Innovation platforms to improve smallholder dairying at scale: Experiences from the MilkIT project in India and Tanzania



ILRI PROJECT REPORT









## Innovation platforms to improve smallholder dairying at scale: Experiences from the MilkIT project in India and Tanzania

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### Introduction

Generating impact at scale has become a mantra for agricultural research for development projects in recent years. Donors want projects to reach not just hundreds, but hundreds of thousands of farmers. In a recent review, the International Fund for Agriculture and Development elevated scaling to the level of "mission critical" (Hartman et al. 2013). But what do we really mean by scaling, and how do we achieve the large reach demanded by donors?

We can distinguish between "scaling out" and "scaling up" (Menter et al. 2004). **Scaling out** involves diffusing successful technologies from place to place by promoting them in "recommendation domains". Defining these domains generally involves mapping key variables (rainfall, soil type, etc.) that need to be within certain thresholds for a technology to work. For example agro-climatic conditions can dictate where a particular crop will grow. Market access may also contribute to define a recommendation domain for perishable commodities such as vegetables. Mapping these variables shows where the technology is suitable; projects can then target their promotion efforts accordingly (Herrero et al. 2014).

The ideas underlying scaling out of interventions can be rather simplistic and do not fully account for the complexity of agricultural systems. The notion that the main constraints to diffusing technologies are biophysical is embedded in a linear and rather technology-oriented development paradigm. It does not take into account experiences with participatory approaches that show the critical roles played by social and cultural factors in determining the acceptance of a technology, and so on (Lundy 2004).

**Scaling up** involves dealing with the institutional environment that may enable or limit adoption. For a technology to spread, for example, state support may be needed for supply of a key input such as seed. Scaling up would then require sorting out input supply arrangements. Scaling up ideas are more in tune with current innovation systems thinking.

Donors, particularly the new philanthropies, are increasingly interested in the idea of "scalable technologies" – those that are easy to spread so that many people can benefit from them. Again, the idea that certain technologies have somewhat magical properties that will allow their rapid uptake by farmers has a certain naivety to it: one that ignores the social component of technology adoption. New thinking in the health sector acknowledges that blueprint approaches to scaling are unlikely to succeed. Health systems in developing countries share many characteristics of "complex adaptive systems", where issues such as path dependence, emergent behaviour and feedback loops limit the extent to which interventions can be scaled (Paina & Peters 2012). The same can be said for livestock systems in the developing world.

In the case of livestock feed and dairy production, scalable interventions are hard to come by. Why is this? Feed technologies work in particular situations for a range of reasons and tend to be fairly context-specific. For example, results from using the Techfit tool (a way of prioritizing feed interventions developed by the International Livestock Research Institute, ILRI) suggest that factors such as availability of land, labour, cash, inputs and knowledge strongly influence which feed technologies will work in a particular location. This context specificity complicates the scaling issue.

Also, technologies for livestock differ from those for crops in that farmers tend to keep livestock for multiple reasons, but raise crops mainly for income and food. Livestock serve many additional roles including traction, storage of capital, provision of manure, and so on. Milk is perishable, so market access is a key issue in dairying. For farmers in sub-Saharan Africa, livestock are important because they contribute to crop production. Growing feed often competes with cropping, and farmers may be reluctant to invest land and labour in growing feed if they are not sure of growing enough food for themselves. Smallholder livestock production is complex and multi-faceted; that complicates the adoption of feed technologies and affects the prospect of scaling. All this means that technologies that work in one place may not work nearby.

In this paper we reflect on the potential role of innovation platforms as spaces to identify and spread useful innovations associated with dairy production and feeding. We draw examples from MilkIT, a project to promote milk production in India and Tanzania (Box I). We first introduce the idea of innovation platforms and show how they can be used to define the key issues quickly. We highlight the various changes in local practices that innovation platforms can stimulate. We then consider how local innovations can move beyond innovation platforms, and classify a series of mechanisms by which this can happen. We outline strategies to ensure that innovation platforms generate wide-scale changes.

