CHAPTER 5

Issues and Strategies for Going to Scale: A Case Study of the Forages for Smallholders Project in the Philippines

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Introduction

Challenges of scaling up

Scaling up the impacts of agricultural research outputs has become the center of much recent debate within natural resource management (NRM) research. This interest has arisen in the context of growing concern that NRM research has not demonstrated its ability to benefit large numbers of poor people across wide areas within sensible time frames. Harrington et al. (2001) argue that it is opportune for NRM research to demonstrate its ability and meet the challenge of improving human well-being. However, other issues also are pushing the scaling up agenda. For instance, civil society and donors are increasingly pressuring that money spent in research and development (R&D) brings about lasting impact on the lives of the rural poor. The recognition that many relevant technologies and approaches are not achieving their full impact because of low levels of adoption has led to greater emphasis on the effectiveness of research to produce adoptable technological options. Therefore, reduced financial support to agricultural R&D, and increased pressure from donors, policymakers, and civil society, has compelled researchers and development workers to expand impact and "scale up" the development process.

An indication of this concern is the number of international consultations that have taken place over this period. At least four international events have dealt with scaling up over the last few years: The International Centre for Research in Agroforestry (ICRAF) Workshop, 1999, focused primarily on scaling up agroforestry innovations within an R&D

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framework (e.g., Cooper and Denning, 2000). The nongovernmental organization (NGO) committee of the Consultative Group on International Agricultural Research (CGIAR) initiated two workshops, in 1999 and 2000, which focused on using case studies and participants' experiences to derive common principles and improve the overall understanding of the scaling up process (IIRR, 2000). More recently, the Natural Resources Institute (NRI) sponsored a workshop, which focused more directly on developing a framework for scaling up NRM research (Gündel and Hancock, 2001). Menter et al. (this volume) provide a clear and comprehensive review of the central concepts and issues related to scaling up, consistent with the objectives agreed upon by participants at the CGIAR-NGO committee at the workshops:

> "Scaling up leads to more quality benefits to more people over a wider geographic area more quickly, more equitably, and more lastingly."

Overview

The objective of this chapter is to review an approach for scaling up improved forage systems, and to identify successful elements in reaching more people over a wider geographic area. The chapter first provides a brief review of some of the key definitions and terms in the scaling up literature. An overview and background of Phase I and II of the Forages for Smallholders Project (FSP) follows. The final section presents a study conducted to evaluate strategies for increasing the number of farmers adopting improved forage technologies. The study had two stages: (1) informal interviews using a case study approach in one of the FSP focus countries, the Philippines; and (2) a review of existing reports from project inception in 1995. A synthesis of results is presented, with lessons learnt and recommendations for scaling out highlighted, and new areas of research identified.

A glossary of terms and definitions

Menter et al. (this volume) argue that the confusion with terminology comes from the fact that scaling up is often used as a catchall, general term. However, as a strategy to develop a consistent definition of terms, they propose to follow the definitions and terms proposed by the participants in the Going to Scale Workshop (IIRR, 2000) which are: (1) Horizontal scaling up/Scaling out, and (2) Vertical scaling up.

Horizontal scaling up/Scaling out is geographical spread to cover more people and communities through replication and adaptation, and involves expansion within the same sector or stakeholder group. Decision making is at the same social scale.

Vertical scaling up is moving higher up the ladder. It is institutional in nature and involves other sectors/stakeholder groups in the process of

expansion—from the level of grass-roots organizations to policymakers, donors, development institutions, and investors at international levels.

Vertical scaling up includes ***institutionalization*** (often referred to as "mainstreaming", especially in the participatory literature). This implies getting institutions to accept and internalize the underlying principles of an innovation so that these will remain as guiding principles of practice even after the initial innovative project or program has come to an end. There is a growing body of work on the institutionalization of participatory approaches (Blackburn and Holland, 1997; Bainbridge et al., 2000).

History and Background of the Forages for Smallholders Project

Geography, government administration, and environmental characteristics

This chapter is based on the R&D processes in Mindanao, the second largest island of the Philippines. The project started at two focus sites, Malitbog municipality, and the rural area of Cagayan de Oro City. Malitbog has a much smaller population than Cagayan de Oro City (Table 1). While Malitbog is classified as rural, only 18% of the population of Cagayan de Oro lives in the rural areas, which comprise 80% of the land. In both places there is a pronounced dry season from December to April.

