.
Introduction

Participatory innovation development (PID) is a process in which farmers and other stakeholders engage in joint exploration and experimentation leading to new technologies or socio-institutional arrangements for more sustainable livelihoods. This action-oriented approach promotes an engagement in a process that strengthens the capacities of agricultural services to support community-led initiatives. PID uses local innovation as an entry point to joint research.

Local innovation is a process whereby local people use their own resources and on their own initiative to develop new and better ways of doing things. This process frequently takes place without support or pressure from formal research or Extension/development agents. Farmers adapt their farming practices to changing conditions. A close look at local innovation in agriculture and natural resource management revealed that it goes beyond technologies to socio-organizational arrangements such as new ways of regulating the use of resources or new ways of community organization (Reij & Waters-Bayer 2001). PID promotes local innovation in ecologically oriented agriculture and natural resource management.

The initial attempts to engage in PID have shown that the approach demands a radical change in the mindset of Extension workers and scientists, who are not used to the role of supporting farmer-led research. Furthermore, PID represents an effort to reverse hierarchies of knowledge and power by allowing people to take charge of making decision and influence higher levels of policy and governance. Nongovernmental organizations, particularly PROLINNOVA (Promoting Local Innovations), have been instrumental in the application of this unconventional method. The recognition of the need for researchers and Extension/development agents to support innovation by farmers served represented the catalyst for the development of PID.

Participatory innovation development promotes social learning. Pretty (2002) defines social learning as “a process that fosters innovation and adaptation of technologies that are embedded in individual and social transformation” (p. 157). Successful social learning comprises farmer participation, rapid exchange and dissemination of information, increased knowledge of agroecological relationships, and farmers experimenting in groups.

Hagmann, Chuma, and Murwira (1996) identified the interaction with farmers, their experimentation, and the strengthening of self-organizational capacities of rural communities as the essential elements in improving development and spreading of innovation, which is the efficiency of Extension. Participatory innovation development methodology provides an opportunity for Extension to link indigenous and scientific knowledge in community-lead participatory research and agricultural development.

Purpose and Objectives

The primary purpose of this paper is to describe participatory innovation development (PID), as a method to provide collaborative Extension services and community-led agricultural research, through the use of a case study.

In summer 2007, an international/multidisciplinary team facilitated an assessment of farmers’ experiences in participatory innovation development and Extension in the Federal Democratic Republic of Ethiopia. PROLINNOVA partnered with the International Institute of Rural Reconstruction (IIRR) and ETC EcoCulture to support this effort.

The fieldwork was conducted to assess conditions and factors restrictive to the use of participatory innovation development and Extension approaches in Toke Kutaye district, Oromiya Regional State, which is located 130 Km west of Addis Ababa. The population of the District is approximately 118,000 of which 90% is engaged in agriculture or agricultural related
activities. Crop production is the most important activity in the District and it is of a subsistence nature. Major food crops include barley, wheat, linseed, maize, chick pea, and field pea. Home gardens consist of fruit and vegetables. There is a mixed farming system in this site, since livestock production also provides a livelihood to most people in this area of Ethiopia.

The District experiences two rain seasons and it practices predominantly communal grazing; animals concentrate around the limited water sources such as ponds and rivers. River Guder provides water supply to the community and it is the most reliable supply of water. There are, however, well-maintained boreholes known to yield reliable quantities of safe water. Overgrazing as a result of the large number of cattle in the district, exposes the soil surface to both water and wind erosion.

The specific objectives of the study were twofold: 1) To examine two previously identified local innovations, and assess their potential for participatory Extension efforts and collaborative research; and 2) To conduct a need assessment - at the community, organizational and individual level - for participatory innovation development and Extension training.

The creation of the Bedasa Grain Bank and the breaking of the dormancy of Podocarpus species before the normal time - a socio-economic and technical innovation respectively - constituted the local innovations for this research. The description and discussion of the breaking of the dormancy of Podocarpus before the normal time merits another paper. Therefore, this paper pertains solely to PID with respect to the Bedasa Grain Bank.

**Methods and Data Sources**

The researchers met with members of two local farmer associations in Toke Kutaye District: The Gimbi Peasant Association and the Maaruf Peasant Association. In 2003 members of these farmer associations created the Bedasa Grain Bank to address problems in marketing their farm produce due to high crop production and lack of market outlets. The grain bank also offered a solution to the lack of storage space for their produce at home.

The researchers utilized the *Sondeo*, a rapid appraisal method (Hildebrand, 1981), and other participatory methodology to examine the grain bank, assess its PID potential, and conduct the need assessment for PID and Extension training. Participatory methodology employed included the following tools and objectives:

- Problem ranking to identify and prioritize Bank’s key problems in marketing of agricultural produce
- Seasonal calendars reflecting the planning and the involvement of women and men in farming activities and price trends of three major crops
- A Venn diagram to identify and analyze the existing relationship of the Bank and its stakeholders, as well as groups for establishing strategic alliances for the capacity building of the Bank
- A SWOT analysis of Bedasa Grain Bank, the local community, and the Ethiopian Rural Self-Help Association (ERSHA) - an NGO providing services in the District.

