

## Creating a Space for Local Innovation in Agriculture

### Linking policy to farmers

Policy Brief

May 2015

#### Executive Summary

Promoting local innovation and Participatory Innovation Development is the centerpiece of this policy brief. This brief is based on the works of Prolinnova Ethiopia, which is part of Prolinnova International, a global network that promotes farmer led research and development in more than 20 countries. Prolinnova Ethiopia has been testing an alternative to the conventional research and development approach, which denies opportunity for local innovation and local innovators to become active participants throughout the processes. A project called **Strengthening Community Resilience to Change: Combining Local Innovative Capacity with Scientific Research (CLIC-SR)** has provided an op

portunity for a group of research and development players in the country to learn more about farmers' innovative responses to local changes. The project was implemented in Axum (central Tigray) by Best Practice Association and in Enebse Sar Mider (East Gojam) by Alemberhan Self help Community based Development Association. At national level, the project was coordinated by Poverty Action Network in Ethiopia (PANE) and financially supported by the Rockefeller Foundation. This policy brief provides some accounts of the works of Prolinnova Ethiopia vis-à-vis the policy changes that are required to systematically recognize the innovation and creativity of the local people in the face of important changes in climate, policy, institution, knowledge, technology and markets.



Mr. Kidu Gebremeskel,  
Crop Research Director of AARC

#### Context and Importance of the Policy

Expert driven research and development processes are common phenomena in research, education and development institutions in Ethiopia. However, this common practice does not pay enough attention nor does it provide systematic recognition to local innovations in agriculture and natural resource management. Since time immemorial, early days ancestors of human kind were credited for the domestication of a variety of plant and animal species; developing agricultural systems that best fit the local context. The results were outcomes of informal experimentations and repeated trials. This alone indicates that innovation and experimentation is intrinsic behavior of human kind, which could be developed when an enabling environment is created. With the advent of scientific knowledge systems, the creativity and innovation of local people slowly diminished as formal research and development initiatives became the status quo. The "modern" knowledge system was in fact able to increase production and productivity and brought several important results in agricultural development. However, this modern

system ignores issues like sustainability, equity, environmental degradation, climate change effects and so on. It is now widely recognized that the participation of the local people in research and development is imperative in order to address many of the concerns described above. The key issue here is how can we effectively hybridize local innovations with scientific research and development approaches, with due recognition to the local people who innovate. Prolinnova Ethiopia aims to increase the recognition of innovative farmers and their works as an entry point for agricultural research and development. This approach is considered to be an alternative to the common practice in the "modern" system, which undermines local knowledge and innovation systems. Prolinnova Ethiopia is working to accomplish this through the identification, documentation, support and recognition of local innovations and testing the Participatory Innovation Development approach together with research institutions and universities. This policy brief calls for increased awareness of policy makers, planners, researchers, educators and development practitioners who are critical to make the suggested approach work.

*"How can we effectively hybridize local inventions with scientific research and development approaches, with due recognition to the local people who innovate?"*

## Participatory Innovation Development

Participatory Innovation Development is the key methodology used to bring innovative farmers, extension workers, scientists and private sector actors together for joint learning, experimentation and innovation. This has been tested in Ethiopia for the last decade and has resulted in key positive results such as:



Andarge Yigrem demonstrating how to convert an invasive weed into fuel

### Increased knowledge and innovativeness

Ethiopian farmers and organizations working with smallholder farmers have witnessed “increased knowledge” under the notion of development theories and practices. The course of actions of Prolinnova (approaches, methodologies and processes) has helped farmers and their close partners to better understand how development is taking place in practice. Farmers and partners have learned that they both have complementary roles in development, contrary to the long established “sender and receiver” communication model, which undermines the knowledge contribution of the “receiver”, usually farmers. The increase in knowledge for farmers has led to more self-reflection, changing their attitude and behavior and creating an open space for innovation.

### Increased confidence

Confidence is a direct function of recognition and incentivizes farmers to do more. Farmers who have been told by the conventional model of communication in development that they are illiterate, ignorant and backwards lack the confidence to tell others about their talents and achievements. The recognition, rewards and other forms of incentives given to innovative farmers and extension workers by Prolinnova–Ethiopia has raised their level of confidence enough for them to speak in front of their fellow farmers, policymakers and researchers.

### Empowerment

This parameter could be explained in many ways, including better positioning farmers in social, economic and political spaces. However in this context, it refers to how farmers can participate in decision-making opportunities in agricultural research and development. Farmer groups in Amaro, Ambo and Axum involved in the Farmer Access to Innovative Resources (FAIR) project of Prolinnova Ethiopia are good examples of this. In the history of agricultural research and development in Ethiopia, decisions related to agricultural research – particularly related to financial decisions – have always been the mandate of institutional leaders and not the farmers. Even in the case of participatory research projects run by NGOs or government special projects, farmers have had little or no role in priority setting and financial decision-making. Several seemingly plausible legal and organizational reasons are used to keep these institutions from providing farmers the chance to decide on resource allocation. However, the biggest challenge is changing the attitude of people in these organizations that undermine farmers and believe they are not knowledgeable enough to make the right decisions. The FAIR project in the three learning sites provided farmers the opportunity to set their own research and development priorities and to make decisions on the use of funds provided directly to them to run important innovation projects. As a result of FAIR, farmers in the three learning sites have approved 142 farmer innovation projects and about 79% of the applications, which the farmers themselves believe will greatly benefit the wider community.