Table 1. Site description of Malitbog and Cagayan de Oro, the Philippines.

	Malitbog	Cagayan de Oro
Status	Municipality	City
Province	Bukidnon	Misamis Oriental
Population (1995)	16,000	428,000
Area (km^2)	580	412
Soils	Clay, sulfaquent, loam, pH 5.8-6.5	Clay, sulfaquent, loam, pH 5.8-6.5
Slopes	90% of the area more than 8% slope	70% of the area more than 8% slope
Average annual rainfall (mm)	1720	1620
Forest	58% of the area	NA

Malitbog municipality is headed by a mayor and is relatively autonomous in agricultural development activities. The Municipal Agricultural Officer (MAO) is responsible for all agriculture-related development, and is assisted by several Agricultural Technicians (AT). Cagayan de Oro City, capital of Misamis Oriental province, is also headed by a mayor. The City Veterinary Office (CVO) provides livestock-related services in Cagayan de Oro. The MAO in Malitbog and the CVO in Cagayan de Oro managed the two FSP focus sites. Teams of government

AT assisted them at both sites. The city and the municipality are divided into several *barangays*, each of which consists of several *sitios*, the smallest administrative level.

Initial development of improved forage systems

From 1995 to 1999, Phase I of the FSP operated in five countries, funded by the Australian Agency for International Development (AusAid). The objectives were to develop forage technologies with smallholder farmers in the upland areas of Southeast Asia, using improved forage germplasm from various research institutions. Although several decades of research had been invested in improving forage species, this had not resulted in significant adoption by smallholder upland farmers in Southeast Asia (CIAT, 1994; Stür et al., 2002). The lack of farmer involvement in the research process was identified as the main reason for this low adoption. The FSP developed participatory methods for problem diagnosis, experimentation with new forage varieties, and monitoring and evaluation. In the 5 years of FSP Phase I, more than 500 species and varieties were evaluated in research sites on-station, and farmers evaluated more than 100 species on-farm (Stür et al., 2000). During this phase, more than 1750 farmers at 19 focus sites in the Philippines, Indonesia, Lao PDR, Malaysia, and Vietnam adopted about 40 species and varieties (Tuhulele et al., 2000). Choices and experimentation of forage types varied per location. For example, at the two focus sites in the Philippines, farmers selected 18 different species for use in five different systems in 1999 (Table 2). They are still being cultivated and expanded in 2002.

New focus on scaling out

Scaling out had not been an objective of FSP Phase I, and the numbers of farmers developing and adopting new forage systems were far beyond the aim of the project. From 2000 to 2002, Phase II of the FSP was funded by the Asian Development Bank (ADB) in six countries in S.E. Asia. The focus of Phase II was on further scaling out the research outputs from Phase I. This was divided into several different outputs:

(1) Provide opportunities for each new community to develop new forage systems, using “building blocks” developed during Phase I.
(2) Promote participatory research: Ensure that participatory processes were used for scaling out.
(3) Developing a strategy for promoting local forage multiplication systems was essential for scaling out, because planting materials of improved forages were often difficult for farmers to obtain.
(4) Capacity building: Ensuring that enough facilitators were trained, to implement the exponentially expanding project in new communities and provinces.
(5) Develop a network: This would primarily provide the chance to exchange experiences among countries dealing with the same research issues.

Table 2. Forage species and systems used by farmers at focus sites in Cagayan de Oro and Malitbog, Mindanao, the Philippines, 1999.

Forages	Systems[a]				
	C&C Pl	Co He	Gr Pl	Orn	Bd Lf
Grass species					
Andropogon gayanus Kunth	x				
Brachiaria brizantha (Hochst. Ex Rich.) Stapf	x[b]	x			
Brachiaria decumbens Stapf	x		x		
Brachiaria humidicola (Rendle) Schweik.			x		
Panicum maximum Jacq.	x	x			
Paspalum atratum Swallen	x	x			
Pennisetum purpureum Schumach. and hybrids	x	x			
Setaria sphacelata var. *splendida*	x	x			
Legume species					
Arachis pintoi Krapov. & W.C. Greg.			x	x	
Calliandra calothyrsus Meissner		x			x
Centrosema macrocarpum Benth.	x		x		
Centrosema pubescens Benth.	x		x		
Desmanthus virgatus (L.) Willd.		x			
Desmodium cinerea Wight & Arn.		x			
Flemingia macrophylla (Willd.) Merr.		x			
Gliricidia sepium (Jacq.) Walp.		x			x
Leucaena leucocephala (Lam.) De Wit		x			x
Stylosanthes guianensis (Aublet) Sw.	x				

a. C&C Pl = cut and carry plot; Co He = contour hedgerow; Gr Pl = grazed pasture; Orn = ornamental; Bd Lf = boundary planting and live fence.
b. Not in Cagayan de Oro.

