# 16 SCALING UP SUCCESSFUL PILOT EXPERIENCES IN NATURAL RESOURCE MANAGEMENT – Lessons from Bolivia

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## Abstract

*The limited impact of natural resource management technologies and practices, successful at a pilot level, is a cause of concern. In order to promote 'scaling up', the experiences of organisations attempting to increase the impact of successful pilot work of projects in Bolivia, Nepal, and Uganda were documented. Important factors that limit and facilitate scaling up were analysed providing increased understanding of the ways that institutional, socioeconomic, and technological issues affect scaling up. Some of the lessons learnt from the case studies were incorporated and implemented within institutional workplans of development projects in Bolivia. Despite a short time horizon the main requirements for scaling up were identified. These include planning for scaling up at project outset, understanding the wider environment, developing funding mechanisms that go beyond the time horizon of traditional projects, improving collaboration, building institutional capacity, improving community approaches, ensuring the poorest are not excluded from the process, ensuring sustainability after project completion, and improving monitoring and evaluating systems.*

## Introduction

In recent years there has been growing concern amongst donors and development agencies about the limited impact that natural resource management (NRM) technologies and practices have had on the lives of poor people and their environment. Interventions have often failed to reach the poor at a scale beyond the target research sites (for example, Briggs et al. 1998; Ashby et al. 1999; Bunch 1999). Acknowledgment of this fact has resulted in a recent surge of interest in the concept and practicalities of 'scaling up'.

In 1999 and 2000, pioneering international workshops in Washington and the Philippines (IIRR 2000), discussed concepts and principles for scaling up in the context of agriculture and NRM. These workshops developed the currently accepted definition of scaling up:

*More quality benefits to more people over a wider geographical area, more quickly, more equitably, and more lastingly.*

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Central to understanding this definition are the terms horizontal and vertical scaling up (Figure 16.1).

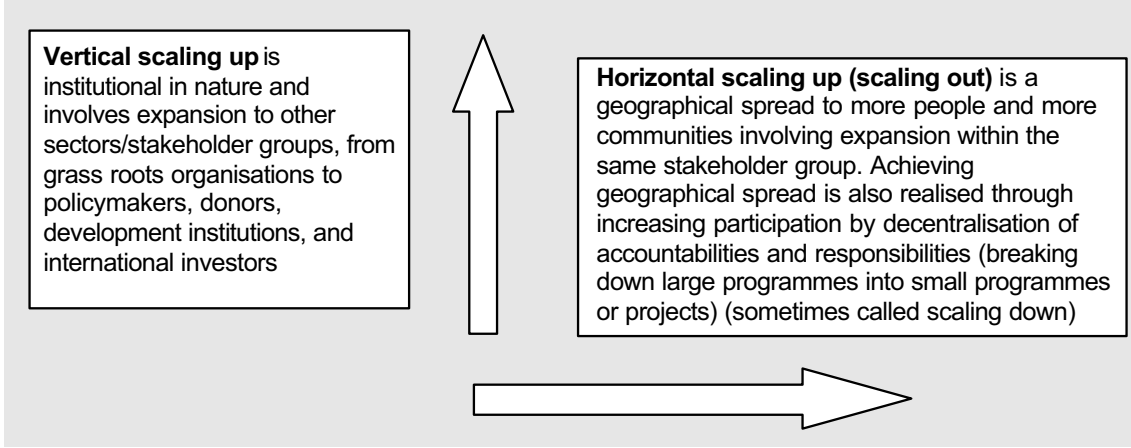


Figure 16.1: **Definitions of vertical and horizontal scaling up**
Source: IIRR (2000)

The approach implied by this definition contrasts with the traditional linear technology transfer model, in which creating impact at a wider level largely resided with the development of traditional documentary uptake material aimed at a very limited homogenised audience at the end of the project. Moreover, research within this linear approach tended to be supply led, with those who conducted the research aiming to transfer their knowledge and sensitise stakeholders to the products that they had developed. Generally scaling up was not considered at the beginning of a project and did not take into account the dimensions of quality, quantity, time, equity, and sustainability (Gündel et al. 2001).

Despite the innovative approach implied by the definition of scaling up, relatively little information has been available on practical strategies to facilitate this process. In order to fill this knowledge gap, the Natural Resources Systems Programme (NRSP) of the Department for International Development (UK) (DFID) commissioned a two-year research project (R7866) to identify strategies for the scaling up of promising pilot experiences in soil, water, and land resource management to the wider community.

The three planned outputs of the project were:

- processes for scaling up successful pilot NRM practices and technologies at community and individual level analysed and understood with key constraint and success factors identified;
- 'best option strategies' for scaling up developed and tested through participatory action research;
- strengthened capability of local professionals in collaborating institutions to promote scaling up.

The research was based on the following set of assumptions.