*“Researchers and extension workers who spend time working with innovative farmers to develop their initiatives should get recognition and support.”*

## Battling Climate Change

The most recent project of Prolinnova-Ethiopia (CLIC-SR), coordinated by PANE and financed by the Rockefeller Foundation, provides several examples of how innovative farmers respond to climate change. A few examples include:

### 1. Homemade bio-pesticides — Meseret Tadesse

“Primarily, I am happy to note that the PANE/Prolinnova CLIC–SR project is really working to uplift poor women like me by enabling us to confidently demonstrate our local innovation on all platforms. Prolinnova members have visited me, including the organization’s technical advisory members and international visitors who encouraged me to begin to do things that would be more innovative. As a group in the FFS, and personally, I always try to discover new things from scratch. For example, I developed homemade bio-pesticides by processing various herbs into a local pesticide. In our village, pests are a huge problem and are detrimental to our crop production. My homemade bio-pesticide was not only used for crop pests but also for rodents and household parasites such as bed bugs, flees, etc. As a result, my garden and crop farms are free of pests so that I am able to boost production by three-fold.”



Ms. Meseret Tadesse showing her homemade pesticide

### 2. Sub surface drainage — Abadi Redahegn

Abadi is an innovative farmer from Axum area who transformed a waterlogging plot that was almost out of production for several years. He says:

“My innovation has allowed me to secure water and allows for a wider, more diversified choice of cropping patterns; as well as with the production of higher value crops. Moreover, my income has dramatically increased as a result of increases in yields compared to those achieved under the former water logging conditions. Along with my livelihood transformation, my resounding success has drawn the attention of government agricultural offices, universities, NGOs, scientific researchers. Even graduate students have visited me and conducted their study on my innovation. The community has begun to appreciate local innovative capabilities. In fact being a Prolinnova CLIC-SR farmer has given me numerous opportunities to demonstrate to what extent local innovation is rewarding.”



Mr. Abadi Redahegn showing the sub surface drainage system he created

### 3. Sex of chicken determined by shape of egg — Berha Tadesse

This innovation was adapted by Axum farmers from a Kenyan innovative farmer named Christine Kilonzi during the East African Farmer Innovation Fair organized in Nairobi in May 2013 with the support of CGIAR and Prolinnova Kenya. The Axum farmers were intrigued by the idea that the shape of chicken eggs are indicators of the sex of the chick and could help farmers determine what sex of chicken to hatch depending on the market’s demand. However, the farmers from Axum did not have a clear understanding of this and even confused these indicators after they left Kenya. Consequently, they decided to carry out the experiment themselves. Berha Tadesse, 41, a mother of six from Tahtay Maychew (Axum area), 260km northwest of Mekele, was one of the lead researchers to conduct the experiment. She confirmed that the suggested indicators were correct in telling the sex of the chicken before it hatched. Today Berha and her fellow farmers use this common practice to determine the sex of chicks based on market needs.



Ms. Berha Tadesse explaining her experiment at a workshop

*“Local innovation needs to be considered as an entry point for agricultural research and development.”*

#### 4. Irrigation development — Setegn Chekol

Setegn Chekol, a smallholder farmer from Enebse Sar Mider (East Gojam), is a highly resilient man who battled and won poverty as a result of his industrious and innovative work in irrigation. Setegn's extreme poverty forced him to leave his place of origin in search of food and shelter. He was a beneficiary of a government supported food aid program for several years. The food aid he received could not help him get out of poverty, nor was it enough to meet his basic needs. The biggest challenge Setegn faced in his farming was moisture deficiency and that did not allow him to fully use the land resource he had for agricultural production. The area where Setegn lives is endowed with seasonal and perennial rivers, but these resources are located in deep gorges. Extracting water out of the gorge and passing it through difficult terrains for more than 4kms became Setegn's inspiration for innovation.

Today, his farm land and vicinity are covered by high-value fruits such as papaya, mango, orange, lemon, as well as very valuable vegetables. Setegn now earns nearly 3000 ETB per week from his vegetable and fruit sales during the harvest season, which has resulted in a shift in his household from one of despair to hopefulness – what a transformation! This is indeed a great example of how innovation can uplift a farmer and his community, however it is important to know that it took Setegn quite a long time to achieve this. The lesson we learned from Setegn is that we have to pay attention and support innovative farmers like Setegn to make their innovative efforts more fruitful in a shorter period.

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*“Let us give equal emphasis to using technology from the developed world and fostering farmers innovation; both important for the local context.”*

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Mr. Setegn Chekol explaining his innovation at a policy dialogue workshop

## Why policy change is necessary

Policy here refers to all written and unwritten laws and regulations of formal government institutions that have power to decide on “go” and “no-go” areas. Formally drafted policies are usually important in legal terms but institutions and value systems which are widely accepted by the community, are more useful in practical terms. Institutions here do not necessarily refer to organizations but rather to the habitual way of doing things.