Data validation took place with representatives from the targeted community - farmer innovators and community extensionists – and Extension, research, and development agencies engaged in the community.
Results and Conclusions

Key challenges identified by the grain bank members in scaling up the innovation included:

- Lack of capital to expand the grain bank purchasing capacity
- Lack of training on marketing
- Lack of alternative market outlets
- Lack of market information
- Influence of rich local traders

Ranking of Key Problems in Marketing of Agricultural Produce

The farmers identified, prioritized, and discussed the following key problems related to the marketing of agricultural produce:

- Shortage of money/capital - to expand and purchase more produce
- Lack of training on marketing - farmers expressed need to undergo training so as to enable them to gain skills and knowledge in marketing
- Lack of market outlets - farmers needed more information on alternative market outlets for their produce
- Lack of market information - farmers also identified this as a significant concern. They realize their need to know prevailing conditions and where best to sell their produce
- Influence of rich local traders - farmers noted that rich local traders were influencing prices by paying cash to the farmers but at low prices. The grain bank were to stabilize such market influences by local traders

Wheat, Barley and Linseed Production and Gender Roles Seasonal Calendar

Through the use of crop production systems calendars, the following farming activities and gender roles in cash crop production were identified:

- Land preparation (deep ploughing and harrowing) is done fully by men while women prepare food to take to field (June and July)
- Agronomic practices (sowing, manuring, pesticide and weeding) is done equally by men and women (July and August)
- Harvesting (cutting, piling and threshing): Men and women do the cutting and piling. Men do all the threshing
- Transportation is mainly done by women

Price Trends of Wheat, Barley and Linseed Seasonal Calendar

- Lowest price of all the three crops: December and January coinciding with harvest time
- Prices start to increase from March with the highest price occurring from August to November
- Linseed fetches higher prices compared to barley and wheat

Stakeholder Analysis

Using a Vann diagram farmers identified existing stakeholders and prioritized them in order of their importance or their support to the Bank:

- ACBDP (ERSHA) - training, backstopping and financial support
• ESHET AAFI
• KEBELE COUNCIL local administration - support in administration, illegal merchants operations.
• Commercial Bank of Ethiopia (Ambo branch) - banking and potential source of credit
• Cooperative promotion office – training in marketing
• Facilitating farmers access to remunerative market (FFARM)
• TELTELE flour mill factory - purchase grains from Bedasa Grain Bank
• KIDUS GEBRIEL WOMEN’S ASSOCIATION- founder members of the grain bank
• Local churches
• Other grain banks
• Elementary school

Farmers also identified the following potential stakeholders as groups for establishing strategic alliances to strengthen the Bank. The groups were ranked based on their possible support, visualizing in this manner the Bank’s relationship with new stakeholders in the future.

• Agricultural Research Institutions at Ambo and Holleta - access improved seed and information on farming
• Agriculture and Rural Development office - more support in crop diversification
• Exporters associations - alternative sources of markets
• Insurance companies - to ensure against failure

**SWOT Analysis of Bedasa Grain Bank (Organizational Level)**

This analysis yielded the following information:

**Strengths**
- Interest of committee members
- Commitment of committee members
- General Assembly’s quarterly meetings
- Having by-laws and regulations
- Timely submission of auditor’s annual report
- Timely distribution of dividends
- Participatory decision-making on grain bank issues
- Participatory purchasing system
- Annual evaluation and self-assessment
- Purchase improved seeds and distributing to its members

**Weaknesses**
- Lack of training
- Lack of communication with other stakeholders/networking
- Shortage of money/capital
- The inability of establishing flour mill factory due to lack of resources including capital and skills
- Inadequate access to HIV/AIDS information and awareness

**Opportunities**
- Presence of many stakeholders that could offer training services
- Existence of a flour mill

**Threats**
- Unfair competition with the middle-men/rich local traders
- Natural resource degradation

**SWOT Analysis at the Community Level on Local Innovations**

This analysis yielded the following information:

**Strengths**
- Willingness of innovators to share with other community members
- Ready to work with other PID practitioners
- Organized farmer groups and grain bank committee
- Diverse and relevant local innovations

**Weaknesses**
- Local innovations not adequately documented
- No linkages with PID practitioners to develop innovations
- Lack of resources to develop and scale up their innovations
- Lack of support from responsible government organizations to promote their innovations

**Opportunities**
- Presence of PROLINNOVA-Ethiopia which can support PID process
- Presence of ERSHA to backstop and link farmers to appropriate institutions

