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Innovation Platforms to Enhance Participation in Rainwater Management: Lessons from The Nile Basin Development Challenge with a Particular Focus on Political Economy and Equity Issues

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Citation
Tucker, J., Cullen, B., Amsalu, A. and Ludi, E., 2014. ***Innovation Platforms to Enhance Participation in Rainwater Management: Lessons from The Nile Basin Development Challenge with a Particular Focus on Political Economy and Equity Issues.*** Colombo, Sri Lanka: CGIAR Challenge Program on Water and Food (CPWF). 40pp. (CPWF Research for Development (R4D) Series 11)

Design and layout: Janet Pontin
Front cover photo: Consultation with communities in Fogera (ILRI / Amede)
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Acronyms

ARC	Agricultural Research Center
AHI	African Highlands Initiative
AWM	Agricultural water management
BDC	Basin development challenge
BFP	Basin focal project
BL	Basin leader
CGIAR	Consultative Group for International Agricultural Research
COS-SIS	Convergence of Sciences: Strengthening agricultural innovation systems in Benin, Ghana and Mali
CPWF	Challenge Program on Water and Food
FAP	Fodder Adoption Project
ILRI	International Livestock Research Institute
IP	Innovation platform
NBDC	Nile Basin Development Challenge
NBI	Nile Basin Initiative
ODI	Overseas Development Institute (UK)
R4D	Research for Development
RWM	Rain water management
SLM	Sustainable land management
WLE	Water, Land and Ecosystems research program [CGIAR]

Acknowledgements

Thanks are principally due to the people in the three woredas (districts) studied, who gave up their time to share their experiences, views and knowledge with us. We would also like to thank Zelalem Lema, Aberra Adie, Gerba Leta and Elias Damtew (ILRI, Addis Ababa) for facilitating innovation platform meetings, field visits and interviews, and Alan Duncan (ILRI, Addis Ababa) for his critical role in platform establishment and support of this project. Comments provided by Marc Schut (Wageningen University) and Jo Cadilhon (ILRI, Nairobi) on an earlier draft have significantly improved this paper. Finally we thank the CPWF for the financial and technical support extended for implementing this work under the Nile Basin Development Challenge.

Executive Summary

This paper draws lessons from two years of work with 'innovation platforms' that were established by the Nile Basin Development Challenge (NBDC) program in an attempt to strengthen landscape-level rainwater management in Ethiopia. The NDBC's work included the use of an innovation fund to support pilot interventions. This paper particularly reviews questions of political economy and equity in platform activities and examines decision-making processes, the roles and level of influence of different platform members, the nature of platform-community relations and the extent to which different groups are benefiting. The information presented in this working paper was gathered from a mixture of sources: interviews conducted with platform members; observation of meetings and activities by NBDC staff; official minutes of platform meetings and other associated events (e.g., training sessions) and informal discussions between NBDC staff and platform members.

The NBDC aimed to improve the resilience of rural livelihoods in the Ethiopian highlands through a landscape approach to rainwater management and established innovation platforms in three sites: Diga and Jeldu in Oromiya Regional State and Fogera in Amhara Regional State. Baseline research conducted prior to platform establishment showed that planning and implementation of natural resource management activities are generally top-down in nature and geared toward meeting sectorial targets, with weak coordination between sectors and little scope for tailoring activities to local conditions and livelihoods. The innovation platform approach aimed to help foster more collaborative approaches to rainwater management, using practical interventions as an opportunity to pilot new ways of working. Yet, innovation platforms are an inherently political space as they bring together different stakeholders with different interests, and in this case they were inevitably imbued with highly unequal, existing power relations between government and citizens, which are characteristic of the Ethiopian context.

A small fund for implementing pilot rainwater management activities was made available to each platform in order to create an opportunity for testing collaborative and participatory ways of working. All platforms selected livestock-related interventions, focused on the control of free grazing combined with planting of fodder plants on soil conservation structures in communal land, cropland and backyards. These pilot projects provide an opportunity to study the workings of the platforms in action, to discover more about the dynamics of relationships both within platforms and between platforms and communities and to learn about the effectiveness of innovation platforms as an approach to foster more integrated, participatory and equitable natural resource management.

Early in the process, weaknesses emerged in the representation and voice of community members in platforms. Discussions were dominated by government actors, and the community representatives (who were selected by district officials) were largely either people with a role in the local administration or 'model farmers'. As implementation of interventions proceeded, government continued to act as de facto leaders, in some cases overriding community concerns. This was particularly evident in decisions on land for fodder planting, which in some cases ignored community uses of the land. Power relations between different farmers were also visible: for example, some farmers participated more than others in the development of bylaws for governing the use of the communal lands planted with fodder crops under these pilot projects. Nonetheless, participating farmers generally valued the interventions and saw their potential for helping to alleviate severe fodder shortages.

However, gender considerations have emerged as a concern meriting greater focus: the shift from free grazing to cut-and-carry feeding creates additional responsibilities for women, who are generally responsible for looking after livestock around the home and already usually bear a disproportionate share of household labor. Representation of women in platform debates will need to be strengthened to ensure that such issues are addressed.

Partners from Bako ARC and Diga office of Livestock Agency visit the on farm forage development
Photo: ILRI / Gerba Leta

During implementation it also emerged that the broader purpose of the innovation platforms (beyond the implementation of the fodder pilot projects) had not always been communicated effectively to communities. Follow-up interviews revealed differences in understanding among platform members themselves, with some showing limited understanding of the innovation platform philosophy and aims. This may have been due to high turnover of members from some organizations, but it could also be a result of implementing the fodder projects early in the process, so that these became the focus.

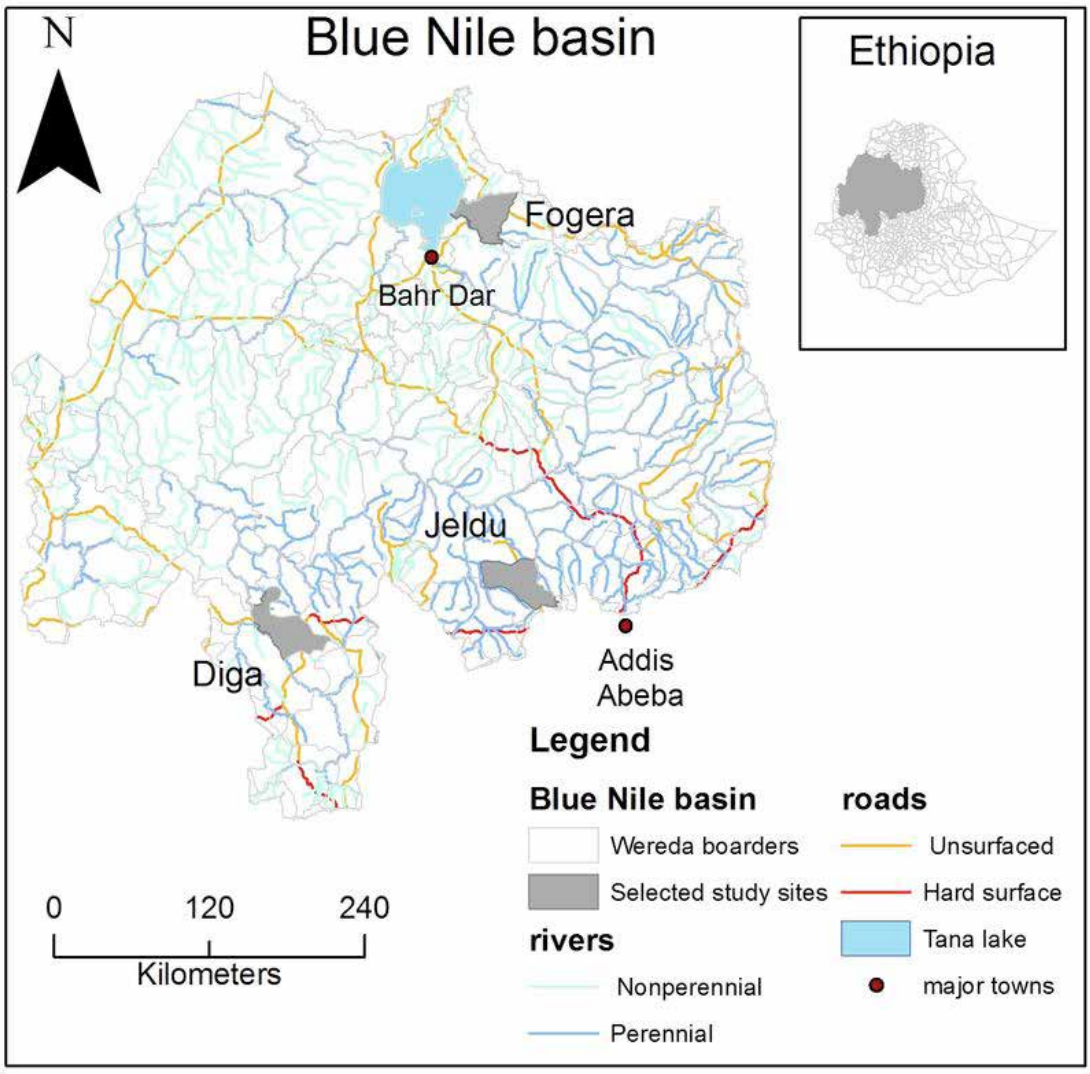
In response to these problems, NBDC staff adopted a range of measures over the course of the project. These included parallel community engagement exercises, with both men and women; participatory video to bring community voices to the platforms; training for platform facilitators; trainings for local government staff and extension workers (or so-called development agents) on participatory planning methods; and role-playing games to help platform members understand the wider system in which they work and their role in it. The effectiveness of some of these measures will emerge over the coming years.