### Box 1. The MilkIT project

The MilkIT (Milk in India and Tanzania) project was a 3-year research for development project funded by the International Fund for Agricultural Development and managed by ILRI to improve productivity of dairy cattle using improved feeding practices and better arrangements for milk marketing. The project worked in India (Uttarakhand) and Tanzania (Morogoro and Tanga) from 2010 to 2014. Its three main objectives were:

- 1. Institutional strengthening: To strengthen the use of value chain and innovation approaches among dairy stakeholders to improve feeding strategies for dairy cows.
- 2. Productivity enhancement: To develop options for improved feeding strategies leading to yield enhancement with potential income benefits.
- 3. Knowledge sharing: To strengthen knowledge-sharing mechanisms on feed development strategies at local, regional and international levels.

# Innovation platforms as spaces to exchange knowledge and identify priority issues

An innovation platform is a space for learning and change. It is a group of individuals (who often represent organizations) with different backgrounds and interests: farmers, traders, food processors, researchers, government officials, etc. The members come together to diagnose problems, identify opportunities and find ways to achieve their goals. They may design and implement activities as a platform, or coordinate activities by individual members (Homann-Kee Tui et al. 2013).

Innovation platforms have gained popularity in research for development circles as a way of stimulating meaningful change in agricultural systems. They are a useful space for local stakeholders to come together to jointly identify constraints and devise and implement solutions. Their advantage over conventional methods (surveys, value chain analyses, etc.) is that they can very quickly identify the key constraints by drawing on extensive local knowledge. Furthermore, local people are more likely to own the solutions they themselves identify, increasing their likelihood of success. MilkIT used innovation platforms to catalyse innovations in smallholder dairy value chains in Uttarakhand, India (Figure 1), and in Morogoro and Tanga Regions in Tanzania (Figure 2). A hierarchy of platforms was established in Indian and Tanzanian sites, focusing on feed development for dairy as well as considering value chain issues and potential solutions.

Figure 1. Bageshwar and Sult districts in Uttarakhand, India







In the Indian sites in the MilkIT project, dialogue via the innovation platform very rapidly identified the core issues that were limiting dairy value chain development. Platform members quickly pointed out the amount of work women had in collecting feed from forests. They also complained that the price of milk was too low to justify investment in feed technologies or improved breeds of cows. They highlighted the acute overall shortage of feed as a key constraint to improved dairy productivity.

In the Tanzanian sites, a key concern voiced early in the platform dialogue was that milk prices were unreasonably low and that farmers were being exploited by buyers. The dialogue helped to correct this perception. Land-tenure issues also quickly came to the fore: in agro-pastoral communities, farmers were reluctant to invest in growing forage or improving pastures without assurance about their long-term land rights. A further issue was the strong seasonal nature of feed and hence milk production in Tanzania. Filling the seasonal feed gaps became a key issue to solve.

# What kind of changes emerged from the innovation platforms, and what contributed to their success?

In **India**, two types of innovations emerged from the platforms: marketing and simple feed technology innovations. On the **marketing** side, farmers in Bageshwar had the option of selling milk through Aanchal (a state-run milk co-operative) or an IFAD-initiated self-help group federation. But they preferred to form their own self-help-groupbased cooperatives within their own village clusters. In Jeganath in Bageshwar District, a producer co-operative was formed which secured a better price for milk. In Sult, on the other hand, farmers preferred to link with Aanchal for milk sales. Here, Aanchal agreed to relax the membership rules for cooperatives following conversations with the innovation platform.

Other organizational innovations followed. The national agricultural development bank, NABARD, developed a credit scheme to promote improved breeds of cows. Banks had been providing loans that required land as collateral; women and marginal farmers were not able to borrow money because they lacked land and confidence. This issue was discussed at a platform meeting. To minimize the risk of payment failure and improve confidence, the banks and NABARD set up a new arrangement modelled on that used by self-help or producer groups. The system worked on the basis of group collateral: any member was allowed to take out a loan of up to \$1, 600 to buy two dairy cattle; the group was responsible for paying back the money.

Another organizational innovation in response to the farmers' demands was a memorandum of understanding between agri-businesses such as Tara Feeds and the Jagenath cooperative to supply concentrate feeds.