**Threat**
- Mistrust toward governmental institutions/personnel; i.e., Agriculture and Rural Development Office (ARDO); grain banks unwilling to join bigger unions

**SWOT Analysis of the Ethiopian Rural Self-Help Association (ERSHA)**

An analysis of ERSHA yielded the following information:

**Strengths**
- Organization’s principles and values underlining their operation:
  - participation
  - sustainability
  - gender equity
  - partnership
  - transparency and accountability
  - environmental conservation
- Membership in PROLINNOVA at the national level
- Human resources
- Presence at community level
- Good physical facilities

**Weaknesses**
- Narrow base of financial support from donors
- Limited resources (financial, human resources, etc.) to operate
- Few professional staff who are female
- They have yet to institutionalize PID at the grassroots level

**Opportunities**
- The presence of innovator farmers in ERSHA’s intervention areas to promote innovations and to enhance the adoption of PID approaches
- The presence of PROLINNOVA-Ethiopia that can support build capacity in PID
Ethiopia’s good will with development agencies to secure funding

**Threats**
- Uncertainty of financial support from donors

**SWOT Analysis of Farmers’ Perception on the Competencies of Extension Services**

This analysis provided the following information:

**Strengths**
- Exchange and sharing ideas, and technical information with farmers
- Involvement in demonstration of agricultural practices
- Willingness to build Extension capacity
- Willingness to support crop diversification

**Weaknesses**
- Lack of adequate funding and resources to carry out their activities
- Inability to obtain registration and credit service through Extension service
- thinly spread on the ground
- No information on PID

**Opportunities**
- Organized farmers who are ready for farmer to farmer Extension approaches
- Presence of PROLINNOVA-Ethiopia for support in building capacity on PID
- Presence of other NGOs in the area

The researchers utilized a framework for assessing training needs for participatory innovation development consisting of a situation, organizational and a task analysis. They identified performance assets and gaps for participatory innovation development and Extension at three interrelated levels: Community, organization and individual. The expected outputs were based on identifying: 1) Capacity development needs in order to support PID processes at the community level; 2) Issues which can be addressed by training and non-training solutions at the organizational level; and 3) Competency gaps for PID professionals that can be addressed by training.

**Situation Analysis of the Training Need Assessment at Community Level – Gaps**
- Lack of awareness and understanding on local farmers’ innovations by local community members
- Lack of awareness and understanding of intellectual property rights on innovations by local farmer innovators
- Inadequate support by institutions/organizations to develop and promote local innovations

**Organizational Analysis of the Bedasa Grain Bank - Gaps**
- Lack of access to credit service
- Insufficient networking for collaboration to address issues such as: training, market information, awareness and information on HIV/AIDS
- Inadequate human and financial resources
- Insufficient and inadequate legal support
- Inadequate capacity to develop project proposals for resource mobilization
- Limited recognition from various stakeholders

261
Organizational Analysis of Extension Services – Gaps

- Narrow range of donor base
- Lack of awareness and knowledge and competences to implement PID
- Inadequate agricultural support services
- Inability and/or lack of willingness of some stakeholders to provide support
- Lack/inability to enforce the system to provide prior permission to document, store and share local farmers’ innovations

Task Analysis at Individual Level: Extension Officers – Gaps

- Lack of information and competences regarding PID
- Inadequate knowledge on innovators’ rights by Extension agents
- Lack of knowledge and skills for recognizing and documenting local farmers’ innovations

Ideas for Experimentation

The grain bank members identified and discussed with the researchers the following ideas for “things to try out” in order to improve the innovation:

- Generation of capital
- Training on marketing
- Novel ideas on market outlets
- Acquisition of market information
- Reducing influence of rich local traders

From this list, the farmers selected marketing and other training possibilities as the idea for experimentation. They then proceeded to complete the Experiment Sheet, developed by the researchers.

Experiment sheet – topic. Training on marketing

- What do we want to investigate? Marketing and other training possibilities.
- Why exactly do we want to investigate this? Lack of knowledge and skills to develop the grain bank.
- What is the underlying problem or opportunity? Limitation of capabilities of farmers to operate market and expand their operation.
- What would be the benefit if the experiment is successful? Farmers will learn how to speak, dialogue, create collaborations, get information, and develop capacity to carry out marketing collectively or individually.
- What exactly do we want to find out? Specific areas of training needed by farmers.
- What are the questions which the experiment should answer? The specific skills and competencies needed for successful performance of each area of marketing and operation of the grain bank.
- In order to find out what we want, how should the experiment be designed? The Chair of the Executive Committee will enable the experiment by consulting ERSHA, CBE or any other current or potential partner to request training modules in the indicated specific areas of need. After negotiation has taken place, the chair of the appropriate committee will manage the training of a selected number of committee members. After the training of the committee
members, and at the periodic meetings of the committee and the quarterly meetings of the Assembly, trained members will then provide training to other members.