This paper finishes with recommendations to (i) strengthen community inclusion and representation in platforms, (ii) incorporate gender considerations more effectively, (iii) improve ownership and understanding of the innovation platform philosophy and approach and (iv) deal with the significant power imbalances that can arise within platforms and between platforms and other stakeholders. Key recommendations include conducting a thorough baseline analysis of livelihoods, stakeholder interests and power relations; investing in local facilitation and training and supporting facilitators in participatory approaches; forming subgroups (e.g., for women or specific groups within communities) to ensure that a range of voices are heard; holding meetings at community level and in spaces not owned by formal decision makers and using innovative tools such as role-playing games.

Introduction

The NBDC program established innovation platforms in three sites: Diga and Jeldu in Oromiya Regional State and Fogera in Amhara Regional State (Figure 1). The aim of the NBDC program was to improve the resilience of rural livelihoods in the Ethiopian highlands through a landscape approach to rainwater management. The purpose of the platforms was to strengthen planning and implementation of local rainwater management processes. The program's vision was to foster rainwater management strategies that were evidence based, tailored to socio-ecological niches, cross sectorial and participatory, while simultaneously tackling land and water degradation at a landscape scale. Ethiopia has made heavy investments in rainwater management over the past four decades–particularly in soil and water conservation and afforestation–but with patchy success. The limited effectiveness of past interventions has been traced to factors including poor design of measures whose primary aim was to provide food for work; capacity limitations both at local government and community level; failure to ensure that investments were based on farmer demand; lack of short-term benefit to motivate farmers (in acknowledgement of dealing with highly constrained household budgets) to engage in maintenance and a focus on reversing degradation rather than boosting productivity and farm income (Pankhurst 2001, Merrey and Gebreselassie 2011).

Figure 1. Map of Ethiopia showing NBDC study sites



Source: NBDC GIS team

Solving complex natural resource management problems involves coordinating actions across agriculture, land use, water management and forestry and between different parts of a watershed. This is innately challenging. It requires action on farms but also on communal or public land, which may be used in a variety of ways to support livelihoods (e.g., for grazing or collection of manure or fuel wood). Also challenging is finding shared motivations and widely accepted ways of managing natural resources, considering the range of interests, livelihoods and priorities of different users of land and water. While farmers may benefit from reduced soil erosion in the long term (if land productivity increases), they may lose out in the short to medium term from a decision to, for example, construct bunds if this takes a percentage of their land out of production. Farmers with enough of their own land for grazing may not lose out from restrictions placed on grazing of a communal area, but those with small holdings might, and so on. Managing all these trade-offs and different perspectives requires not only good understanding of landscape-level biophysical processes, but also an ability to relate these to local and diverse livelihoods and different stakeholder needs and to ensure that the impacts of decisions are as equitable as possible.

Previous papers (Ludi *et al.* 2013, Snyder *et al.* 2014) have explored planning and implementation processes for rainwater management in the three study sites. These concluded that land and rainwater management decisions and implementation in Ethiopia are not sufficiently coordinated across sectors and locations, nor is there much space for views of local stakeholders in decision making. Decisions are taken and implemented largely in a top-down, sectorial fashion, focused on achieving targets set by national and regional government bodies (for example, to plant a certain number of trees or construct a certain length of bunds in a district). Local government staff feel that their primary accountability relationship is upward, i.e., to report on these targets, rather than downward, i.e., to take account of the views of local people. As a result, even when the participatory planning methods detailed in the national Participatory Watershed Planning Guideline are applied, indications that local views have been taken into account are not always visible in final implementation plans. There is also no mechanism for local planners to work with neighboring *woredas* [1] to consider landscape level impacts. Being focused on downward diffusion of information, woreda officials and extension workers also struggle with a lack of experience and capacity for stakeholder consultation or participatory planning (Cullen *et al.* 2014b; Hagmann and Abbink 2011). Other challenges include poorly developed markets, poor infrastructure, limited access to information and inadequate extension services to assist farmers in making changes.

In this context, the establishment of innovation platforms is based on the recognition that improvements to natural resource management depend on broader institutional innovation rather than a narrow focus on technical measures or on top-down efforts to change farmer behavior (see German et al. 2012). This is the case even in densely settled areas where improved natural resource management must start at the individual farm level (Amede *et al.* 2012). Innovation platforms therefore aim to provide a mechanism for bringing key stakeholders together in order to identify and address technical and institutional challenges through enhancing communication, coordination and knowledge sharing. They should in theory allow all stakeholders, including local residents, decision makers and experts, to put forward their views, needs and preferences, in order to arrive at negotiated solutions. Box 1 (following page) explains the innovation platform approach.

The innovation platforms in the NBDC program sought to foster innovation in rainwater management by enabling joint identification of issues for action, co-design of locally tailored interventions, improved coordination and collaboration of stakeholders and increased community participation in decision making.

[1] Administrative area equivalent to a district

Box 1: Innovation platforms

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: in the case of rural development and agricultural programs, these could be 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 also provide a space where diverging interests come to the fore and solutions can be negotiated (Leeuwis 2000).

Innovation platforms have recently become popular in rural development programs, reflecting a shift away from technology transfer modes of intervention to a focus on co-generation of knowledge. Innovation systems thinking emphasizes that change–whether technological or institutional–is always non-linear and that the capacity of a system to innovate depends on the "density and quality of relationships" between the innovation-producing and innovation-using agents and supporting institutions. (Altenburg *et al.* 2008: 327). Innovation platforms are one way that development practitioners seek to build innovation capacity, bringing stakeholders together for dialogue and joint action, and are intended to function as an arena where intermediation helps to foster the "co-evolution" of technical, social, institutional and organizational innovation (Kilelu *et al.* 2013).

Innovation platform meeting at Jeldu district administration office
Photo: ILRI / Adie

Reviewing progress after two years

This paper reflects on the experience of establishing innovation platforms to address complex natural resource management problems, including an innovation fund to support pilot interventions by platforms in the three project sites, and it draws lessons from the two years that have passed since the platforms were first established. Innovation platforms are an inherently political space, and in this case they were inevitably imbued with highly unequal, existing power relations between government and citizens, and to a lesser degree among citizens, which is characteristic of the Ethiopian context. The sort of institutional innovation that the NBDC was hoping to trigger is also a political process, involving a range of stakeholders with different incentives and vested interests. Finally, even the question of how to approach rainwater management is in itself politicized. Various narratives exist as to why rainwater management should, or should not, be a priority, and the diverse actors who are involved in implementing or affected by rainwater management interventions often have different ideas about how rainwater should be managed. We therefore focus this review on processes of stakeholder dialogue and participation; equity of outcomes; political economy concerns related to how decisions are taken and communicated; the roles and level of influence of platform members representing different groups; and the nature of platform-community relations. A formal evaluation of the impact and effectiveness of the platforms has not been undertaken, but this review begins to examine where innovation platforms are taking steps toward overcoming the aforementioned barriers to more effective natural resources management practices and where challenges still remain.