Participatory Processes and Scaling Out of the Forages for Smallholders Project

Increasing use of participatory methods

The FSP is an example of how a research project started in a conventional way, with little farmer participation before 1995, with on-farm experiments being largely contractual. Lilja and Ashby (1999) described how participation usually increases when farmers become more independent in the decision-making process. The authors classified different stages, naming them contractual, consultative, collaborative, collegial, and farmer experimentation, with advancing levels of decision making by farmers. The contractual stage actually started during the Forage Seed Project in 1992. The objectives were to evaluate the agronomic, climatic, and adaphic adaptability of sources of improved forage germplasm in nurseries in different environments of Southeast Asia. These forage nurseries were often established on station, but sometimes also on farmland rented from farmers.

In 1995, the FSP entered consultative participation with a group of 14 farmers in Pangalungan, Cagayan de Oro City. The farmers expressed their interest in new forage varieties to overcome shortages of feed during the dry season. An experiment field was allocated nearby at the Cagayan Capital College (CCC). In January 1996, about 18 species were planted on this land in 5 m x 5 m plots, and farmers of Pangalungan evaluated the species (e.g., growth rate, drought resistance, and skin irritancy), facilitated by technicians. Farmers decided which species they wanted to test and plant on their own farms. More farmers in Pangalungan became interested and, within a few months, 30 farmers had collected and planted forages on their farms. Formal research started with these farmers, where farmers and project staff were equal partners in decision making; FSP was now engaged in collaborative farmer research. Research became more complicated, because forages were no longer solely grown in plots, but also on contour lines along steep slopes, on farm boundaries as living fences, or integrated in crops and fruit trees. Within a year, more and more farmers started to test forages on their farms, and it became more difficult to structurally facilitate research on all farms. Project field staff would still give advice on which forages would best suit someone's need, and how best to evaluate them. At the start of Phase II, the number of farmers that had been given planting materials had grown to such an extent that it was no longer possible for field workers to facilitate the research processes of every farmer. The collaborative phase thus went through a collegial phase, and the result was truly independent farmer experimentation with improved forages in many cases.

During FSP Phase I, two international scientists, who were not based in the province, mostly facilitated the participatory research. More sustainable facilitation capacity that was locally based was badly needed. Field staff needed to be trained in forage agronomy and participatory research approaches. The first training course for technicians was conducted in the Philippines in 1998. It formed the basis for many more courses for new field staff when the project expanded during Phase II. The course also resulted in a training manual, which is still used by the project and by national agricultural research systems (NARS) (Stür and Horne, 1998).

Regular contact was made among farmers and researchers, and technologies were fine-tuned to farmers' needs. The initial nurseries and regional evaluation plots served not only to test forages, but also as sources of planting materials, which farmers would collect after the evaluation exercises. Between 1996 and 1998, cross-visits were organized; farmers who had been involved in a participatory diagnosis in new villages were invited to see farmers' experimentation in Pangalungan, and the evaluation site at CCC.

Unlike the conventional Training and Visit programs of the World Bank, FSP used very few extension publications in the early stages, nor did it have regular farmer training sessions. Although dissemination was not an

objective of the research in FSP Phase I, at the end many more farmers had adopted forages than had been foreseen (126 in Cagayan de Oro, and 160 in Malitbog in 1999).

A new research and dissemination strategy

During FSP Phase I, the unexpected scaling out seemed promising, and for Phase II, scaling out became one of the major research issues. In order to better guide the processes and understand the dynamics, a strategic R&D diagram was constructed (Figure 1).