- **What do we need to know to be able to tell whether the experiment was successful? And be measured quantitatively?** The number of members, including committee members, who received specific training by keeping attendance records to each training event.
- **What would we measure qualitatively?** Members’ performance in their specific area of responsibility by frequent follow ups to evaluate their performance. Test of each farmer trained to see how well they learned the new skills.
- **Where can we get additional information regarding this experiment?** The trainer can be invited to give a demonstration to the entire group.

**Recommendations, Educational Importance, Implications, and Application**

The researchers submitted a report of the results of the study, including a set of recommendations, to PROLINNOVA-Ethiopia, the Ethiopian Agricultural Research Organization (ARO), Agri-Service Ethiopia (ASE), the Ministry of Agriculture, and the Bedasa Grain Bank among other entities (Hartmann, Asres, Fenta, Noordin, Raj, Velasquez, Wellbeloved, & Zefanias 2007).

**Recommendations Submitted to the Bedasa Grain Bank**

1. Increase representation and participation of local women in innovation and development efforts
2. The formation of local farmers Grain Bank Union by the Bedasa Grain Bank
3. Training on the following issues:
   - Store management (pesticide, biological control)
   - Bookkeeping and accounting
   - Marketing
   - Networking
   - Proposal writing and resource mobilization
   - HIV/AIDS
   - Environmental conservation
4. Initiate farmer-to-farmer Extension to scale up innovations
5. Initiate local savings and credit schemes to build up capital
6. Increase crop diversification for income generation
7. Link local farmers organizations to credit providers

**Recommendations Submitted to PROLINNOVA-Ethiopia**

1. Engagement in the implementation and coordination of PID in Toke Kutaye District
2. Implementation of awareness programs on PID/local innovations from grassroots to national level utilizing diverse media and means
3. Capacity building of farmer innovators, institutions, researchers, educators, policy makers on PID
4. Formulation, implementation, enforcement and promotion of policies to protect local farmer innovations
5. Institutionalization and internalization of PID at individual and institutional/organizational level

263
6. Building the capacity of farmer innovators to document, improve and scale up their innovations
7. Facilitation of capacity building in farmer organizations and leadership skills

Recommendation Submitted to ERSHA/Development Agents
1. Building capacity of staff in PID competencies
2. Backstop local innovators in documenting and monitoring their innovations
3. Support of the establishment of regional platform of PROLINNOVA
4. Broadening of stakeholder network; therefore, strengthening institutional capacity

Key Lessons on Conducting the Training Need Assessment
1. Placing and keeping the farmer in the driver’s seat
2. Clear understanding of needs as expressed by farmers
3. Clear and concise questions with precise purpose
4. Importance of creating a conducive environment for the need assessment process
5. Facilitation techniques to bring out and incorporate views of hidden/silent practitioners
6. Ensure innovation is socially acceptable
7. Ability to correctly bring out or pinpoint the areas for training
8. Establish a feedback mechanism throughout the entire process
9. Establish a documentation process for all concerned

Specific Lessons Learned
- As fieldwork facilitator in relation to team
  1. Importance of interdisciplinary team
  2. Value of incorporating different values, perspectives, ideas
  3. Necessity of listening to each other
  4. Democratic participation/cooperation
  5. Understanding each others’ background (technical, professional, social)

- As fieldwork facilitator in relation to farmers
  1. Recognition and value of local knowledge
  2. Rational of farmer is important
  3. Open mind to meanings
  4. Hospitality of farmers
  5. Farmers’ avoidance of providing negative feedback

- As fieldwork facilitator in relation to Extensionists/technicians
  1. Value of connecting to farmers
  2. Approachable and helpful
  3. Key source for farmer innovators
  4. Facilitation skills
  5. Understanding of local context
  6. Willingness to work with farmers
  7. Source/opportunity/facilitation of scaling up innovations
Although key lessons learned in the study provided insights on the participatory innovation development and Extension approach within the context of the Toke Kutaye District, the results of the study are transferrable to similar contexts within and outside Ethiopia.

The effective use of participatory innovation development and Extension approaches suggests an improvement in the output of agricultural Extension and research. The methodology used in this study was effective in raising awareness and understanding, probing new alliances, and formulating proposals for action. The study suggests that participatory innovation development and Extension approaches are an effective tool for capacity building and knowledge empowerment on the part of all stakeholders including researchers.

The study provided researchers and various stakeholders the opportunity to interact with farmers, be exposed to the on-going participatory innovation projects/activities being undertaken by them, and engage them in developing joint experimentation. Furthermore, the study enabled both the researchers and farmers to look into the nature of the farmers’ experiences of joint experimentation leading to the conduct of capacity needs assessment for participatory innovation development and Extension processes.

References