This paper draws on qualitative research, including the results of focus group discussions and participatory community engagement exercises, minutes from innovation platform meetings, researcher observations of the platform process and pilot interventions, and key informant interviews in the three sites. It aims to describe the processes undertaken by the platforms so far, document their successes and challenges and draw lessons for both ongoing work in the three sites and similar future programs.

Before reviewing the progress of the NBDC platforms, we first briefly summarize some lessons from the literature on innovation platforms, including the experiences of two other projects that have established innovation platforms on natural resources management and agriculture in Ethiopia: the Fodder Adoption Project (FAP)[2] and African Highlands Initiative (AHI)[3]. We recognize that there is a substantial and growing body of literature on innovation systems, which is not treated in full here; our aim is to extract and present some key lessons relevant for understanding the experiences of the NBDC program in relation to political economy and equity aspects.

Key lessons from the literature

(i) Entry points that have high potential for impact and offer early, low-risk benefits

The choice of entry points has been proven to have a significant effect on whether farmers will be keen to invest in a partnership with researchers and extension agents for the purpose of experimentation (Amede *et al.* 2012). Entry points can be interventions in the form of an attractive technology or an incentive that contributes to solving practical problems on the ground. An important lesson from the FAP is that different actors participated in multi-stakeholder networks when they could identify tangible benefits for themselves, preferably with an early payoff that justifies their investment of time, effort and resources

[2] http://fodderadoption.wordpress.com/
[3] http://www.worldagroforestry.org/programmes/african-highlands/

(Ergano *et al.* n.d.). Where activities address multiple concerns simultaneously, they should bring quick and low-risk economic returns in at least one area of priority importance for farmers. Poor farmers in particular cannot afford to invest much labor or wait a long time for their investments to yield results. In general, selecting entry points with high potential for impact will help to build demand for innovation if this is low at the outset (Ngwenya and Hagmann 2011). However, some others argue that focusing on a short-term technical innovation can obscure the broader purpose of fostering social or institutional innovation (Schad *et al.* 2011).

(ii) Participatory design of interventions for equitable benefits

Participatory selection of activities and entry points, with careful attention to the interests and preferences of different groups, is important. In one AHI site, for example, farmers with different wealth levels and livelihood strategies had conflicting views on the preferred entry points for the platform, depending on their existing level of access to resources: better-off farmers with fertile plots and many livestock, and therefore ample manure for fertilizer, favored the adoption of high-yielding crop varieties to increase their production, while farmers with degraded land and limited access to manure preferred interventions that promised to enhance soil fertility (German *et al.* 2012).

(iii) Recognition of existing local knowledge and innovation capacity

Efforts to support farmer innovation must begin with and build on local knowledge and innovation in order to build constructive partnerships between farmers and other actors in an innovation system. External experts, scientists and officials often assume that they know best how to solve problems and improve the lives of farmers and fail to recognize or value the existing knowledge of farmers. Innovation platforms should not be reduced to a vehicle for top-down transmission of knowledge–though inputs from external experts can certainly be very useful–but should provide a forum for bringing together different sources of knowledge and thus develop new solutions. For example, the AHI found that different groups of farmers favored different approaches to soil and water management based on their previous experience and livelihood situation; by bringing together experts who could present a range of options, farmers could pick and choose approaches, building on their own experiences (Amede 2003).

(iv) Considering the roles of consensus and conflict

Building consensus between stakeholders is often seen as one of the main aims of an innovation platform and a prerequisite for joint action. However, conflicts of interest between members are likely around issues such as who benefits from the platform activities, who has access to new resources and who controls the process. Such conflicts may limit the participation of certain members in the platform activities (Wennink and Ochola 2011). These issues are not necessarily easy to resolve, and consensus may not always be possible, but a high level of conflict may derail the platform processes altogether. However, achieving a compromise should not always be a priority for platforms. Conflict can be an important catalyst for change, and platforms can provide a space for such conflicts to be brought to the fore and explored (Swaans *et al.* 2013, Nederlof and Pyburn 2012, Leeuwis 2000). Pushing for consensus, especially in the short term, may suppress the voices of the less powerful and lead to decisions to pursue 'solutions' that do not in fact reflect the interests of all actors. There is also a risk that agreed terms will be ignored by more powerful actors when it comes to implementation. Edmunds and Wollenburg (2002) cite the cases of the Joint Forest Management Programme in India and the Community Forestry Programme in Nepal: in both projects, agreements were initially reached between stakeholders on forest management arrangements that theoretically balanced forest protection with community use of resources, but powerful actors in government were later able to suppress community interests. Managing conflict in a productive way is challenging, but it is an important function of facilitators. It may require many small submeetings

for groups to negotiate, for example, rather than expecting all views to be openly aired in large meetings (Leeuwis 2000). A negotiation-based approach requires explicit discussion of the process to deal with conflicts, rather than relying on one-off knowledge-sharing exercises (ibid).

(v) Selecting the right people to participate

Innovation platforms will only succeed if the right people are present, but finding the right composition is likely to be an iterative process. Ngwenya and Hagmann (2011) recommend first defining the issue for the platform to work on (the 'innovation challenge') with an initial group, then identifying all the necessary functions to address the challenge and then bringing in the relevant people. These may not be the same at each stage of the platform's life, and not everyone has to be involved in all activities (Nederlof and Pyburn 2012). The key is to be flexible and involve the right people at the right time. There is no single prescription for an effective platform structure or composition. It is also important to be sensitive to the needs of different groups, e.g., men and women, the dynamics of their interactions, and to facilitate their involvement accordingly.

(vi) Facilitation

All experiences of working with innovation platforms point to the need for high quality facilitation, especially in the early stages of platform formation when the approach may be unfamiliar, relationships are new and the platform would have little chance of taking off and functioning alone. This is about more than facilitating workshops–facilitators need to have a good understanding of the issue facing the platform, an ability to challenge people to think differently about the system they work in and the capacity to support them to change their ways of working (Ngwenya and Hagmann 2011). At the beginning, facilitators need time to identify the right people to participate in the platform, to build trust and to ensure that they understand the system fully (Nederlof and Pyburn 2012). They also need to be able to manage conflicts that may arise. This raises the question of whether or not facilitators should be part of the system they are working within (Leeuwis 2000). An independent actor, who is still familiar with the platform context and who is considered legitimate and trustworthy by all platform members, may, if possible, be the preferred option (Tucker *et al.* 2013a).

(vii) Representation and legitimacy of members

Where platform members are expected to speak on behalf of particular constituencies (be that organizations, social groups, villages or others), the platform needs to allow time for them to perform this role, even if it means delays in project activities while these individuals consult with others. This is important to ensure legitimacy and transparency of platform decisions. It may also be necessary for facilitators to check that these members are in fact discussing platform activities with those they supposedly represent and are accurately reflecting the views of their constituents (Nederlof and Pyburn 2013).

(viii) Dealing with power asymmetries

Skilled facilitation can help manage power relations during meetings, but power relations will also manifest themselves outside meetings and can lead to certain actors dominating platform activities. In particular, local government may play a dominant role. In some cases this has been addressed by taking steps to involve other locally powerful actors; for example, one project in Mali involved traditional authorities (Nederlof and Pyburn 2012). But in Ethiopia and similar contexts, where government is such a singularly powerful actor, such counterweights may not easily be found.