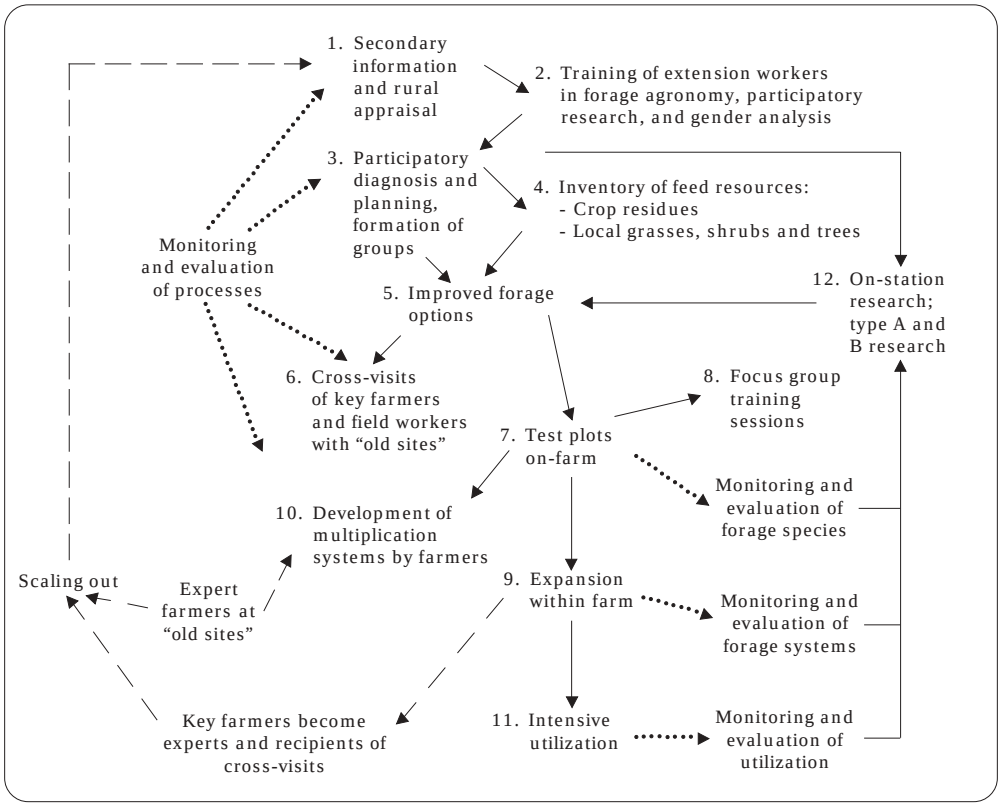

Figure 1. Research and development processes in the Forages for Smallholders Project.

There was a natural sequence of research activities (stages 1 to 11). The first step for either starting research at a focus site, or scaling out to a new site, was to gather secondary information, and to carry out a rapid rural appraisal with a wide range of stakeholders. If a need for forage R&D was perceived, extension workers of the Local Government Units (LGU) were trained in forage agronomy, participatory research, and gender analysis. During these courses, the more active and motivated extension workers, who can effectively lead work in the project, were identified (step

2). The selected extension workers were assisted in their first participatory diagnosis and planning exercises with their communities (step 3). Community inventory of existing feed resources greatly assisted the identification of suitable improved possible forage systems, which were offered to farmers (steps 4 and 5). If focus sites with experienced farmers existed elsewhere, cross-visits were facilitated for farmers to visit them at the old sites, even if it sometimes involved domestic flights (step 6). New farmers would normally follow a pattern of expansion within their own farms; they started with small plots of new forage species and varieties, often only a few square meters per species. They would evaluate the new forages using a variety of criteria, ranging from agronomic performance to ease of harvesting. Expansion occurred in an opportunistic way, when planting conditions were favorable. At this stage, enough forage material would be available to compare palatability for animals among forages, and evaluate grazing persistence. After about 1 year, farmers would start to perceive effects on animal productivity, soil fertility, or erosion control (steps 7 to 11). The dotted arrows indicate the different levels of monitoring and evaluation, which provided feedback to stakeholders, and assisted in identifying strategic research issues (step 12).