- There exists a range of NRM practices and technologies, which, if implemented at the landscape level, would contribute to poverty alleviation and improved livelihoods (but there has been limited impact).
- The reasons for this limited impact and potential solutions to the problem can be identified through the study of real experiences of institutions attempting to 'scale up' a range of technologies and practices. Strengths can be built upon and weaknesses overcome through better understanding and through learning from the experiences and perceptions both of other institutions and other stakeholder groups.
- A scaling-up strategy can be drawn up based on the research findings that can be incorporated within the different stakeholders' agendas.

This chapter aims to discuss the experience and findings of the research and to communicate the key lessons that have been learnt in Bolivia on the scaling-up process.

## Research Activities

The research reported in this chapter had two distinct phases.

### *Phase One ('the case study phase')*

This phase focused on using case studies to identify important factors that influence the scaling-up process, learning from the positive and negative experiences of a range of institutions in the process of scaling up the impact of the technologies/practices that they had developed or piloted. Five studies were undertaken in Bolivia, one in Nepal, and one in Uganda.

For the purpose of case study analysis the key research questions addressed were:

- What were the positive aspects of the process and how can these be built upon?
- What problems were experienced and how could these be overcome?
- What is the influence of people's livelihood strategies on the process?

Each study consisted of a multiple-stakeholder analysis, comprising primary institutional analysis, community level analysis, individual farmer analysis, and secondary institutional analysis. The intention was to gain a holistic view of the process by taking into account the different experiences and perceptions of all the relevant stakeholder groups. The learning process was iterative, with the knowledge provided by each stakeholder group influencing the analysis of the perceptions of the other groups.

The case studies were analysed to draw out key lessons. In preparation for the second phase of the project, these were presented to stakeholders at a workshop in Cochabamba. During the workshop, working groups considered key topics including a theoretical framework for approaching the scaling-up concept (Gündel et al. 2001), the relevance and practical implications of the case study lessons, and approaches for the monitoring and evaluation (M&E) of scaling up.

### *Phase Two ('the action research phase')*

This phase focused on working with collaborating organisations in Bolivia to develop existing dissemination strategies[2] into scaling-up strategies through implementing selected key lessons identified in the case studies. The intention was to simultaneously validate the lessons learnt from the case studies and build scaling-up capacity with local institutions. In order to achieve this, a range of action research activities were undertaken.

- The key factors that were pivotal for scaling were identified by collaborating institutions up to a landscape level and were incorporated into their institutional work plans, elements of which were then implemented and monitored.
- A local NRM 'platform' was established amongst collaborating organisations to strengthen local capacity, share experiences, influence policy relevant to the management of natural resources, and strengthen the capability of local professionals to promote scaling up.
- A series of capacity-building workshops were held for various stakeholder groups. These focused on selected practical aspects of scaling up, namely functional linkages with municipal governments and grassroots' organisations; effective inter-institutional experience sharing; involvement in national networks, and seeking/introducing innovative funding mechanisms.
- Three workshops were undertaken to communicate the main findings of the project. Each workshop was tailored to the needs of the different target groups, namely farmer and community leaders; extension workers and non-government organisation (NGO) staff; and directors or senior staff from funding bodies and development organisations.

A range of promotion materials were produced and distributed to relevant actors. These materials included a manual containing practical advice on the main issues, a 'scaling-up kit' for the development of a practical work plan, and a video on farmers' perceptions of the requirements for scaling up.

The whole research process was iterative with lessons learnt from monitoring activities influencing both the development and analysis of subsequent activities.

## Results and Discussion

This section presents and discusses the lessons learnt on scaling up. Each sub-section discusses one of the broad lessons identified from the case studies. For the sake of brevity, individual case studies are not referred to specifically. More detailed information on the specific lessons of the individual cases is available (Middleton et al. 2002). Where appropriate, experiences and insights from the action research phase are provided (Table 16.1). However, the reader should be aware of the short duration of the

[2] The difference between dissemination and scaling-up strategies in this context is as follows. Scaling-up strategies imply a multi-dimensional approach, simultaneously taking into account political, social, and economic factors in order to ensure a wide impact that is sustainable and equitable. It requires an iterative approach to learning and implementation, constantly responding to the ever-changing environment. Dissemination, although an integral part of scaling up, usually focuses on promoting specific practices and technologies to pre-determined groups.