(ix) Contextual factors hindering innovation

Schad *et al.* (2011) write about experiences working with innovation platforms in rural Vietnam, a context somewhat analogous to Ethiopia in terms of its recent experience of communism, authoritarian government system and top-down approach to local planning as well as to agricultural extension and other forms of knowledge transmission. They found that platforms were often dominated by current or past officials, or by those with a role in local hierarchies, and that it was difficult to avoid such actors controlling platform activities and prioritizing local elites for inclusion. At the same time, farmers unaccustomed to playing an active role in knowledge generation tended to assume the role of 'passive recipient' of knowledge. Neef and Neubert (2010) also find that participatory approaches are very challenging in such contexts. In such situations, long-term engagement and excellent facilitation by external brokers are probably needed. Yet, even with local government playing a dominant role, the FAP in Ethiopia was able to support the emergence of useful innovations and the development of strengthened value chains for livestock by bringing together a set of knowledge providers who could help both farmers and local officials develop more integrated approaches to fodder management (Ergano *et al.* n.d.). Extension workers also gained an interest in more participatory approaches and were trained to include these in their work (Ayele *et al.* 2012).

Practical training on fodder management, Jeldu
Photo: ILRI / Adie

NBDC platform establishment and selection of interventions

Beginning in July 2011, relevant stakeholders were identified and innovation platforms set up in all the three NBDC sites (Fogera, Diga and Jeldu). During the first meeting, the NBDC program's aims and objectives and the concept of innovation platforms were introduced, and the interests and needs of stakeholders gauged. In the second meeting, baseline research findings on local natural resource management planning and implementation, innovation and livelihoods were presented to stakeholders, highlighting issues that the innovation platform might wish to consider in planning its activities and areas where it might be able to effect change. This led to the identification of common rainwater management issues and discussion about roles and responsibilities of various actors. The aim of these meetings was to enable actors to analyze their own constraints and opportunities and to improve coordination and communication between the various stakeholders (i.e., between woreda line departments, between decision makers and community members, between universities and national agricultural research institutes, etc.).

After the second meeting, it became apparent that community views were not adequately represented in innovation platforms, largely because of the types of 'community representatives' (i.e., *kebele* [4] leaders and model farmers [5]) who were invited to attend the meetings. Early attempts to discuss these issues directly with platform members were met with resistance, so the decision was made to proceed with the project but to incorporate various community engagement exercises that were intended to provoke joint learning. Community engagement exercises were undertaken by NBDC researchers in each of the sites to get a sense of natural resources management constraints and priorities. This process involved resource and problem identification exercises, participatory mapping, focus groups, problem ranking and, in Fogera, the use of participatory video (see Cullen 2012, for more detail on participatory video exercises). Researchers decided not to include innovation platform members in these exercises in an attempt to get more frank feedback from community members on their priority issues.

During the third round of meetings, outcomes from community engagement exercises were presented to innovation platform members for discussion. This helped to inform issue identification. In Fogera, participatory video was used to present farmers' views to platform members. Farmers' 'lack of awareness' is often mentioned as a constraint by platform members; yet, farmer feedback made it clear that although farmers possess in-depth knowledge about their farming systems and how to manage them, a disparity often exists between what farmers know and what their resources allow them to do. Apparent is also a disconnect between the realities that farmers face and the views of higher level stakeholders, including researchers, who may perceive their 'expert' or scientific knowledge as superior and therefore not adequately consider the knowledge or views of farmers when promoting or designing 'solutions' to local problems.

It was decided to make a small fund for implementing pilot rainwater management activities available to each platform (see Tucker *et al.* 2013c). The rationale for providing a pilot fund for each platform was to enable some small, concrete actions that would make the platform more than a 'talking shop' and hopefully demonstrate the benefits of collaborative ways of working. These pilot projects provide an opportunity to study the workings of the platforms in action, to discover more about the dynamics of platforms and between platforms and communities and to learn about the effectiveness of innovation platforms as an approach to natural resource management. Each fund was awarded on the basis of a proposal from platform members, with the criteria that interventions to be funded should be participatory, evidence

[4] Lowest administrative unit in Ethiopia, equivalent to a community and composed of several villages
[5] Model farmers play a prominent role in the local administrative structure and are expected to persuade their neighbours to support government initiatives and to participate in development activities (Williamson, 2011).

based, tailored to local social and environmental conditions and cross sectorial in nature (i.e., in line with the broader objectives of the NBDC program).

All three platforms developed proposals meeting these criteria, with support from project staff. All three platforms independently decided to focus on aspects of livestock feed/grazing management. The platforms have the twin aims of improving soil condition and water conservation while improving livestock feed availability by planting appropriate multi-purpose species. These interventions were identified to fill a gap in ongoing government (and in one case donor) soil-and-water-conservation projects in the three sites. Indeed, the large-scale Sustainable Land Management (SLM) campaign, which was then taking place across Ethiopia and which entailed 'awareness-raising' activities on measures to address land degradation and a drive for collective action in every kebele of participating woredas, probably had a significant influence on the selection of interventions. The first year of NBDC pilot implementation began in May/June 2012.

Diga

The pilot project in Diga focused on the introduction of improved fodder varieties to rehabilitate degraded grazing lands and address feed shortages caused by termite infestation. Forage development was piloted in backyards and on communal land in 2012 at Dapo and Denbi villages of Arjo Kebele. A total of 40 farmers participated in the pilot intervention. Members of the innovation platform technical working group selected farmers to participate in the pilot based on criteria that included interest, length of residence in the area, ownership of animals, ownership of grazing and/or farm land, evidence of successful management of their land and fodder shortage. From those selected, 28 farmers planted the fodder varieties in their backyards and 12 farmers on their adjoining grazing land. The main fodder varieties introduced were rhode grass and napier grass. Although a few farmers had grown rhodes grass in their backyards before the start of the pilot project, for their own use, the fodder varieties introduced were new to the wider community. Following training provided for farmers at a nursery site in July 2012, a combination of rhodes and napier grass strips and chomo grass were planted on degraded grazing land. Chomo grass is a termite-resistant fodder grass and was particularly popular with farmers in Diga (for more information on chomo grass, see Adie and Duncan 2013).

Jeldu

In Jeldu, preliminary platform meetings and the results of community engagement exercises led to prioritization of interventions that could address soil erosion, declining productivity and a shortage of fodder. Fodder interventions aimed to help address feed shortages, stabilize soil bunds and provide short-term incentives for farmers participating in government-initiated soil conservation work. Tree lucerne, bana, desho and napier grass were selected as appropriate multi-purpose species. Members of the innovation platform's technical working group selected farmers to participate based on interest, previous experience with soil and water conservation measures, ownership or use of degraded land, ownership of livestock and shortage of livestock feed.

In addition, a number of 'model farmers' were selected due to their role in promoting new approaches to others. On the basis of this, 96 farmers were selected to participate in fodder development pilots, and almost 200,000 seedlings were purchased/donated and distributed. Seedlings have been planted on existing soil and water conservation structures, in backyards and on farmland.

Fogera

In Fogera, the focus was on controlling free grazing through increased livestock feed supply in order to make soil and water conservation efforts more effective. Free grazing destroys soil conservation structures, contributes to soil compaction and removes crop residues that would otherwise enhance soil fertility. Increased supply of livestock feed was expected to allow stall feeding and thereby also control free grazing, especially in the dry season. Initially, an area of communal grazing land, close to conservation structures, in Gebre Gesa village was selected for exclusion of livestock. However, the site was changed in response to the preference of local communities, and an enclosed area was eventually established in Libichosh Got (Woje Awramba kebele, in the Gunguf watershed) where free grazing was identified as a severe problem. The enclosed land covered more than 3.75 hectares and housed 60 people in 13 households. Fodder species have been planted in the enclosure, including vetiver grass, pigeon pea, cowpea, sesbania and napier grass, for cut and carry as well as land rehabilitation purposes. Two hectares of backyard were also planted with fodder. Seeds and tools were distributed to farmers and various types of training were given. The local community has also started to develop bylaws to govern use of the enclosed area.

Community members from Limbichoche village, Fogera, discuss enclosure of grazing land with ILRI researchers
Photo: ILRI

Outcomes of community engagement exercises

Recognizing that the diversity of local livelihoods was not necessarily well reflected by the 'farmer representatives' who were selected to participate in the platforms (and who were few in number and usually either kebele leaders or 'model farmers'), project researchers carried out community engagement exercises on parallel with project interventions in the three sites. These exercises were intended to gather a wider range of viewpoints, collect knowledge about livelihoods and farmer priorities in relation to natural resource management in different parts of the landscape and provide a mechanism to feed farmer voices into platform discussions, mediated by the project staff.

