Putting Innovation into Farmer Hands: What Works?

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As climate change aggravates the already serious problem of food security in developing countries, the role of new technologies to increase the ability of small farmers to improve their performance becomes all the more important. Researchers that develop technologies for small farmers must ensure not only that their results are relevant, but that they are accessible to those who need them.

The Central Research Team of the DFID Research Into Use project was tasked to systematise general issues around why farmers make use of the results from research and how to encourage them to do this. A recent Review of that project analysed experience of field activities from the project itself to identify specific conditions necessary to support innovation.

No single approach was found that could fast track innovations under all conditions, but valuable insights were found about key conditions and strategies that encourage small poor farmers to access and adopt new farming technologies. This paper tries to summarise some of the lessons.

Key conditions

The conditions identified operate at levels that conveniently fall into three main categories:

- **The enabling environment**: referring to the broad context within which agricultural innovation takes place. This covers the ways in which governments, organisations and individuals develop systems and perform functions that encourage uptake. Examples are facilitation of scientific research and the generation of enabling regulations & policies, including those that promote areas as diverse as trade, growth, finance and security. It also includes attitudes and broader norms and values in society that influence behaviour.
- **"Connectors":** individuals who create conditions that help different agricultural sector actors to come together and facilitate communication with them. They include brokers, entrepreneurs and the staff of programmes that promote change.
- **Recipient farming communities,** members of which are often powerless to learn about or affect change alone, but are potentially receptive and susceptible to new ideas and opportunities for change.

Four **strategies** for working on these areas can be emphasised. They are:

1. applying a holistic approach,
2. using the private sector to unlock growth potential,
3. encouraging connectors to improve transmission along supply chains,
4. penetrating and stimulating farming communities.

1. Applying a holistic approach

Success in developing an environment conducive to continuous innovation is likely to be limited if the focus is on just one or a few of the individual elements mentioned. Lasting change is more probable if transformation is encouraged in the system as a whole, improving ways in which the elements of the value chains are combined and helping them work together so they become more inclusive and efficient.

The RIU used a variety of approaches to generate change. These included establishing and strengthening Innovation Platforms, priming investment in a series of "best bets", and using

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more traditional ‘challenge fund’ approaches. In all these cases the emphasis was on nurturing a role for the private sector to achieve sustainability of the changes made.

The cases studied by the Review showed examples of success in all the approaches. Change had occurred in the enabling environment, including positive policy shifts and better governance arrangements as well as in attitudes towards new scientific products and the market conditions that are needed to accept them.

Often innovation trajectories were improved without addressing all parts of the system, but generally only if the parts not addressed were already functioning well. However, an approach that includes a holistic analysis that identifies issues at all three levels is more likely to succeed than a piecemeal one. In this way gaps that need to be filled can be identified systematically, prompting interventions that help develop channels for innovation that will remain open into the future and lead to innovation on a continuing basis.

2. Facilitating the private sector to unlock growth potential

Especially in the second phase of its existence, the RIU worked from a strong vision about the importance of the private sector as key in unlocking the potential for growth and encouraging innovation over the long term.

The project clearly demonstrated the value of increased private sector involvement in brokering and working alongside the public sector when carrying out agricultural research, disseminating results and encouraging uptake. It also showed that there was more commercial potential in becoming involved with small and poor farmers and with their crops than the private sector had generally thought possible. Finally, results from the different types of platforms that were established demonstrated how continuing communication and involvement amongst all actors in the value chain can benefit them all.

Nevertheless, further investigation is needed into the nature of the dynamics affecting the interactions among public, private commercial and small scale sectors. There is scope too for research that identifies the incentives that are effective in encouraging the private sector to play an economically and socially responsible part in developing smaller farms. The RIU has opened these avenues of enquiry into areas that are necessary to allow replication of the approach.

3. Encouraging connectors to improve transmission along supply chains

The role that brokers can play in developing innovation systems through greater connectivity that facilitates the transfer of technologies was also identified and demonstrated by the RIU. Brokers turned out to make a crucial difference almost everywhere, even though they came in many different forms and were not always called "brokers". They included government, scientists, agribusinesses, financial institutions and farmers themselves. Their ability to connect relied at first on the creation of spaces like the Platforms, where agents in supply chains could meet. Through collective negotiation within such spaces and then connection to individual agents, brokers were able to unblock, manoeuvre around or solve blockages and so improve the transmission of goods.