| Table 16.1: **Lessons learnt from case studies and action research** | |
|---|---|
| **Lessons from case studies (Phase I)** | **Insights from the action research (Phase II)** |
| **Planning for scaling up**<br>Ensure that concept of scaling up in all its dimensions is fully understood<br>Develop plans for scaling up early in the project cycle | Use appropriate communication approaches to ensure understanding<br>• Institutions should define their role in the scaling-up process and develop a relevant scaling-up goal, objectives, activities, and indicators<br>• Build on the strengths and weaknesses of existing institutional plans<br>• Budget for scaling-up activities<br>• Identify key support, supply and demand actors<br>• Link with local government planning activities |
| **Understanding the wider environment**<br>Undertake timely situational analysis that includes political, institutional, social, cultural, and biophysical analysis<br>Undertake a livelihoods assessment | Do not limit this to community-level PRAs focusing on NRM<br>• Encourage stakeholders to build on each other's work and not to compete (for example, NRM fairs) |
| **Increase time horizons**<br>Ensure long-term technical/ organisational support at the community level<br>Build long-term community capacity to manage new technologies/practices | Ensure a critical mass of awareness, interest, and expertise within local stakeholders<br>• Involve the municipal government in this process.<br>• Identify capacity-building needs<br>• Work through government organisation/NGOs with a long-term local presence |
| **Developing effective funding mechanisms and making the most of those in place**<br>Ensure closer integration of funding between research and development activities<br>Consider cost sharing within strategic alliances and seek existing government funding to promote local sustainability<br>Promote and lobby for higher political priority for NRM with decision makers<br>Ensure institutional sustainability through commercialisation of activities does not compromise the pro-poor focus of activities<br><br>Donors need to consider longer-term flexible funding approaches tied to intermediate milestones and linking research and development activities | Ensure local stakeholders are aware of changing donor funding arrangements and if possible contribute to new policy<br>• Assist local communities to voice their needs and priorities for improving NRM to local government (for example, NRM technology fairs)<br>• Review relevant policies and policy-making processes (use appropriate media)<br><br>Raise institutional understanding and use of existing funding mechanisms and sources<br>• Build an easily accessible database of funding sources and their requirements |
| **Improving collaboration, networking, and strategic alliances**<br>Form strategic alliances with stakeholders to increase widespread impact<br>Ensure the 'primary' institution identifies, consults, and plans for collaboration with stakeholders<br>Primary' institutions should work with existing community groups | Develop a forum for institutional knowledge sharing and collaboration<br>• Ensure that institutional roles are well defined and collaborative activities agreed and funded<br>• Strengthen local capacity to organise and manage relevant activities |

| Table 16.1: **Lessons learnt from case studies and action research (cont…)** | |
|---|---|
| **Building institutional and community capacity**<br>Target capacity-building activities at institutional and community-level stakeholders funded as part of the scaling up process, including both organisational and technical training | • Prioritise capacity-building training to the needs of stakeholders. For example, workshops on funding strategies and developing linkages with local government and local communities at three levels (farmer, field, and management staff) with appropriate dissemination material |
| **Improving community approaches to technology development**<br>Undertake awareness raising prior to technology development including exposure to new options<br>Use participatory technology development approaches bringing together local and scientific knowledge and joint planning<br><br>Avoid the use of incentives unless there is evidence that they are not the over-riding factor influencing adoption | Arrange practical field demonstrations, exchange visits, and technical support<br>• Focus on genuine participatory techniques responding to farmers' needs and not donors' requirements. (Farmers complain that approaches are often not genuine.) |
| **Improving accountability to local communities**<br>Ensure project activities address community problems<br>Ensure community organisations are accountable to the wider community | |
| **Including the poorest and marginalised**<br>Develop a strategy taking into account the situation analysis and livelihoods assessment<br>Ensure technology options are available within the resource levels of the poorest | |
| **Ensuring sustainability after project completion**<br>Base new practices on locally available materials, low investment, and tangible short-term or multiple benefits<br>Ensure that farmers are aware, from the beginning of the project, of the timeframe and interventions<br>Ensure that farmers have ready access to the necessary input supplies through local suppliers<br>Ensure local organisational capacity before project completion<br>Ensure access to technical support after project completion | Ensure scaling-up objectives are being met through the technology that is being promoted |
| **Monitoring, evaluation, and impact assessment**<br>Implement M&E systems as early as possible<br>• at institutional level to assess effectiveness and measure impact<br>• at community level to strengthen community control<br>• undertake impact assessment | Ensure that the requirements of M&E are fully understood and that indicators are relevant and measurable<br>• Identify those responsible for different aspects of M&E<br>• Ensure that this is adequately budgeted for<br>• Plan for long-term impact assessment<br>• Develop and agree indicators between institutions<br>• Develop and share appropriate indicators with communities<br>• Ensure that impact is assessed in relation to a baseline of information provided by the situational analysis and livelihoods assessment<br>• Remain focused on impact indicators |

action research phase, which limited the potential for validating the impact of implementing scaling-up lessons with collaborating organisations. Moreover, time constraints meant that collaborating institutions focused their efforts on a selection of the key issues that they considered of priority in their particular circumstances, rather than on the whole range of lessons from the case studies. As a result, the exploration of institutional issues is more developed than that of community-level issues. This reflects the institutional priorities of the project's collaborators but does not imply that such issues are more significant for successful scaling up. Because scaling up is such a complex multi-dimensional concept there is necessarily much overlap between the issues discussed in the different sections. It is recognised that no single factor alone will ensure successful scaling up. Success will require a range of complementary activities combined with a sufficiently enabling environment.