In parallel to these marketing and organizational changes, various simple **livestock feeding** innovations began to emerge. Development agencies had previously distributed fodder choppers in the area. A study found that these choppers were lying unused and rusting in farmers' backyards. Farmers complained that they were heavy and required a lot of labour to operate. A shortage of labour is a key constraint as many men in Uttarakhand migrate to the cities in search of work, leaving women to handle the farm. The choppers required a lot of force to operate, and they were more heavy-duty than necessary to cut the thin, dry grass that grows in hilly areas.

After discussion with stakeholders, low cost and simple forage choppers were sourced from Gandhi Ashram and Gujarat dairy co-operative (AMUL). These consisted of handmade knives and simple lightweight scythe-type choppers. Small-scale trials assessed the use of such choppers and feeding troughs in six settlements. They resulted in 11% less fodder wastage, as well as significant savings in the labour used to clean up the wasted fodder. The farmers reported the findings in innovation platform meetings, encouraging other farmers to adopt the techniques, even outside the intervention sites.



Shankar Devtalla, INHERE field facilitator, demonstrates a simple fodder chopper to members of an innovation platform in Baseri village.

In **Tanzania**, innovations tended to focus on technical feed interventions. A key priority was improving the agropastoralists' dry-season grazing reserves. Agro-pastoralists practise rotational grazing during the rainy season, allowing their animals to graze in one area at a time. Meanwhile, they protect traditional fodder banks. These are enclosures around homesteads for use by lactating females, weak animals and calves during the dry season from August to October, when feed is scarce. In this period, the larger herd moves away in search of pasture (transhumance). The traditional dry-season forage reserves are usually fenced off with traditional materials and used only during dry season. In the Morogoro region, such reserves are known as *ololili* in the Maasai language.

A key challenge raised by platform members was the uncontrolled, illegal grazing of such areas: some herders ignored fences and traditional rules. In Morogoro, village innovation platforms conducted action research on how to improve the *ololilis*. This aimed to increase the availability of fodder and its quality longer into the dry season. Buffel grass (*Cenchrus ciliaris*) and hardy forage legumes (*Stylosanthes scabra* cv. Seca and *S. hamata* cv. Verano) were introduced. Communally or individually owned demonstration plots were established in two villages.

### How do changes move beyond a platform?

The MilkIT project's innovation platforms stimulated widespread change in the dairy value chain in two main ways: spontaneous diffusion across communities and more guided processes of intentional promotion and change by different agencies. A third way was through the adoption of the innovation platform process itself – as a mechanism to replicate the social processes as well as any specific changes.

### Spontaneous peer-to-peer diffusion

Some ideas emerging from the platforms spread spontaneously through the interest of platform members and outsiders. This "spill-over" required little effort on the part of the project. This kind of peer-to-peer diffusion was an example of diffusion of innovations as set out in classical communication theory (Rogers 2010). Rogers identifies four elements required for such diffusion: the innovation, communication channels, time and a social system. The role of innovation platforms in such diffusion is primarily to provide the communication channels but also to create or reinforce social links. We saw many examples of such diffusion in MilkIT:

- In Uttarakhand farmer members of the platform in Sult District established a link with the Aanchal dairy
  cooperative and negotiated for residents of Besarbagarh and Baseri to sell their milk. This attracted the interest in
  two neighbouring villages, Gahnaheet and Kunidher; farmers there negotiated similar arrangements with Aanchal.
  The farmers in these two villages have also spontaneously started using the forage choppers that emerged from the
  feed innovation platform in the Baseri village cluster in Sult District.
- In Bageshwar, the establishment of the Jagenath Dairy Cooperative through the platform attracted local interest. Now three other villages, Areagarh, Bholnanagar and Raikholi, have spontaneously joined the cooperative.
- A NABARD loan scheme enabled farmers in Bholnanagar and Bhohala villages to buy improved cows. Other farmers have also now independently procured cross-bred cows through their own contacts.

Figure 3.An innovation platform works with three technologies (the triangles). One of them is taken up by other people.