In the African Country Programmes, project staff themselves played brokerage roles. In such cases extra arrangements had to be made so that the functions could be sustained beyond the end of the programme. In other activities, ways were found of combining brokerage with roles that are remunerated from sources external to project funding, making it more likely that they will be sustained from the start.

In all instances RIU activities demonstrated the value of better connectivity amongst actors in the value chain and the importance of active ‘connectors’ creating opportunities for the value chain participants to come together.

Developing this role promotes more open accountability, as the information flow between actors in the market improves. Dedicated brokerage also unblocks markets where deficits of inputs or of information hinder market conditions, although in some cases some dangers of rapid success were evident. Examples included instances where demand was created but could not be satisfied: something that might be avoided if there is an opportunity to carry out a more holistic analysis of market capacity at the outset.

4. Penetrating and stimulating farming communities

The target clients for new technologies are farmers who exist as individuals within local communities situated within a much larger and more complex reality. One of their greatest vulnerabilities is isolation from centres of knowledge as well as markets, and a major role of any system that facilitates continuing innovation must be to put them in touch with both.

Helping farmers to participate in such a system more effectively is a challenge. The Review found from its own survey of programme beneficiaries that that an important motivation for farmers to become involved in new schemes is the existence of incentives such as free, subsidised or facilitated inputs. Other motivating factors it found were risk mitigation, training opportunities, social pressure and a general hope for a better life.

Important prerequisites to developing lasting acceptance and understanding of new innovations also included trust in the 'connector' and the emotional capital, including self-optimism, from the farmers themselves that encourages them to take risk. Such trust is invested more in connectors that are able to mirror their own realities. This implies using local farmers or community members to pass on messages about new products and techniques – a message that is all the more credible because of confidence in the messenger.

A further striking lesson is that trusted connections can be made and innovations relayed through print and radio media, if stories are told through characters and language that are relevant to poor farmers and young people. Additionally short messages provided regularly over longer timeframes are more effectively absorbed than short bursts of intensive activity.

The Review also found evidence that poorer households in the programme were harder to reach and often more likely to fail than better-off ones. Reaching the poorest farmers needs specialised intensive adoption strategies that go beyond creating more transparent market spaces like crop platforms, or other forms of information transfer. Strategies need to use innovation connectors who are embedded in the community, are trusted and can provide long lasting, local support.

Finally, more focus on women from the outset of a project is essential, given the proportion of poor farmers that are women, the importance of women in the household economy and the effective (if not the formal) decision making power of women within the family. Thinking through the implications of facilitation activities for women, designing programmes specifically to empower them, incorporating them into formal decision making processes, and providing specific economic training and knowledge acquisition opportunities, will yield deeper and more sustainable social and economic transformation. Any new agricultural innovation programme should include an explicit social inclusion approach with a focus on women farmer empowerment to underpin implementation.

The table below summarises some of the critical changes we have mentioned that are needed in each of the three key areas, including examples and evidence from the RIU.

Table 1: Checklist of the critical strategies for innovation

Change category	What changes support the adoption of innovation?	Evidence from RIU Programme
1) Enabling Environment	***Policies and Governance*** • policy & regulation for new technologies, • more inclusive governance arrangements and responsiveness, • informal behaviours and attitudes of decision makers. ***Innovation relevance*** • scientific adaptation. ***Economic Markets*** • better markets for new products, • improved transport provision, ***Information*** • accessible knowledge products, • ***Behaviours*** • changing attitudes to risk assessment • nurturing an appetite for new solutions	*Innovations include technologies and new sources of seeds.* • Commodity chain platforms in Nigeria, Rwanda. • New crop varieties in Rwanda.
2) Connectors	• supply chain brokers connecting individuals in the supply chain, • - entrepreneurs dedication and investment,	*Innovations include connections, which create negotiation space between key supply chain actors.*
3) Farming communities	• community based training of local farmers and people as messengers, • graduation of local farmers and trusted community members to connectors/brokers, • regular innovation messages through media that socially resonates with targets, • targeting of women for social empowerment and economic investment through new innovations. • greater social capital within farming communities.	*Innovations include using comic books and radio shows to relay agricultural messages.* • Inclusion of local people as Village Based Advisors in FIPS-Africa. • Social capital formation in CBSPs in Nepal.