### *Planning for scaling up*

The concept of scaling up is relatively new. In most of the case studies, failure to fully understand the implications of the concept in institutional strategies and activities limited the success of the process. When organisations did not understand the concept they often failed to plan scaling-up activities into their projects and programmes. For example, only three of the seven case studies had a deliberate scaling-up strategy. The other organisations considered scaling up to be synonymous with dissemination (horizontal spread), which they only considered towards the end of the project cycle. Those case studies with a deliberate scaling-up strategy demonstrated the importance of considering the vertical aspect of the concept. They showed that activities such as forming inter-institutional alliances, increasing the priority of NRM issues in government agendas, and benefiting from existing legislation and policy, require deliberate action and long-term planning early in the project cycle.

In order to communicate the concept of scaling-up, three dissemination workshops were undertaken. Each workshop was tailored to the needs of a different target group, namely farmers and community leaders; extension workers and NGO staff; and directors or senior staff from funding bodies and development organisations. These workshops proved vital for the successful development of 'scaling-up plans' with collaborating institutions, because they enabled them to gain a clear understanding of the implications of the concept.

Prior to these workshops collaborating organisations experienced difficulties in planning for scaling up because they were unsure of the relevance of the concept to their specific situation. In this context it proved useful to develop a plan that allowed them to define their role in scaling up and to develop a relevant 'scaling-up goal' for their organisation. Once the scaling-up goal had been identified, a logical planning sequence was followed, developing appropriate objectives, outputs, activities, and indicators for achieving this. So as to remain relevant and realistic, the scaling-up plans built upon the strengths of existing institutional plans.

Generally, the collaborating institutions found the experience of developing scaling-up plans to be very useful. They felt that the plans broadened their horizons and helped them to consider important factors that had been overlooked in their existing institutional working plans. Developing the plans proved to be particularly useful for analysing the effectiveness of their existing approaches in fulfilling their primary scaling-up goal. Often institutions realised that they had assumed their existing activities would result in scaling up impact without really considering how this would occur. Research institutions in particular realised that they had focused too heavily on technical issues without considering necessary social and organisational issues.

One factor proved significant in increasing institutional motivation to develop scaling-up plans. This factor was that funding policy changes within the Bolivian research sector now create a major incentive for NRM institutions to direct some of their resources towards an effective scaling-up strategy. Within the new funding framework, institutions must be competitive in undertaking research that is holistic and interdisciplinary, involving partnerships with development organisations and demonstrating impact.

The main impediment to the implementation of the policy changes was the question of responsibility and funding for those scaling-up activities that did not lie within existing institutional remits. This highlighted the importance of long-term strategic planning rather than considering such activities as 'add-ons' to individual projects.

### *Understanding the opportunities and threats of the wider environment*

In order to plan for scaling up an understanding is needed of the opportunities and threats provided by the political, institutional, cultural, social, and biophysical environment. Focused and timely situational analysis should enhance the impact of scaling-up activities by ensuring that they are appropriate to the specific situation, that opportunities are exploited, and that over-riding limitations are understood. However, most of the case studies focused their situational analysis on community participatory rural appraisal (PRA) activities with an NRM bias with little consideration of the wider environment. Only one of the five case studies had deliberately and systematically considered the implications of the political and institutional environment. This meant that most institutions had missed opportunities for building on existing good development work and for benefiting from available municipal funding and support required by the new laws of decentralisation and popular participation.

During the action research phase of the project it became clear that many institutions in Bolivia were aware of the potentially positive implications of the new laws but that they were unaware of which steps to take in order to benefit from them. However, those institutions that had developed strategies for channelling their NRM projects through local government planning activities felt that the potential for achieving widespread impact was limited by the fact that NRM issues had a very low priority in municipal government agendas.

In response to these problems, an 'NRM fair' was held. The 'fair' had several inter-related objectives, all aimed at increasing stakeholder awareness of how to benefit from political and institutional opportunities. The day included workshops on how to develop community demands into projects and how to incorporate these into the legally binding municipal plans. Stalls and practical demonstrations by NRM organisations were also used with the intention of increasing community and municipal awareness of the significance of NRM issues and the range of technologies and practices available for tackling them.

An evaluation of the fair and its impact demonstrated the effectiveness of such an event in raising awareness, capacity building, and promoting interaction between different stakeholders. However, limited farmer attendance highlighted the importance of making such events more accessible to community members by holding them in rural areas. Consequently, some of the participating organisations obtained European Union funding to hold similar fairs in rural areas.

Another example of the importance of understanding the situation was the failure of certain institutions to take into account the significance of religious division in some rural areas. This division, when ignored, seriously limited the uptake and spread of NRM methodologies and practices promoted by these institutions. However, development institutions that had analysed the situation demonstrated that the sectarian problem was not insurmountable. Understanding the situation enabled them to develop interesting strategies jointly with the target communities, allowing for a better integration of methodologies within the cultural context. This also highlighted the potential for both research and development institutions to be aware of and build on each other's existing work, rather than each individually undertaking their own situational analyses, which are often costly and time consuming.