The key elements for scaling out in this strategic diagram were the participation of new key farmers and field workers in cross-visits to old sites (step 6 and dashed arrows); expert farmers at the old sites would show and explain their work, teach practical management skills, and provide planting materials to the visitors (link with step 10). It was important that the new key farmers were carefully chosen by the community and field staff, because they would represent that community and be responsible for extending all that was learned in the cross-visit to the other farmer group members. The selection criteria for new key farmers were: Outstanding record in terms of adopting agricultural innovations, good communication skills, readiness to share, and good reputation in the group or community. Many early key farmers not only served their own community, but also developed into forage experts who would start to receive new farmers cross-visiting (dashed arrow from step 9).

Scaling out in numbers

There was an exponential increase in the number of farmers growing forages at project sites in Indonesia (Figure 2A), the Philippines (Figure 2B), and Vietnam (Figure 2C). A slow phase of about 3 to 4 years was needed to allow a few innovative farmers to experiment. Once the innovations provided tangible benefits, more farmers adopted the forage technologies. The data used in the figures consist of the number of farmers in the previous year plus the new farmers in the current. This record system is easy to implement by everyone involved. However, what it does not take into account is the number of farmers who stop growing forages each year. Although this could be a flaw in the system, in practice it is of minor importance. Farmers dropping out are estimated at no more than 5%

on the average in the Philippines, Indonesia, Vietnam, and Thailand. Trying to obtain exact numbers of farmers dropping out each year for each site is difficult for several reasons. Farmers who have stopped are often shy to admit it, feel a sense of failure, or are plainly unwilling to talk or collaborate with data collection. All of these create a negative incentive for fieldworkers to pursue collecting this type of information. Figure 3 shows that in Malitbog the drop out of farmers was significant; in 1 year the net increase was close to zero. The magnitude of the problem made it easy to record. The drop out of farmers was caused by false expectations. During the previous 2 years, farmers had been promised by a different government project that they would receive livestock on loan if they established an area of forage. When the project failed to deliver the animals, it frustrated the farmers, who then stopped their forage activities.

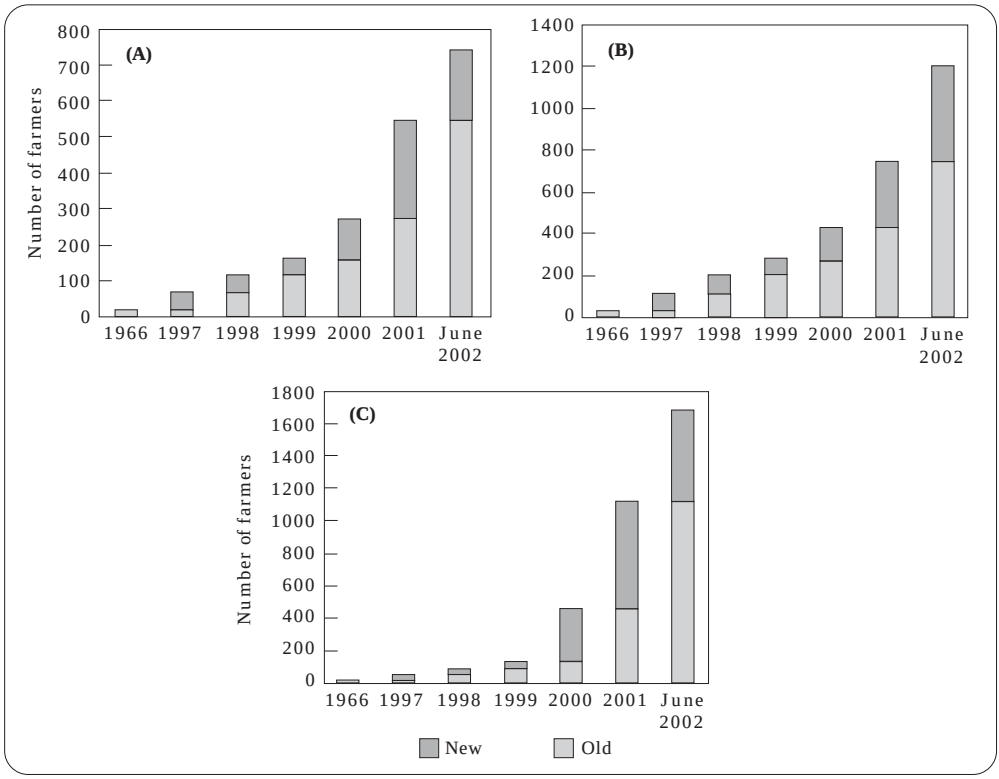

Figure 2. Exponential increase in the number of farmers growing forages at project sites in (A) Indonesia (E. Kalimantan), (B) the Philippines (Mindanao), and (C) Vietnam (T. Quang and Daklak).