Diga

Community engagement was conducted in three kebeles representing upstream, midstream and downstream parts of the watershed. The exercise consisted of identification of priority natural resources for farmers' livelihoods, problems experienced by farmers and, where possible, participatory mapping of resources and problems. This was followed by focus group discussions with male and female subgroups to explore the issues in more detail, based on the following questions:

- What resources are abundant or scarce?
- How have these resources changed over time?
- What are the greatest problems affecting land and water resources?
- Who are the most affected by these problems and why?
- What is currently being done to address these problems and by whom?
- What do you think could be done in the future to solve these problems?

Emphasis was placed on exploring people's ideas for solutions, not only identifying problems.

Communities in all three kebeles identified several common issues. These included declining soil fertility and insufficiency of the mitigation measures that households use (e.g., contour plowing, planting and livestock corralling).

- People seeking new land (as a result of declining soil fertility), which leads to migration and deforestation.
- Termites, monkeys and other pests
- Decline in forest cover
- Crop diseases
- Livestock diseases
- Low milk yields from cattle
- Limited opportunities for irrigation
- Water supply issues, e.g., sources drying in the dry season and inadequate drinking water sources.

Although most groups identified a similar or overlapping set of issues, the relative priority attached to different issues varied between locations and between men and women. Women seemed to reach a high degree of consensus on the main issues and focused mainly on community-wide problems rather than individual agendas, whereas men were more likely to identify issues affecting themselves. Some men also queried whether women were knowledgeable enough about natural resource management. However, when the groups were brought together to collectively rank identified issues, men tended to agree with the women's ranking.

Overall, priority issues tended to be tangible ones which (i) immediately affect livelihoods and (ii) require external support. Some additional issues, which were identified, but not ranked as high priority, appear to be underlying drivers linked to priority issues (Table 1). The problems identified also highlight the importance of taking a landscape-level view as many of them seem to relate to wider processes of change in the agro-ecosystem. Understanding these dynamics is important to effective landscape-scale action, and it is important to arrive at an appropriate balance of short-term responses to treat the symptoms of a problem (e.g., deterring monkeys from destroying crops) and treatment of the underlying causes (e.g., deforestation, driving monkeys into farmland). Farmers also highlighted that some issues—such as tackling soil erosion, irrigation provision and drying of water sources—require better upstream-downstream coordination.

Table 1. Priority issues identified by communities, Diga woreda

Bikila (upstream)	Arjo (midstream)	Lelisa Dimtu (downstream)
1. Monkeys 2. Termites 3. Irrigation 4. Coffee disease	1. Termites 2. Soil Erosion 3. Mango Disease 4. Livestock disease	1. Termites 2. Mango disease 3. Water problems 4. Soil Erosion
Deforestation Livestock Disease Soil Erosion Climate Change Soil Fertility	Irrigation Pests: mice and worms Soil Fertility Deforestation Population Growth	Irrigation Deforestation Climate Change New weeds Livestock disease

Source: Community consultations

Jeldu

Community engagement exercises were conducted in three kebeles representing upstream, midstream and downstream parts of the watershed: Seriti, Chilanko and Kolu Galan. Development agents from the kebeles selected 16 participants: eight female and eight male of different ages and socio-economic status. Participatory methods were used to enable community members to identify their key resources and land and water management challenges. The participants were split into two groups according to gender. The male and female groups in each kebele were asked to rank the top five resources and problems. The main problems identified by the male and female groups were then jointly ranked. This joint ranking exercise was then followed by focus group discussions with male and female groups based on the following questions:

- What are the main causes of the natural resources management challenges you have prioritized?
- How long have you faced these challenges and how have they changed over time?
- Who is the most affected by these challenges and why?
- What is currently being done to address these challenges and by whom?
- What do you think could be done in the future to address these challenges?

The groups then fed back the outcomes of their discussions, including information about causes, current practices and solutions. Communities in all three kebeles identified several common issues. These included

- Soil erosion caused by deforestation
- Shortage of fodder for livestock due to deforestation and expansion of farmland
- Decrease in indigenous tree species and an increase in eucalyptus plantations
- Crop diseases and pests
- Landlessness
- Shortage of water for livestock and people (in one kebele)
- Lack of irrigation technology (in one kebele)

Most groups identified a similar or overlapping set of issues, and the priorities attached to these issues tended to be the same between locations (Table 2). Due to time constraints it was not possible to conduct gendered prioritization of issues in each kebele. Broad consensus between men and women existed in most kebeles. The top-ranked issues between the three kebeles were soil erosion, deforestation, crop disease and lack of animal fodder. Issues of soil erosion and deforestation were mentioned consistently across the three kebeles. It was clear from participant responses that community members had recently received training on land and water management as part of the government-led sustainable land management/watershed campaign work taking place in the woreda at the time. Therefore, the fact that community members ranked soil erosion and deforestation as priority issues does not necessarily mean that they are priority concerns for farmers or that farmers are invested in changing current practices. Nonetheless, soil erosion is obviously a serious problem for the area.

Table 2. Priority issues identified by communities, Jeldu woreda

Seriti (upstream)	Chilanko (midstream)	Kolu Galan (downstream)
1. Soil erosion	1. Crop disease	1. Deforestation
2. Deforestation	2. Deforestation	2. Soil erosion
3. Shortage of fodder	3. Soil erosion	3. Crop disease
4. Wheat disease	4. Shortage of fodder	4. Shortage of fodder
5. Landlessness	5. Landlessness	5. Lack of irrigation technology

Fogera

Three kebeles were chosen to represent upstream, midstream and downstream locations: Alember, Diba Sifatre and Kokit, respectively. Development agents from each kebele used criteria defined by NBDC researchers to select four participants: two female and two male of different ages, representing a range of socio-economic status. Participatory rural appraisal tools and exercises were conducted to enable community members to identify their key resources and land and water management challenges.

Communities in all three kebeles identified several common issues. These included

- Declining crop productivity
- Deforestation
- Crop disease and pests
- Soil erosion
- Shortage of water for crop production in the dry season
- Flooding during the wet season
- Gully formation

Although some issues were common across the kebeles, participants prioritized issues differently depending on the kebele's location in the landscape (Table 3). Alember kebele, which is in the highland area, prioritized soil erosion, whereas Diba Sifatre and Kokit, both low-lying areas near the Rib river, prioritized flooding and water stress.

Table 3. Priority issues identified by communities, Fogera woreda

Alember (upstream)	Diba Sifatre (midstream)	Kokit (downstream)
1. Soil erosion and deforestation	1. Gully formation	1. Water flooding and stress
2. Crop disease	2. Flooding in wet season	2. Water stress in dry season
3. Declining crop productivity	3. Crop pests and diseases	3. Water logging
4. Deforestation	4. Water shortage for crop production	4. Crop diseases and pests
5. Difficult landscape	5. Deforestation and declining crop yields	5. Declining river levels

Further discussions were held around the priority focus of the Fogera innovation platform. Participants involved in the community engagement exercise had not participated in platform meetings and were unaware of the discussions on proposed interventions being held by the innovation platform members. Facilitators informed the community members that the issues of unrestricted grazing had been selected by the Fogera platform for action. This issue did not emerge in the community's prioritization of issues, but the community members discussed how they might communicate their views. They were aware of proposed plans for restricting grazing, linked to soil conservation efforts. The participants raised a number of potential challenges to restricting livestock grazing in the area. This revealed a substantial divide between the views and perceptions of community members and decision makers, which will need to be bridged if interventions are to be successful. As a result of these discussions, the community members decided to include unrestricted grazing as a priority issue. The three land and water management issues that were finally selected were soil conservation work, water stress and unrestricted grazing.