### *Increasing time horizons*

In the case studies, the timeframe of project intervention was shown to affect impact and sustainability because it influenced the nature and quality of activities undertaken at the institutional and community level. Long-term commitment proved to be a facilitating factor both at the community and institutional level. Long-term projects were able to take a more strategic view of scaling up and to plan for it early in the project cycle. Those projects with short, medium, and long-term plans were better able to plan for and undertake scaling-up activities. At the community level, long-term institutional support was a key factor facilitating technology uptake because it provided farmers with a point of reference when they had difficulties or queries. Because even long-term projects tended only to have a short-term presence at the community level, strategies for providing on-going support need to be developed. Successful approaches included building community capacity to manage new technologies, working through NGOs with a long-term local presence, and involving the municipal government in the process.

The case studies demonstrated that achieving impact at a landscape level is a slow process, even when all the necessary inputs are available. Only one case study demonstrated environmental benefits at a watershed level. This had taken 10 years with high levels of control and support. Institutions wishing to promote changes at a landscape level will benefit from a realistic view of the time scale involved.

Collaborating institutions felt that they needed longer-term support for scaling up, particularly with regard to building a critical mass of awareness and interest and monitoring the impact of their plans. They felt that the existence of a body to provide motivation, guidance, and training during the action research phase had been effective but that the expectation that they could effectively continue the process alone after only a matter of months was perhaps unrealistic. Although the pitfalls of dependence were understood by these organisations, they felt that the process of developing independence and confidence with new concepts and practices required more than a few months.

### *Developing effective funding mechanisms and making the most of those in place*

Insufficient capital proved to be a factor limiting scaling up at all levels (institutional, communal, and individual). The way in which funding is planned and managed was shown to influence the success of the scaling-up process. The case studies suggested that the scaling-up process is most successful where there is a long-term financial commitment. This is because longer-term funding provides the level of institutional security/continuity required for developing short, medium, and long-term plans which include key scaling-up activities such as capacity building and the formation of networks for inter-institutional collaboration. The failure to plan and budget for scaling up activities, particularly those which span beyond the project implementation phase such as M&E, situational analysis, networking, and capacity building, was shown to limit the scaling-up process.

The experiences of the research organisations involved in the case studies showed that short-term funding and poor integration between research and development were limiting planning horizons and reducing the opportunities to plan or budget for key scaling-up activities. Projects that had integrated research and development into one process demonstrated the benefits of an integrated approach. This approach should also include the development of an appropriate infrastructure to support the scaling-up process. Of the various funding strategies followed by the case studies, tapping into government funding programmes and cost sharing appeared to enhance the sustainability of the process. In the case of government funding, opportunities needed to be enhanced by stimulating demand for technologies at the community level whilst simultaneously raising awareness of NRM issues within the municipal governments. In one case, the provision of a competitive fund for scaling-up activities such as raising awareness, capacity building, and institutional networking was shown to facilitate secondary organisations in undertaking positive scaling-up activities. Whilst commercialisation of activities was shown to have ensured institutional sustainability, this had occurred at the expense of a pro-poor focus.

In order to respond to these issues, the action research phase of the project identified the need for a two-pronged approach. On the one hand there was a need to increase NRM institutions' knowledge and understanding of existing funding opportunities in Bolivia and to develop practical methodologies for 'making the best' of these. On the other hand there was a need to lobby funding bodies to increase their recognition of the importance of NRM in poverty alleviation and to encourage them to respond to the opportunities and constraints identified by NRM institutions.

Due to the project's time constraint, a workshop on funding, bringing together donors and NRM institutions, was considered to be the most effective approach for dealing with these issues. The extent to which the workshop objectives were met was limited by the absence of key donors, who failed to attend at the last moment. This absence reinforced the sentiment amongst NRM institutions that most development interventions were still top-down and donor driven and that the donors were uninterested in hearing or responding to the viewpoints of the organisations that they funded. This highlighted the need for a lobbying body, capable of dialogue and influence at the policy and decision-making level.

### *Improving collaboration, networking, and strategic alliances*

Inter-institutional collaboration (from grass-roots to local government level) is the backbone to successful, sustainable scaling up. In Bolivia it facilitated the scaling-up process by ensuring that the responsibility for reaching more people was not only in the hands of the 'primary institution' (i.e., the one promoting the practice or technology developed). Although many organisations showed evidence of working with different partners, achieving effective inter-institutional collaboration was shown to be a complex and problematic activity. Opportunities for effective collaboration were often limited by the lack of space for inter-institutional communication and planning, lack of funds, and the fact that institutions were too busy with their own projects and agendas. Such limitations were only overcome in the cases where all the collaborators were committed to achieving the same goal or where there was a capable key institution facilitating the process by providing capacity building and supporting network formation. These positive cases highlighted the importance of motivation for successful collaboration.