Peer-to-peer diffusion

### Uptake and guided diffusion by third parties

Some innovations coming out of the innovation platform process caught the attention of platform members, which then promoted them more widely across organizations and, in some cases, at regional and national levels. Some examples:

- The feed troughs piloted by MilkIT to reduce wastage in Uttarakhand are now being taken up by several organizations and promoted among their farmer clients: the Animal Husbandry Department, the Integrated Livelihood Support Program (funded by the International Fund for Agricultural Development) and the Aanchal dairy cooperative.
- The Integrated Livelihood Support Program has ordered choppers of the type that the Bageshwar platform piloted in Almora; it promotes them in non-MilkIT districts such as Chamoli.
- The state dairy cooperative, Aanchal, changed its cooperative membership rules as a result of discussions in the innovation platforms. The original rule said that 30 farmers in a village had to agree to sign up before Aanchal would collect milk. The new rule is more accommodating: cooperative members can be drawn from a number of neighbouring villages. The cooperative is now spreading the new rule to other areas.
- Members of local platforms alerted the Morogoro regional platform in Tanzania to the lack of veterinary drugs. The national media (e.g., *The Citizen* newspaper (2014)), took up the issue; the regional platform sent a letter to the Ministry.
- In Almora in India, discussions at the local innovation platform highlighted the fact that milk-fat testing using the Gerber method was very time-consuming, tempting collectors to short-cut the process. The issue was raised at higher level, and Aanchal agree to pay an additional fee of 4 rupees per litre for the collector for testing the milk properly.
- The problem of sourcing grass seeds and improved buffalo breeds now forms the core of a proposal between the Integrated Livelihood Support Program and the Animal Husbandry Department. They are working with Pantnagar University to acquire improved breeds of buffalo and VPKAS (Vivekananda Parvatiya Krishi Anusandhan Sansthan – the national hill research institute) to get grass seed.

Figure 4. An innovation platform works with three technologies. Someone sees the potential of a technology and it is intentionally spread to other locations and communities.



Third party guided diffusion

### Scaling of the innovation platform process itself

The examples above illustrate two main ways in which the MilkIT-supported innovation platforms incubated livestock improvements and, in some circumstances, facilitated the diffusion of the promising results and changes initiated through interaction, experimentation and negotiation.

Often, it was generally the actual innovations that attracted scaling attention from other parties. The platforms brought "together the technocrats and market players, with a lot of motivation!", says B.K. Bhatt, a program officer with the Gramya Vikas Samiti in Uttarakhand. Through its platforms, he says, MilkIT helped trial and test some practical, low-tech feed interventions and proved their usefulness (Ballantyne 2015a). Bhatt could then take these innovations out through the wider IFAD-supported programs he managed.

But not always! For more complex innovations such as changes to marketing arrangements, there may be no substitute for going through the innovation platform process, or at least a compressed version of it. MilkIT "sold a mix of demonstrable interventions, maybe also the innovation platforms as one of the interventions," says Ahmed Iqbal, chief development officer for Almora district, Uttarakhand (Ballantyne 2015c). Sometimes there is a need to think beyond merely promoting interventions to spreading the innovation platform process, so that members can come up with their own solutions.

Examples:

- CHIRAG (Central Himalayan Rural Action Group), a MilkIT partner in Uttarakhand, has seen the benefits of the
  platform process and is mainstreaming it within its programs. It is establishing innovation platforms in Pitoragarh
  district, in collaboration with Himmothan, a local NGO.
- The Integrated Livelihood Support Program, in collaboration with Aanchal, plans to establish the platform process in four non-MilkIT blocks. The program also plans to apply the approach to other commodities, including vegetables and spices.

In other cases, key elements of the approach are being adapted for particular purposes.

- The Tanzanian Dairy Development Forum has recognized the promise of regional dairy platforms and plans to
  extend these beyond Tanga and Morogoro. The Forum recommends setting up further regional platforms in Mbeya.
- Also in Tanzania, village innovation platforms have been replicated by the Tanzania Livestock Research Institute in other districts in Tanga. These also work on dairy feeds and market issues.
- A sister project funded by the US Agency for International Development, Africa RISING, borrowed various approaches from MilkIT in Babati district, including the use of innovation platforms.

Scaling of the IP process itself

Figure 5. Multiple innovation platforms are set up to address different issues.