Communication of community engagement results

The results of the community engagement exercises were fed into platform discussions during the development of proposals for pilot interventions. Conflicting perspectives emerged during the discussions that followed. In Diga, government representatives, as a group, selected soil erosion as the issue to be addressed, rather than the termite problem identified by farmers, possibly because acting on soil erosion enables government representatives to meet the targets on soil and water conservation that they receive from central government. Government staff tended to act as the de facto leaders of innovation processes. In Fogera, platform and community members had different views about restricting grazing. Government representatives wanted to take immediate action to restrict livestock movements outside homesteads, again possibly due to a central directive, but farmers favored a more gradual approach. In Jeldu, there was a greater degree of consensus on tackling soil erosion, which may have been because of ongoing government sensitization work. Observations by project staff also suggest that farmers in Jeldu may have been reluctant to express views alternative to those put forward by government (Cullen *et al.* 2014b).

Nonetheless, in all three sites fodder interventions did address some of the needs of farmers, and the selected interventions could be seen as a compromise between innovation platform members' long-term interest in soil and water conservation and farmers' concern with short term needs, e.g., fodder shortage. Researchers played a key mediating role, for example by linking the various challenges faced by different actors in order to arrive at interventions that could contribute to addressing several of the identified issues.

Successes and challenges so far

In all three sites, participating farmers do value the interventions and see their potential to help alleviate severe fodder shortages, and plans exists to continue and expand the program for a further year. Experiences have been observed with interest by neighbors and shared intentionally through famer field days, generating interest in neighboring kebeles. It is too early to fully understand the impact of the interventions on the lives and livelihoods of participants, or indeed on other members of the community, although early research has generated some insights (Box 2). However, a detailed review of the innovation platform process over the past two years reveals the complexity of attempting to intervene through such processes and provides some lessons for future efforts taking a similar approach.

Diga

The platform in Diga has enjoyed smooth working relationships with the community, and a lot of interest exists among farmers for expanding the improved fodder production beyond the initial participants. However, the late supply of inputs severely affected the performance of the fodder during the first season. Despite the late planting, the pilot interventions created good ground for sharing information about the fodder through farmer field days. However, there was some resentment from farmers who felt that they missed out on benefits (including training and the development of new skills as well as new fodder varieties) by not participating in the project and who stated that platform members did not adequately explain the aims of the project when selecting participants.

Box 2: Livelihood effects of the NBDC's pilot fodder interventions: Early insights

Shortage of feed for livestock is a major issue in the three sites, forcing people (often children) to spend up to 4-6 hours travelling with livestock to find pasture, especially during the dry season. This creates a labor burden on households, takes children out of education and also reduces livestock productivity, exposes livestock to disease and causes competition over water and pasture in the areas livestock pass through.

Planting of improved fodder varieties in backyards, homesteads and communal lands will allow stall feeding, relieving the requirement to travel long distances to find pasture. However, this creates additional labor requirements for women, who are generally responsible for cutting fodder and feeding livestock around the homestead, a consequence that needs to be considered. Women typically already bear a disproportionate share of household labor.

An end to free grazing would bring additional benefits to livestock owners if they can provide sufficient fodder through other means, as they would be able to retain manure for use as fertiliser and fuel. However, other farmers who currently benefit from manure left by free-roaming cattle on their land or on communal land would lose out on these resources.

In Diga–as in Fogera–concerns about the process of developing bylaws to govern fodder use and grazing on communal land also emerged. Community members were involved in developing bylaws for communal land management, and these bylaws were approved by woreda line offices and then fed back to the community. However, the forage development on common land undertaken in the first year was largely unsuccessful due to conflicts of interest between community members. The bylaw was prepared with a small group of farmers–a subset of a group of neighbors who use the land. The bylaw therefore proved to be inadequate as it could only be used to govern the smaller group, giving guidelines, for example, on how they might share the use and benefits of the new fodder varieties. Members of the wider community, particularly neighbors of the smaller group, were not involved in these discussions, so their cattle continued to graze the land. As these neighboring community members were not included in developing the bylaws, no agreement existed regarding whether their cattle could graze on the land, at which times, in what numbers, and there was no discussion of penalties for infraction.

This is an important issue to resolve, as continued grazing may destroy the planted fodder and lead to loss of soil conservation benefits, while unilateral enclosure of the area, with no attention to the needs of others who currently use it, may cause feelings of ill will toward and negative impacts for the households implementing the intervention. One of the reasons for working with innovation platforms is that they are intended to help mediate discussions between community members and provide a problem-solving forum where such arrangements can be negotiated. So far this has only partially happened, and the platform may need further support to make the leap to this way of working, which is not the norm for government offices accustomed to top-down modes of interacting with communities. On-farm fodder development has been more successful, with farmers growing fodder on their farms benefiting from both the ability to store fodder for the dry season and from cash income from fodder seed sales.

Champion farmers demonstrating the management of forage crops to fellow farmers
Photo: ILRI / Gerba Leta

Jeldu

In Jeldu, Kolu Galan kebele was chosen as the site for the first pilot intervention due to its strategic position in relation to other kebeles. Here it was also necessary to invest some time in winning the trust of the community for the proposed project. Initially, about 32 farmers registered to take part in the fodder intervention, but other farmers were more reluctant to participate. This may have been because the fodder interventions were related to the government-initiated sustainable land management interventions. Farmers in the Jeldu area have expressed reluctance to invest in soil conservation interventions, partly due to the upfront costs involved, particularly labor, as well as due to fears and uncertainty about long-term land ownership. The fodder interventions aimed to provide immediate benefits to farmers by planting fodder on bunds as well as in farmer backyards. The project used forage plants that were already familiar to some farmers in the area, such as desho grass and napier grass. However, the pilot project helped to make these grasses more widely available. Desho grass became particularly popular, and as a result of the project activities some farmers have begun selling planting materials from their plots to others. (For more information on desho grass, see Leta *et al.* 2013).

Neighbors of participating farmers watched the first year of interventions with interest and eventually asked to be included when they saw income being generated from sale of the grass. In 2013, the innovation platform expanded the intervention to a larger number of farmers in Kolu Galan kebele. A total of 65 new farmers were registered for fodder intervention, and planting materials were given to an additional 141 farmers. Although this expansion indicates success, it is uncertain how sustainable the income generated from the sale of fodder grasses will be in the longer term as the demand was mainly generated by the project itself. In addition, during farmer field days held to demonstrate the new approaches, the platform

distributed rewards to farmers who applied the new approaches. These rewards were given with the aim of encouraging others to take part. However, giving rewards creates doubt about the degree to which farmers are genuinely interested in the benefits of the fodder interventions themselves, or whether they are motivated by the prospect of receiving rewards from the innovation platform. Some farmers also expressed suspicion that the rewards were politically motivated, which may have undermined farmers' trust in the project's agenda.

As in the other sites, bylaw development is an important part of the project, particularly as farmers are concerned about the risk free-grazing cattle poses to their investments. Discussion of a new bylaw is underway, but some concerns have emerged that by-law development is proceeding in a rather top-down fashion, with limited engagement of all relevant stakeholders.

Farmer explaining his experience with Desho Grass to field day visitors at Kolu Galan, Jeldu
Photo: ILRI / Adie

Fogera

In Fogera, the fodder development activities did not go smoothly at first. The communally owned site originally chosen for implementation turned out to be unsuitable as the the households living around the space used it in a range of ways. Such communal grazing areas in Ethiopia are open spaces accessible to households living around them. They are regulated by traditional institutions and are used for community gatherings such as weddings and funerals. They thus play an important role in the maintenance of social networks. These grazing areas are also used by different community members for a variety of practical purposes. In this particular case, farmers keep their livestock contained on the communal land during the growing season. Keeping livestock away from cultivated fields, where they may destroy crops, decreases the chance of disputes. Both rich and poor farmers thus rely on the space. Poor women, often from households with no livestock, also use the space to collect dung to make into cakes for fuel, both for their own use and for sale. And finally, young landless men use the space as they try to carve out some land from it for agricultural production. In addition, many women living near the area identified for enclosure were concerned about their children's safety if they had to go further afield with animals for grazing. The innovation platform members who proposed the site did not understand the multiple functions of the land, which suggests that community members, particularly women, did not participate in the design of the intervention and therefore their concerns were not taken into account.