The case studies demonstrated that scaling-up approaches were strongly influenced by the orientation of the 'primary institution'. This highlighted the importance of improved linkages between research and development organisations. Development organisations with a more process-based approach to scaling up were more successful than the technology-focused research projects. One of the key factors that limited the development of scaling-up strategies in these research projects was the fact that they did not consider themselves to be responsible for scaling up. Their goal was to develop and disseminate appropriate technologies at a pilot level. Although low-budget research projects cannot be expected to achieve the same level of networking and capacity building as large development projects, they can improve their chances of impact by collaborating with these organisations. By incorporating scaling up into their institutional goals, research institutions will become increasingly aware of their need to

link with development and government organisations with their increased capacity for networking and achieving wider impact. There is clearly a need for technically orientated organisations to become more process orientated in their work.

The development institutions in the case studies also demonstrated the importance of developing networks of stakeholders with well-defined roles and responsibilities and legally binding agreements. Development of such networks was enhanced through the early identification of and consultation with demand, supply and support actors. Regular meetings to discuss issues arising and to share experiences also improved the effectiveness of these networks.

At the community level the achievement of sustainable impact was greatly facilitated by working through existing community groups and organisational structures. For example, working through the Bolivian farming syndicates ensured that most farmers were aware of new project activities and felt more confident about getting involved. In the context of the laws of popular participation and decentralisation the formation of a strategic alliance with the municipal government was vital for achieving widespread impact at the community level.

Understanding how best to manage alliances and partnerships between actors proved to be one of the greatest challenges facing organisations committed to scaling up in the field of NRM. It was within this context that the action research phase of the project placed much emphasis on helping participating organisations to plan and manage effective collaboration between actors. One of the main approaches taken was the development of an NRM platform. This platform was developed by the participating organisations and had four main aims, which were in keeping with the lessons learnt from the case studies: providing relevant capacity building; lobbying to move NRM up the political agenda; coordinating more effective inter-institutional collaboration; and providing a database of relevant information on topics such as funding, existing NRM research, and current development projects. A key advantage envisaged in the development of this centralised forum was that it would allow different stakeholders to share comparative advantages and provide a single accessible location for accessing relevant information. An evaluation with participants attending the NRM fair showed that 90% of them believed that the NRM platform was an appropriate body for tackling some of the key problems related to scaling up.

One of the main lessons learnt from developing the NRM platform was the importance of a key person or organisation to drive the process, motivating and coordinating participants until a solid base had been established and benefits were evident. Building a critical mass of motivation amongst the platform members was vital for its survival. The involvement of the State University of San Simon proved beneficial as its reputation gave the platform credibility and it was able to provide a stable base, funding, and good potential for institutional linkages at a national level.

### *Building institutional and community capacity*

The case studies demonstrated that adequate stakeholder capacity in technical, social and organisational areas is essential for scaling up. Organisations with a deliberate policy of capacity building from the grass roots to local government level achieved greater impacts. Where lack of capacity is limiting scaling up, weaknesses need to be identified and appropriate training provided. Capacity building at community level in organisational and technical issues is vital for the on-going implementation and management of NRM practices at local level. It is vital because it provides members of the community, whether they are farmers or local organisations, with the confidence and ability to make decisions and to manage their own NRM projects.

Following from the case study findings, the action research phase of the project placed most of its emphasis on capacity building at different levels. Given the project's time constraint, the focus was on short-term training, mainly delivered through workshops. Those areas recognised by the institutions as pivotal for scaling up and in need of further consideration were identified and appropriate training workshops delivered. The main issues tackled were innovative funding strategies, functional linkages with the municipal government and grass roots organisations, strategies for effective inter-institutional experience sharing, and involvement in national networks.

The participating institutions found the workshops to be a useful approach to capacity building because they provided an interactive environment in which they could raise questions and also share their experiences. They all agreed that the availability of on-going opportunities for relevant capacity building would greatly facilitate the scaling-up process. However, they considered that in practice necessary programmes of capacity building were likely to be limited by the need for a sponsoring body to cover the costs and assume organisational responsibility. It was also noted that there was a lack of readily available expertise for building capacity on certain key organisational issues.

The planning and implementation of the capacity building workshops brought to light certain organisational factors important for achieving a successful outcome. To ensure that workshops are relevant, appropriate, and well targeted, it is vital to think very clearly and logically about what the workshops are trying to achieve and how this will be done. The main questions to consider are, Who are we working with? What is the base upon which their capacity will be built? How can we develop an approach that will be relevant and appropriate to their existing knowledge and skills? Although this point may seem obvious to the point of banality, such an approach was not common in Bolivia.