Working in innovation-platform mode is not trivial – in fact it can sometimes be difficult. It forces researchers and other actors to move out of their comfort zone and think through issues from a different perspective. However, this effort is often central to the successes that emerge. The challenges of working with multiple stakeholders builds ownership and leads to solutions that fit the context.

When it comes to scaling, the temptation is often to attempt to scale out only the successes rather than the processes that led to those successes. One key lesson from MilkIT is that the innovation platform process is important. We sometimes need to scale out the process, and not just the success. This is harder work but will be more effective in the long run.

# Strategies to ensure that innovation platforms generate wide-scale changes

The section above identified two main ways that platforms extend and diffuse wide-scale livestock results and innovations. It also illustrated ways that scaling up the use of platforms themselves can be a vehicle to generate wide-scale livestock changes. This section explores strategies to increase the chances that platform actions lead to results, at scale.

### Consider scaling early on

Initiating changes is a core objective of most innovation platforms (Ballantyne 2015b). But changes rarely happen spontaneously. Considering scaling early on makes them more likely, and speeds them up. How scaling will work – how other institutions will take up new approaches – is rarely easy to predict. Nevertheless, considering the platform members' ability to help spread innovations makes it possible to identify and explore opportunities early on. Some opportunities may not lead to wider activities but still allow members to learn something. Keeping an open mind also increases the chance of finding efficient scaling partners.

One indication of whether a partner might contribute to scaling is its willingness to invest resources. An innovation platform can offer technical knowledge, experience and communication links. But the partners themselves have to provide financial resources and staff. For this to happen, they have to see a real benefit of engaging with the platform. Understanding the partners' institutional objectives and constraints can provide a good basis for assessing their potential to scale successfully.

Generally, projects using innovation platforms come and go. To achieve scale it is important to ensure that projects feed into bigger flows, acting as "tributaries" into main rivers. They need to connect to larger initiatives to make sure results are well-directed to reach the mainstream of thinking and action.

### Invest in developing facilitation skills

**Innovation platforms require fairly high-level facilitation skills.** These are often in short supply, but facilitation is a crucial element, especially when establishing a platform. Clarifying the purpose, roles and rules of engagement as well as ensuring the relevant partners and their representatives participate may be critical for success.

The underlying concepts and aims of innovation platforms are fairly simple: multi-actor engagement in identifying constraints and implementing interventions; assigned responsibilities for implementation; regular progress review. Nevertheless, skilled facilitation is needed to ensure that special interests, more powerful actors or louder voices do not dominate (Cullen et al. 2013). For innovation platforms to achieve change at scale, special attention needs to be paid to building sufficient local capacity in facilitation. This may involve identifying local partners who can take on facilitation roles and engaging these partners in facilitation from an early stage. It may also require investing in strengthening facilitation skills through pro-active mentorship (Rooyen et al. 2013).

### Nothing succeeds like success

Nothing attracts institutions to scale interventions and approaches as much as initial success. It is important to prioritize interventions which produce very visible impacts. Successful interventions also generate enthusiasm within a platform. Strong communication and exposure to other information sources (e.g., through visits, documents etc.) can help maintain and spread the momentum. For outside organizations to take note, the impact must be visible on the ground – in the form of new milk collection routes, new sales points, new demand for inputs. Considering this when prioritizing interventions and preparing information outputs will increase the chance of large-scale change.

### Hierarchy of levels

Using innovation platforms at different levels can connect practical interventions on the ground to the wider stakeholder community. Spreading an innovation does not have to be limited to replicating it at the same level. Platforms may exist at several levels: local, district, provincial and national. Using the insights and connections of a higher-level platform may be a good way to spread the innovation elsewhere. For instance, in Tanzania, regional platforms were effective in bringing together major value chain actors and identifying issues and solutions. However, some issues, particularly in regard to feed, require a more local setting. Even for such issues, the regional platform had the insight and connections to help identify local partners, disseminate information and establish new communication channels.