Farmers did plant fodder on the grazing land as part of the innovation platform intervention, but then uprooted the plants shortly afterwards. A new site was found, but the move resulted in some suspicion toward the project, which was compounded by some misunderstanding of the project's aims: some community members believed it to be connected with a local, government-led youth development programme and feared that the land would be distributed to local youth once planted. It is likely that with better communication and consultation with the community before starting implementation some of these problems could have been averted. It is also notable that these concerns were revealed by farmers to researchers, but were not mentioned during discussions with government officials from the innovation platform. Significant power differences probably made it very difficult for farmers to raise fears or objections to what were still perceived as government-led plans. Rather, farmers resisted in the most practical way they could, by removing the plants. However, in the new site, a well-regarded local development agent was able to overcome suspicions, win the trust of the community and persuade them to engage. Farmers now see the benefits of improved fodder development and are considering whether it might enable them to introduce new varieties of livestock with higher fodder demand.

One of the most complex aspects of the intervention is the enclosure of planted areas to prevent grazing. There is an ongoing debate in Fogera about appropriate management arrangements for enclosed areas. Some groups argue that the land should not be enclosed at all due to the shortage of alternative grazing land, sources of fuel and breeding services. Others argue that enclosures can be established, but that the land should be open to free grazing in the dry season when there is an overall fodder shortage. Still others maintain that opening the land for grazing at any time will cause overgrazing and destabilize soil conservation structures. A range of perspectives exist within the community, with different community members' views stemming mainly from their different levels of dependence upon the land in question, which need to be carefully considered in the design of any intervention. Knowing that landscapes are used by different people for different purposes is one step toward deciding how to design more effective and equitable interventions. All land users need to be brought into discussions on management arrangements and given the chance to raise possible negative impacts and discuss how such impacts might be addressed.

Members of the 3rd innovation platform meeting in Fogera
Photo: ILRI / Zerihun Sewunet

Equitable benefit-sharing mechanisms are perhaps required to ensure that the poor, or those with no livestock, do not lose out, for example by compensating those who lose grazing opportunities or by providing access to backyard fodder development as a substitute. In the case of Fogera, alternative income-generating activities could be designed to make up for women's loss of income from dung collection, which would result from an enclosure. Alternative fuel sources could also be explored. So far, however, the process of developing a draft bylaw to govern management of the communal areas has not been very inclusive, but driven mainly by a small group of farmers supported by the innovation platform. These farmers are relatives and already have experience of joint management of land, which make this process relatively smooth, but there is a gap in terms of capturing the views of other households and making sure that they do not face negative consequences or that they are adequately compensated if they do.

Platform–community relations

These stories of these three different innovation platforms all illustrate the importance of adequate community representation and participation in order to build transparent, open relationships between decision makers and communities. The NBDC experiences highlight the importance of regular communication and active effort by platform members to listen and respond to diverse community concerns, not only to spread information downward. The failure of existing natural resource management planning systems to engage communities and respond to local conditions in this way (Ludi *et al.* 2013) was one of the main motivations for establishing innovation platforms. However, it is clear that embedding new ways of working is a long-term process. In all three sites, community representation in platforms is still limited, and considerable challenges around platform-community communication remain. A review of platform dynamics and the nature of community engagement has revealed some reasons for this: the roots probably lie in part in how the NBDC went about establishing platforms, with activities centered on the district level, where it is easier for government officials and experts to participate, and limited guidance or oversight of the selection of community representatives. The district-level focus was intended to enable the platforms to focus on landscape-level issues involving different parts of the watershed, but it is clear that more investment was needed to ensure meaningful engagement of communities in the process.

Jeldu Landscape
Photo: ILRI / Amede

First, while the platforms theoretically include community representatives among their membership, these representatives are always either kebele chairmen or 'model farmers' and are handpicked by the local authorities. This means that these individuals are likely to be those in favor with the local administration, rather than the most effective at representing community views. They are also not picked with an eye to covering major groupings within the community (e.g., different livelihood groups, household types, wealth levels, locations within the watershed and so on). In some cases these 'representatives' showed limited understanding of the purpose of the innovation platform and their role within it. At the same time, it emerged that even those farmers participating in the pilot interventions had very little understanding or knowledge of the platforms (seeing the interventions as government or non-government organization projects) and were mostly not aware that they were supposedly represented in platform discussions. It further emerged that even some innovation platform members were not very familiar with the innovation platform's objectives and philosophy; rather, they saw it as an external donor initiative that required their participation in meetings. Some were also not aware of the platform structures as established at the beginning of the process, such as technical committees and coordinating committees.

Overall, it seems that while the platforms have been very active and have launched some innovative and popular pilots, the openness, collaboration and coproduction of knowledge sought by the innovation platform approach may not yet have been realized as the activities remain rather top-down in nature. Overall, farmers in all three sites have been seen largely as 'implementers' rather than 'co-designers' of interventions (Cullen *et al.* 2014b). There has also been limited attention by platform members to the different needs of different types of farmers in the community, for farmers without livestock were often not involved in discussions (because the intervention focused on fodder development), even though these farmers' access to resources might be affected by the project. This has significant implications for the 'innovations' generated by the platforms and the likelihood of their adoption.

These problems are largely due to a lack of capacity for considering the heterogeneity of farmers and the implications for interventions at local level. The NBDC introduced a variety of approaches to try to overcome these problems, increase farmer participation and help platforms to reflect on and address the needs of different stakeholders. These approaches included participatory landscape planning workshops and the use of games for participatory modeling and role playing (see Cullen *et al.* 2014a; Lema *et al.* 2013). These generated considerable interest in more participatory modes of planning. However, for such approaches to be adopted on a regular basis, local government staff need to be given the resources and time to use them. Currently, they have to manage their ongoing assignments alongside their work with the platforms, and some reported that their supervisors showed little appreciation of their innovation platform work, both factors that have made it difficult for them to invest a lot of time in the process.

Conclusion: Emerging recommendations

Here we reflect on various issues encountered by the NBDC and on possible approaches for addressing them. Our reflections emerge both from our project experiences and the wider literature on innovation platform processes.

Community inclusion and representation in platforms emerged as one of the most problematic areas in the NBDC innovation platform process. Various approaches could improve the quality and depth of community participation in platforms:

Establish platforms at community level

The decision about where to establish a platform and the makeup of its membership will depend on the purposes of the platform. Starting at community level, with representation of organizations from outside the community, would almost certainly create a balance very different from what the NBDC experienced, both in terms of the individuals participating and in terms of the symbolism of where meetings would be held. Establishing platforms at multiple levels, with cross-representation, can be effective for addressing issues which go beyond the local level, but facilitation costs will of course be higher. For example, platforms at community level, consisting of a wide range of participants (women and men of different age, with different livelihoods and different levels of wealth, and members of important local institutions, e.g., religious figures or traditional leaders) could nominate representatives to attend a district-level platform and establish a mechanism for two-way sharing of information and feedback.

Conduct a baseline analysis of livelihoods, stakeholder interests and power relations

A thorough understanding of the different groups within communities and the power relations both among them, and between community members, officials and experts, will help those establishing and facilitating platforms to devise effective strategies for representation of different groups, support less powerful groups to engage and ensure that interventions address the various interests of different stakeholders. There are various possible methods for conducting such a baseline analysis, such as problem tree analysis, interest/influence matrices and institutional analysis (for stakeholder analysis) and the power cube, power ranking or power matrix (for analysing power relations). Brouwer *et al.* (2013) provide a useful summary of such methods. Whatever method is used, the baseline should identify stakeholders, their interests and goals, the resources available to them, their interdependencies, the power they hold and how they exercise it, and their relative roles and level of influence in agenda setting and decision making (ibid). The literature reviewed earlier emphasized the need to periodically review the set of actors involved in the platform and to ensure that the right people are brought in at the right time (Nederlof and Pyburn 2012; Ngewenya and Hagmann 2011). It could be useful to combine this with a review of actors' incentives and power relations in order to manage the introduction of new members.

Train and support facilitators and core platform members in participatory planning, facilitation and monitoring

Training in these areas can help platform members take more participatory and reflexive approaches to the design and implementation of platform activities, which may also spill over into their wider work. However, training workshops or events may well need to be followed up with ongoing support, and unless staff are supported to and have incentives for adopting such approaches, including receiving recognition from their superiors, they may be unable to apply them.