The community-level workshops on the concept of scaling up reinforced the importance of using communication techniques and tools adapted to the target group's vision of reality. They also highlighted the importance of carefully considering the mix of workshop participants from within the overall target group. Although contrary to the notion of inclusion, it proved more constructive to work with a small selection of open-minded people with good social skills who were better equipped to fully participate in

activities. Such participants were then able to communicate appropriately the key messages to others within the community who found the workshop environment difficult. In the case of farmers, the youngest leaders seemed the most appropriate ones for the promotion of a scaling-up strategy. A memorable message from the farmers was that they needed organisational training more than technical training, particularly in the areas of local government proceedings and laws, project evaluation, articulation of their demands, decision-making capacities, and conflict-resolution methodologies.

Institutional workshops also demonstrated the importance of selecting an appropriate range of participants for achieving the workshop's outcomes. However, a workshop on funding strategies proved that when certain key invitees do not participate, the outcome of a well-designed workshop could be compromised. In this case, many of the donor organisations failed to attend, at the last minute, what had been designed as a forum for sharing and debate between themselves and interested NRM institutions. The resulting unbalanced group of participants limited useful debate and learning.

### *Improving community level approaches to technology development*

Community-level analysis in the case studies demonstrated that the nature of the technology promoted was a key factor influencing adoption and hence scaling up. Technologies based on adding value to existing practices were popular because farmers could more easily understand the ideas and processes behind the technology. In some cases, use of locally available resources facilitated adoption and maintenance of technologies. Poor availability of key materials was shown to limit adoption of otherwise popular technologies. Technologies requiring a relatively high investment of cash, labour, or time, were less easily adopted by farmers with limited resources. In all cases the key factor limiting adoption of NRM practices was the lack of short-term benefits. In some cases this was overcome to a certain extent by developing technologies with multiple benefits.

The development of appropriate technologies and practices was shown to be highly dependent on the technology development process. As a result the strategies used by institutions to develop and disseminate NRM technologies or practices at the community level played a key role in uptake. Consultation with farmers in all the case studies identified those strategies that were most effective at stimulating uptake at the community level. Awareness raising activities were shown to be key in stimulating farmer demand for NRM practices because they allowed the farmers to gain a greater understanding of the negative impact that natural resource degradation was having on their livelihoods. Involving the farmers in planning research and development activities was important in ensuring that the projects responded to their needs and fitted in with their daily realities. Failure to take these realities into account reduced farmer participation. Participatory technology development and the farmer innovator approach were both popular with farmers because they widened their horizons by bringing together local and scientific knowledge and ensured a sense of ownership of the practices promoted. Practical field demonstrations and inter-community visits were also

shown to be vital components of a successful promotion strategy because they enabled farmers to understand how the technology or practice worked and to see its benefits in their own environment. Incentives were shown to mask the true cost of a practice and also to motivate the involvement of farmers who are not really interested. In some cases this resulted in high short-term adoption levels, which were not maintained.

Because in Bolivia almost all institutions claim to use participatory approaches, their scaling-up plans tended to focus more on issues relating to vertical scaling up, where they felt that their weaknesses lay. However farmer feedback at the scaling-up workshop contradicted this vision. At least half of the workshop's 40 participants felt that many so-called 'participatory' approaches were merely cosmetic. They felt that most approaches were still top-down, with institutions being more concerned about farmer participation in their project activities rather than considering how their institution could participate in the community development processes. In particular, research institutions were considered to be overly focused on spreading their particular technologies or practices without considering whether these were really appropriate for improving livelihoods in a given area or community.

### *Improving accountability to local communities*

The case studies showed that local development activities are often dictated by the agendas of external development institutions, namely researchers, NGOs, and donors. NGOs and researchers tended to be primarily accountable to donors with little accountability to their target beneficiaries. Many NRM interventions were sector specific, based on the institutional perception of community needs with little consideration of other community priorities. Most of the communities in the case studies had had little or no control over the development projects that they were offered or over their relationships with the intervening institutions. This sometimes resulted in piecemeal project interventions and duplication of work by various institutions. Certain case studies demonstrated that duplication could be reduced and the relevance of interventions increased by working through existing broad-based community groups. Where one development institution had developed mechanisms to give the community greater control over interventions and to consider NRM issues within the context of broader community needs, they had been enthusiastically received at the community level. Clearly local democratic processes are important in ensuring local leaders remain accountable to local communities.

The farmer evaluation mentioned in the previous section reinforces the importance of the call to improve organisational accountability to local communities. Although this issue was not specifically tackled in the action research phase of this project, there is much scope for interesting future action research in this area.