Sometimes it appears difficult to get apparently relevant actors to engage in local innovation platforms. This may be because higher-level actors have insufficient incentive to invest time in dealing with localized issues. To avoid these difficulties, platform organizers need to target invitees carefully to ensure that the innovation platform is relevant for as many partners as possible. If important partners have to engage in a lot of platforms, perhaps they should instead be part of a higher-level platform. A value chain platform that includes important milk buyers should not cover an area smaller than the buyers' collection areas (such as a sub-district). Buyers of small ruminants may cover much larger areas, so the platforms might best be located at the district or province level.

### **Exposure** visits

Exposure visits by one platform to another can shortcut the scaling process. Visits by Morogoro dairy stakeholders to the well-established Tanga dairy platform helped to accelerate the establishment of a sister platform in Morogoro. Exposure visits are an especially effective means of communication; they can be organized through regional platforms. Producers and other value chain actors are generally far more impressed by seeing actual activities and by discussing with the people involved, rather than just hearing about them second-hand.

Such visits also allow for new perspectives to develop. In Uttarakhand, farmers were very impressed with a village they visited that had embraced dairy development for several years. They saw fodder production, the quality of the animals and the effect of increased milk sales. Here the connection between changes in inputs, outputs and impacts was especially visible. This trip laid the basis for the visiting farmers to reconsider how to develop their farms.

### Local champions

For exposure visits and other demonstrations to be convincing, local champions are especially effective. These often have a particular interest in adopting specific innovations, resulting in stronger initiatives, faster implementation and more visible impacts.

Adoption does not stop with successful champions: others also need to take up the innovation. In some cases, champions actually attempt to maintain their knowledge advantage. Nevertheless, they can offer opportunities for other stakeholders who are less open to risk and innovation to learn.

### Realistic time horizon

Be realistic when assessing how long it will take to achieve widespread change. Many small steps are involved, and a multitude of individuals need convincing and co-ordination. Institutions need to find information, accept that it is credible, initiate communication, and achieve consensus on how far their interests are met. Even in the MilkIT site with the fastest improvements in the value chain, it took over 18 months from the start of the innovation platform for outsiders to take notice and start doing new activities. For the innovation to move beyond the platform's immediate area, a bigger lag is to be expected. In Uttarakhand the Integrated Livelihood Support Program is putting the innovation platform approach into its roll-out design now that the MilkIT project has come to an end. Considering such timeframes when setting up initial innovation platforms is essential for wider scaling.

### Look beyond immediate costs to long-term benefits

A frequent criticism about innovation platforms is that they have **high resource requirements**. However, except for the initial facilitation, most of the required activities can generally become part of the routine mandate of the partners involved (assuming they take ownership and invest in the platform). These partners will follow up on agreed actions if they have a genuine interest in the issue. For instance, if a milk-buying organization promises to start a collection centre, producer representatives will closely monitor it if they have a strong interest, and the buyer will be eager to communicate with them if they are genuinely interested in expanding their collection system.

The costs of individual platform components therefore have to been viewed against the yardstick of expected results. There need to be clear benefits and results from platform investments. The local village-level Tanzanian platforms, for instance, had difficulties attracting sustained participation by regional and national organizations – who found the regional platforms more useful. In India on the other hand, the market-led approach from the start engaged local representatives of banks and dairy cooperatives who increased their engagement as promising results were banked.

When weighing up the costs of innovation platforms, consider this: an innovation platform generates a high degree of buy-in and ownership of a change, at scale. This is usually more difficult to achieve through classic research-led processes that identify interventions and then try to get them adopted.

### Conclusions

Scaling is a hot topic in the agricultural research for development community. Donors and development actors are looking for "magic bullet" interventions which will quickly go to scale. In the case of livestock feed interventions, such a search may be in vain. In many cases feed and market interventions are highly context-specific, and the ideas need to be generated by local stakeholders so that they are locally owned and relevant to the local context. The use of local innovation platforms can play a useful role here since the innovations they generate take the local context and constraints strongly into account.

In the MilkIT project, we noted various routes to scale through the use of innovation platforms. These were spontaneous diffusion, taking up of innovations by third parties, and scaling of the innovation platform process itself. In each case the establishment and facilitation of innovation platforms at a range of scales was central to success. We therefore suggest that innovation platforms are a promising pathway to scale.

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