Scaling out does not happen everywhere at the same exponential rate; in Vietnam more than twice as many farmers were reached as in the Philippines. Many local factors can influence the process. In Vietnam, the field workers found working for the FSP particularly attractive because they were drawn by its participatory approaches, which in government projects is still uncommon. Vietnamese fieldworkers reported that they enjoyed the

work, because it was different from their conventional extension work, and they received appreciation from farmers. The culture of not sitting down before the work is finished pushed them to even working with farmers at weekends. Another unique situation of Vietnam is the feeding of forages to ponded fish. Large quantities need to be fed each day since the fish cannot feed themselves. Fish production has increased over recent years because prices have been very good, resulting in a high demand for cultivated forages.

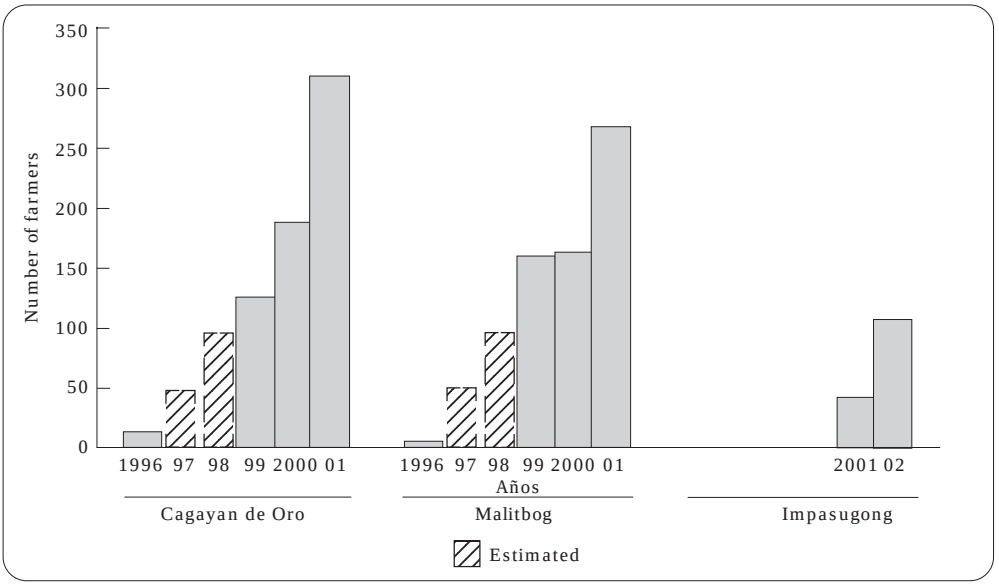

Figure 3. Number of farmers planting forages in the Philippines, 1996-2001. Impasugong site was established in 2000.

Scaling out in the political and institutional environment

The FSP in the Philippines started with focus sites in, among other places, Cagayan de Oro and Malitbog. Successes with experimentation and adoption of forages occurred at grass-roots level, and some scaling out occurred spontaneously, as described in the previous section. When Phase 2 moved beyond this spontaneous scaling out, it became more exposed to local politics. In the Philippines, governance is decentralized, and much power lies in the hands of the municipal mayors, especially when it concerns development of the municipality. Agricultural development is only one of the issues among others, such as development of infrastructure, education, health services, and power and water supplies. When the objective of FSP became to scale out to as many farmers in the municipality as possible, it created new implications for the use of resources. Where, in the first phase, the involvement of one fieldworker employed by the Municipal Agricultural Office was sufficient, in Phase 2 the involvement of all eight fieldworkers of the municipality was needed. The budget that the

FSP availed to the municipality increased almost fivefold—money that was used mainly to finance cross-visits and training courses for fieldworkers. The budget was at the disposal of the MAO. Obviously such a development needs the blessing of the mayor. We learned that misunderstandings are easily created, and interaction of senior project staff with mayors is essential. In addition, the FSP has been more successful in municipalities with a strong agricultural development policy.