Gender

One specific dimension, which was not considered adequately in NBDC platforms at the beginning, is gender, both in terms of understanding gender roles and relations and how this affects innovation and

in terms of the participation of women in platforms. Interventions did not pay particular attention to the specific needs of women, which may have resulted in opportunities being missed or even negative consequences (e.g., increased workloads for women). This is often the case in projects working with innovation platforms, even though women often play the biggest role in production (Swaans *et al.* 2013). Future programs should consider the gender dimension from the beginning. The following are some suggestions to incorporate gender considerations in platforms:

Consider the practical needs of women to allow them to participate

Attention should be paid to the specific needs of women, particularly the multiple demands on their time and labor, when planning the time and venue of meetings. Increasing the number of women participating in platforms is important, but does not necessarily mean that women will be able to voice their true concerns in this forum (depending on local norms and power relations). A specific subgroup for women might enable them to speak more freely as well as build their capacity for engaging in the wider platform. The literature has already highlighted the importance of examining the dynamics of gender relations (Nederlof and Pyburn 2012). Such an examination could be part of the baseline suggested above, in which case it needs to be taken into account in platform facilitation from the beginning.

Examine the gender-disaggregated impacts of interventions

Gender needs to be an important component of baseline analysis, intervention planning and monitoring. If women are not present or active in platform discussions, possible negative impacts on them are unlikely to be identified and addressed without a specific effort. Questions such as "how will labor demands on women change?" and "how will the economic power of women change?" should be asked of any intervention, but often consideration is given to household-level economic impacts without considering how these affect different household members. However, gender relations tend to be deeply entrenched, and it would often be naïve to expect that platform processes can transform gender roles or relations, particularly in the short term.

Understanding and ownership

The review of NBDC platform interventions also found that there was weak understanding and ownership of the innovation platform philosophy and purpose. Some platform members, as well as many of the community members involved in interventions, were unaware of the intended nature of the platform and the idea of 'innovation', seeing the platform as a standard government initiative or donor project. Various measures might help to address this:

Introduce the innovation concept in more depth

Some projects have shied away from detailed discussion of innovation theory when establishing platforms, fearing that members might find it difficult to engage with abstract concepts, and they therefore tend to introduce activities in more technical or functional terms. The risk is that members do not understand the unique purpose of the innovation platform and are less able to meaningfully engage and develop a shared vision for what the platform might achieve, so the platform becomes a vehicle for project implementation in a fairly traditional mode. For the NBDC's innovation platforms, it is possible that a focus on implementation of the pilots caused some participants to have an obscured view of their broader purpose, which was to pilot new ways of working together for the various institutions involved.

Provide for local facilitation of the process

Appointing local, dedicated facilitators brings a significant benefit in terms of enhancing local ownership. In situations with significant power imbalances within the platform, these should ideally be independent individuals who are respected and seen as neutral brokers, rather than–for example–local government officials. Local facilitation may also enhance platform sustainability and ownership by building capacity of

partners, make it easier for a wider range of local people to have a voice in platforms (as the facilitator can meet them informally in between meetings, for example) and for interventions to respond to local issues, concerns and events in a timely fashion. Experiences from the Convergence of Sciences: Strengthening agricultural innovation systems in Benin, Ghana and Mali (COS-SIS) programme (see Nederlof and Pyburn 2012) found that while the absence of a facilitator was sometimes problematic, at other times it actually enabled the platforms to become more independent. This suggests that it might be appropriate to remove the facilitator later on in a program,, once a platform is functioning well, but that local facilitation is advisable in the earlier stages.

Develop a local communication strategy owned by the platform

The communication strategy need not be a formal strategy, but it might involve having platform members create a name for the platform in the local language and develop their own ideas about how to present the innovation platform concept to their communities. The platform could also actively discuss how its members will represent their constituencies, consult them on platform decisions and communicate discussion and outcomes back to them (see Nederlof and Pyburn 2012).

Power imbalances

The difficulties of dealing with significant power imbalances among the members of platforms emerge strongly from the NBDC experience. Although platforms cannot be expected to transform existing power relations, and certainly not in the short timeframe of many projects, there are steps which facilitators and organizers can take to understand and broker these relationships and ultimately to enable those who are at risk of being marginalized to have a greater voice in the process and a say over platform decisions. These steps are in addition to the baseline stakeholder and power analysis discussed above (see also Cullen *et al.* 2014a).

Make use of informal spaces as well as formal meetings

It is not always possible to address power dynamics head-on within formal meetings, but it can be done more informally by facilitators on the sidelines. Indeed, effective platform facilitation is about far more than organizing and chairing the periodic meetings, but about fostering relationships and joint work among the participants on an ongoing basis. The best approach is likely to depend on the context. In some of the platforms that the NBDC established, where issues of conflict were not so pronounced, facilitators could openly prompt platform members to consider power dynamics. However, in other sites, practical engagement and active learning outside official meetings may be more effective.

Form subgroups

Subgroups can both help more marginalized groups increase their power through collective action and provide space for more powerful actors to reflect and build capacity for new approaches. Subgroups were developed in the NBDC platforms in response to weaknesses in community representation. Community subgroups gave marginalized members more power within the platform, while a subgroup for local administrators was used to train them in facilitating participatory planning. This echoes the view from the literature that it is not necessary to bring all stakeholders together in meetings; rather, facilitators should ideally develop and manage a process of working with the different actors, together or individually as deemed most appropriate, to challenge them toward systems thinking and support them in new ways of working (Ngwenya and Hagmann 2011).

Use role-playing games

Role-playing games of various kinds can be used to simulate the roles played by different actors, allowing participants to put themselves in each other's shoes. This can help highlight the challenges faced by different actors, and in the experience of NBDC such games brought issues of conflict to the surface—but

in a less threatening way as it was done in the context of a game—so that they could be openly discussed. (See Cullen *et al.* 2014a).

Ensure adequate time and resources for facilitation

In the NBDC, facilitation was at times provided remotely by project staff (in an attempt to ensure neutrality), but under this arrangement it proved difficult to engage as intensely as required to employ the approaches suggested above, except as occasional exercises. At other times, facilitation was provided by local non-government organizations, but these lacked capacity and time to provide active facilitation of processes in between occasional platform meetings and were not able to mediate power relations between government and communities. In practice, it was government staff who led platform activities, echoing the experience of Schad *et al.* (2011) in Vietnam. Although costly, a dedicated facilitator with a good understanding of local stakeholders, a neutral position (as far as possible) and the resources and time to devote to the process, would probably offer the best chance of navigating complex local relationships successfully. The reviewed literature also emphasized this point, see in particular Leeuwis (2000).

Examine the broader context of power relations

Actors who may be very powerful at the level of a platform may themselves be constrained in their behavior. For example, local officials in Ethiopia are required to meet top-down targets and have limited time and resources, and often little incentive, to engage in more participatory planning (see Snyder *et al.* 2014). When this is the case, one response could be to engage higher levels of government to try to create more space and motivation for locally tailored planning (see Tucker *et al.* 2013b) and capacity building in participatory approaches. Those who are interested in participatory approaches may also lack the knowledge and skills to use them. Training can help (see Ayele *et al.* 2012), but the required shift in thinking, especially in a context such as Ethiopia, may be so great that long-term engagement and support is needed (see Schad *et al.* 2011). Role-playing games may also help in such situations, as they not only help decision makers understand the concerns of farmers but can make community members aware of the constraints under which local officials operate.

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The CGIAR Challenge Program on Water and Food (CPWF) was a comprehensive, global research program that ran from 2002 to 2013. CPWF's goal was to increase the resilience of social and ecological systems through better water management for food production (crops, fisheries and livestock). In order to do so, the program carried out an innovative research and development approach that brought together a broad range of scientists, development specialists, policy makers and communities, in six river basins, to address the challenges of food security, poverty and water scarcity.

CPWF was integrated into the CGIAR Research Program on Water, Land and Ecosystems (WLE). WLE combines the resources of 11 CGIAR centers and numerous international, regional and national partners to provide a cohesive approach to natural resource management research. The program goal is to reduce poverty and improve food security through the development of agriculture within nature. This program is led by the International Water Management Institute (IWMI).

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September 2014

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