### *Including the poorest and marginalised*

The case studies demonstrated that despite wide variations in livelihood strategies, the farmers who adopt or innovate technologies are nearly always the better resourced. Key

factors influencing adoption identified in the case studies included the nature of the technology, access to resources, migration, education, and levels of non-agricultural income. The poorest resourced farmers had less risk-bearing capacity, less access to productive resources, less education, and less exposure to information. The main limiting resources were credit, land, irrigation, and time/labour. Education levels were important because educated people had better access to written information and wider exposure to activities beyond the community. Isolated families and those who migrated tended to be excluded as they often could not attend community meetings and missed out on important information and activities. Migrants to the city and those less dependent on agriculture for their income were less motivated to improve NRM practices. If the technologies developed are to benefit the poorest of the poor, then NRM organisations need to understand the livelihood factors that are leading to their exclusion and develop strategies that will counter these factors. This reinforces the message that timely situational analysis is important if the equity aspect of the scaling-up concept is to be fulfilled.

### *Ensuring sustainability after project completion*

The case studies demonstrated that farmers were often dependent on institutional presence for continued implementation and dissemination of NRM practices. Lack of on-going institutional support was a widespread complaint made by farmers interviewed in all the cases. Institutional dependency needs to be overcome if scaling up is to be sustainable. The more successful cases showed that in order to overcome this problem, farmers need ready access to all the necessary elements that enable them to adopt, adapt, and disseminate technologies and practices that they have found attractive. These elements include increased organisational capacity, access to appropriate materials for implementation and maintenance, and technical support for when problems arise.

### *Monitoring, evaluation, and assessing impact*

None of the case study institutions had functioning systems for assessing the impact of their activities. This lack of effective systems for measuring impact made it difficult to ascertain the extent to which promoted technologies were spreading and whether they were providing the desired benefits to smallholder farmers. Where M&E had occurred it had been limited to measuring outputs within the project lifetime. The main factors limiting the development and implementation of M&E strategies identified by the institutions were confusion over who should be responsible for M&E and how it should be undertaken, uncertainty over the definition of useful and accessible indicators, and lack of funds earmarked for M&E activities.

The experience of developing scaling-up plans with the collaborating institutions reinforced the fact that there was an urgent need to build capacity in this area. There was particular confusion over how to develop effective indicators for monitoring progress and measuring impact. Often, it was thought that proving a planned activity had been undertaken was sufficient for demonstrating impact. Moreover, where there was no necessity to demonstrate impact, institutions did not feel motivated to invest

time and money in the process. This highlighted the importance of the increased donor emphasis on impact. Where measuring impact beyond the project lifetime is a requirement for funding, institutions will be more motivated to plan and implement effective M&E strategies.

In response to some of these problems, one of the collaborating institutions planned an interesting approach for building capacity in the development and use of indicators. Through discussion they had identified the importance of two main types of indicators: those to ascertain the extent to which scaling up was taking place and those to allow targeted groups to ensure that institutions were being accountable to their needs. To build on this, they aimed to hold a series of events bringing together a range of stakeholders in order to develop harmonised indicator types, which would then be incorporated into an indicator guide for measuring impacts. After the completion of this guide, they planned to offer training in its use at different levels, including municipal authorities. Unfortunately it was not possible to monitor the success of these activities within the project lifetime.

## Conclusions

Although processes for scaling up successful pilot NRM practices and technologies were analysed through case studies, with key constraints and success factors identified, the short time frame of the action research phase significantly limited the extent to which these factors could be put into practice and tested. Within the short time available, the project focused on strengthening the capability of local professionals to promote scaling up, with a strong emphasis on building their motivation to continue with planned scaling-up activities after project completion. However, many of these activities remained within the institutional rather than the community domain.

Despite project limitations, the case studies combined with a short period of action research did demonstrate that the main requirements for scaling up include:

- planning for scaling up at project outset;
- understanding the wider environment beyond the project boundaries;
- increasing time horizons with a greater commitment to building long-term capacity;
- developing funding mechanisms that go beyond the time horizon of traditional projects with closer institutional integration and cost-sharing agreements;
- improving collaboration, networking, and forming alliances between the main stakeholders;
- building institutional capacity at both institutional and community level;
- improving community approaches to technology development and not just paying lip service to farmer participation;
- ensuring the poorest and marginalised are not excluded from the process;
- ensuring sustainability after project completion;
- carefully monitoring and evaluating progress at both institutional and community levels and assessing impact some time after project completion.

However, because scaling up is such a broad concept encompassing many important areas, each with its own microcosm of issues, the lessons gained from this research project are still relatively general. In order to develop an improved understanding of the practical approaches required for successful scaling up, longer-term action research is indicated in some of the key areas identified during this project. In particular it would be interesting to explore in greater depth the questions of community empowerment and organisation for scaling up NRM, which were not sufficiently tackled in this project's action research phase.

Moreover, although scaling up applies a non-linear approach to the spread of NRM practices, by starting with successful pilot technologies, we remained caught in a linear technology transfer approach from which it was hard to escape. The collaborating NRM institutions remained the key actors and the key issue remained how to get 'proven' NRM technologies to benefit more people. Perhaps it would have been interesting to focus more on how to ensure that the poor are able to articulate their NRM demands and how to respond to these demands.

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