In Cagayan de Oro, the livestock dispersal schemes are a clear example of a local policy that reinforces the scaling out of improved forage systems. The Department of Agriculture of Region 10[1] has invested in agricultural development by dispersing improved dairy cattle and buffaloes to farmers. The program, which started in 1995, has greatly contributed to the increased interest of farmers in improved forages. In fact, it was a requirement for beneficiaries of the dispersal program to have at least 600 m^2 planted with forage crops before they could receive an animal. The dispersal programs are revolving; one or two female offspring per received animal, depending on the program, need to be forwarded to a new beneficiary. The programs still exist and are popular among farmers.

Although these dispersal programs seem to benefit farmers categorically, there are some tricky implications. For instance, politicians at various levels initiate some of the programs with a clear earmark to win voters in an upcoming election. Mayors, who are elected by the public in the Philippines, sometimes do not cooperate with programs initiated by a rival. On a more general note, dispersal programs can paralyze farmers' initiatives to breed their own productive livestock. Such has already happened in East Kalimantan Province in Indonesia, where farmers sell fattening cattle, including all female animals, and wait for the government to supply new young stock through loan schemes. East Kalimantan has a severe shortage of beef, and the dispersal programs do not have the capacity to distribute enough fattening stock to farmers. The solution here would be to encourage farmers not to sell female breeding stock for slaughter. Smallholder farmers in east Africa have demonstrated that they can successfully breed their own stock; there are no indications that farmers in the Philippines or Indonesia would not be able to do the same.

Mindanao Case Study

Informal interviews were held in the Philippines, from 6 to 9 August 2002. The first 3 days were spent in Cagayan de Oro City, Malitbog Municipality, and Impasugong Municipality. A multidisciplinary team, including a social scientist, soil scientist/agronomist, and animal scientist, selected and interviewed individual farmers and farmer groups, who had participated in the project for at least 2 years. Although most farmers understood English, the agricultural officer of the LGU translated the questions and answers in

1. "Region" is an administrative level, comprising several provinces.

the local language, Cebuano. Question guidelines were developed before the interviews, and they were slightly adjusted for individual farmers and for groups (Appendix 1). During the fourth day, project site managers of the municipalities and city were interviewed about the history of the project at their site, and each one was asked to rank the importance and effectiveness of scaling-out methods.

There were two layers of stratification of the interviewed farmers. First, it was expected that farmers at the focus sites, Malitbog and Cagayan de Oro, would have more profound knowledge and experience in issues of scale, because these sites had been involved with forage projects since 1992. Impasugong was a relatively new site, established in 2000. The second layer of stratification was the selection of individual farmers to be interviewed. At each site, the aim was to have respondents representing poor- and average-income households, male and female respondents, and respondents with animals, obtained through dispersal programs or through own acquisition.

Results of Mindanao Case Study

Information flows

Questions 4, 5, and 7 (Appendix 1) were aimed at assessing the effects of different methods and activities on information flows to farmers. Activities that were mentioned by individual farmers and groups were farmer cross-visits, field visits to institutes, and training by fieldworkers. Additional activities mentioned by site managers were participatory diagnosis and planning exercises, and training courses for fieldworkers. Farmers and site managers ranked the activities and explained their ranking order. The results are segregated by responses from site managers and farmers (Table 3). Some clear observations are:

- Farmers did not mention participatory diagnosis and planning at all as information flows. For site managers, these activities were of average relevance for this purpose.
- Site managers ranked technician training courses relatively low.
- Farmers and site managers ranked cross-visits high.
- Site managers considered field visits to research stations and field days organized by managers more important than did farmers; whereas farmers ranked farmer training sessions and fieldworker visits much higher than did managers.

Group issues

In Cagayan de Oro, all respondents were organized in cooperative groups that met once a month. The site manager or fieldworkers were often invited to talk about forage technologies and animal husbandry. A specialized government official facilitated the formation of groups in Cagayan de Oro.

Table 3. Site managers' and farmers' ranking of importance and effectiveness of activities as methods for scaling out, and the reasons for ranking, Mindanao, the Philippines.