Making changes in habitual practices (daily routines), as long as it adds value to traditional practices, is recognized as institutional innovation. For example, the common practice of doing agricultural research in Ethiopia and many African nations follows certain procedures and norms, which include problem identification by a researcher, proposal writing, proposal defense in the presence of peer groups (scientists), conducting station based experimentation, data collection by trained assistants, data analysis by the researcher, report writing by the researcher, getting approval from peer researchers and finally

publishing the result in journals or similar publications at both the local or international level.

This long established practice is still important however, Prolinnova argues that it is also equally valuable to create a space to recognize local innovations as an entry point for research instead of considering “field level problems” as a mandatory procedure to start conducting research. This approach also demands further active participation of the innovative farmers in the rest of the process of the research.

Changing the way of conducting agricultural research from the classical approach into a participatory one will recognize innovative farmers and allow them to drive agricultural research. Therefore, in order to mainstream this approach in all public research organizations and universities, it is critical to introduce a policy/guideline that encourages researchers to work with farmer researchers and innovative farmers intimately.

The same holds true in the development arena. The public extension service and NGOs have to consciously find out local innovations that are adding new values (economic, environmental, efficiency, gender empowerment) to the traditional practices or have the potential to bring more value if supported. For example the work of Setegn, Abadi, Berha, Meseret and Andarge could have been achieved in less time with more precision and greater impact if the relevant public agencies had paid enough attention. We strongly believe that thousands of innovative farmers that could create tremendous value are available in the country but remained hidden because of the lack of attention from the public research and extension service providers. Prolinnova Ethiopia aspires to see a world where male and female farmers duly participate in the research process and dialogues to make sure their voices are heard and their ideas are considered in all works that affect their lives and environment.

*Farmers Training Centers (FTCs) need to be turned into Farmer Innovation Centers (FICs), where farmers will be encouraged to try out new ideas and technologies.*

## Policy recommendations

The ambition of the government to ensure speedy development and structural transformation seems to depend on externally driven technologies. This may undermine local innovation processes unless equal attention is given to both dimensions.

Learning and adapting technologies from the rest of the world is indeed important. Imported technologies in agriculture could nevertheless bring successful results if platforms are created for farmers, researchers, educators, extension workers and private sector players for joint learning and sharing. On the contrary, the traditional top-down and technology-push approach could not be useful in complex systems where the knowledge and interest of the participating actors is diverse and market and climate change issues are always unpredictable. The national platform for Science, Technology and Innovation need to play a critical role in nurturing participatory learning platforms on diverse agricultural issues at different levels, instead of adhering to the traditional trickling down principle.

The Ministry of Science and Technology needs to allocate resources to recognize and support innovative farmers. An innovation fund is necessary for farmers to help them minimize their risks, in the course of doing local innovations/experimentations. In this regard, attention is so far given to researchers in the formal system while there is no attempt to support innovative smallholder farmers/pastoralists.

Researchers and extension workers who spend time working with innovative farmers/pastoralists to help them develop their initiatives should get recognition and support. Research organizations and universities need to have a policy or guideline to officially value their contribution.

Career development of researchers and university professors should not depend only on publications of “scientific research” in a conventional sense but also on innovation – which is a process of creating new values in the real world situation (going beyond the shelf).

For researchers, designing their research based on problems identified by experts should be only one way of doing research. Identifying innovative farmers and their innovations and building on the work of these farmers in a participatory way should be another formally accepted approach to research.

For extension workers, bringing new technologies to farmers should continue as one way of doing extension. However, supporting farmers’ own initiatives and innovation should also be systematically incorporated into extension work, and farmer should be encourage to experiment with and adopt the introduced technologies.

Farmers Training Centers (FTCs) need to be turned into Farmer Innovation Centers (FICs) where farmers will be encouraged to use their creativity; triggered by learning about new technologies and new ways of doing things in participatory action rather than in conventional classroom-based teaching processes.

Extension agents should enjoy more freedom and flexibility to plan their work based on the local contexts and growth opportunities instead of following a centrally designed and coordinated planning process.

Technical colleges (TVETs) and universities need to introduce a new curriculum that brings a gradual shift from:

- top-down development orientation to bottom-up approach
- conventional extension approach to innovation system model: participatory and learning based
- perspective focused on “production only” to a market oriented - and environment-responsive approach
- ignoring indigenous knowledge to recognizing it and promoting.



PROMoting Local INNOVAtion in ecologically oriented agriculture and natural resource management is a community of practice involving government and non-governmental organizations in Ethiopia. It is part of the global initiative to promote farmer led-research and development. It promotes recognition of local innovation by women and men farmers as an entry point to farmer-led participatory research and development. The ultimate aim is to integrate this approach into institutions of agricultural research, extension and education. Funding has come mainly from the Dutch and French Governments, Rockefeller Foundation, GFAR, Action Aid Ethiopia and partners’ own contributions.

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