Activity	Ranking[a]		Reasons given by	
	Site managers	Farmers	Site managers	Farmers
Technician training on participatory research and agronomy	√ √	-	Focus sites: • Basic principles New site: • Knowledge on technologies and skills	Not applicable
Participatory diagnosis and planning	√ √ √	-	Focus sites: • Listening to farmers' problems and ideas • Boosts farmers' morale • Start of a lasting partnership and thrust New site: • Provides direction and clarifies expectations	Not ranked
Field visits and field days[b]	√ √ √ √	√ √ √	Focus sites: • Convinces farmers of the technology • Creates awareness on multiple uses and importance of forages • Provides recognition to farmers New site: • Not mentioned	• Exposure • Access to planting material
Farmer training and seminars and visits by technicians	√ √	√ √ √ √ √[c]	Focus sites: ***Technicians' visits*** • Direct contact of the farmer • To establish a good relationship • To understand farmers problems and needs • Farmers feel important New site: ***Farmer training*** • Enhances interest of farmer • Orientation of project	• Learning on management and agronomy of forages, animal husbandry, manure application • On-farm experimentation on soil erosion
Cross-visits (farmer to farmer)	√ √ √ √	√ √ √ √	Focus and new sites: • Effective in convincing other farmers • Occasion for sharing of experiences, supplementary information and knowledge • Opportunity for farmer interaction	• Knowledge on new species, forage management, soil and water conservation, animal husbandry, animal nutrition, legumes, ration formulation, milking animals, artificial insemination, coconut planting densities, fruit trees in contours • Protecting forage as a crop • Access to planting material

a. Ranking: √√√√√ = highest, √ = lowest.
b. Visits to Malaybalay Stock Farm, Delmonte, Kaluluwayan, and Los Baños.
c. Training sessions happen at a later stage of the cycle; feedback is received and used to focus training topic. Technician was present when question was asked.

In Malitbog, a women's group was started to be able to qualify for dispersal of improved goats and help each other to grow the required amount of forages. The group has been successfully operating for 6 years, and members decide who among the 30 members receive offspring. Rules on planting forages are still enforced within the group. In Impasugong, all respondents were members of a group and met once a week, except one group, which had disintegrated shortly after launching. There appeared to be strong leadership, either a farmer or fieldworker. Forage technologies are discussed, livestock dispersals are planned, and cross-visits are planned. Group objectives and activities seemed to be similar at focus sites and the new site. Differences were the size of the groups; those at focus sites had 25 to 60 members, while those at the new site had 14 to 17 members. Groups seemed to grow naturally, contributing to scaling out within the community.

The role of project facilitators in providing information on forage innovations is still strong. In a few cases, the group chairperson has been on enough cross-visits and field trips to take over the responsibility of providing information. One case revealed evidence that several group members were empowered to share information. As one farmer expressed it: "In the beginning, Nick (farmer chairman) talked and explained in the meetings, but now there are more people talking and exchanging information."

Gender and equity

During the four interviews, data were collected about male and female membership of the groups—one women's group and three mixed groups. The mixed groups had an overrepresentation of men, on the average 73%. However, overall, the groups contained 48% women. Women groups seem to be necessary to balance the number of women involved in social functions. Decision making in forage- or livestock-related activities is shared between husband and wife. Plowing is normally done by men, and sometimes women delegate the cutting and carrying of forage to men. These observations were not different at old and new sites.

The sample group was too small to arrive at any conclusions of how the wealth of farmers relates to functioning in the project. Poor and rich farmers belonged to groups or did not, and they participated in various training and dissemination activities. No clear observation could be made either on whether beneficiaries of livestock dispersal programs engaged in different activities or had superior knowledge, skills, or social status. Other studies, such as the monitoring and evaluation surveys, would be able to illuminate these issues.

Monitoring and evaluation

Participatory monitoring and evaluation (PM&E) has been in place in the project since 1995. In Phase 1, it consisted of farmers ranking forages by criteria that they considered important, such as leaf production, drought resistance, competitiveness with weeds, and ease of harvesting. In the second phase, a broader context of monitoring and evaluation (M&E) was applied. Forage crops were evaluated not only for their growth potential, but also for their use as feeds and other multipurpose benefits. The project went further by trying to evaluate participatory processes. Workshops were held in each country to discuss the concepts of M&E, impact assessment, indicators and methods, and to develop M&E workplans. At most sites, the workplans consisted of a combination of PM&E with community-defined indicators, and conventional donor M&E. The major challenge has been to discuss the concepts of M&E questions, indicators, and methods with the fieldworkers and communities. Composing a dictionary of PM&E terminology was a helpful tool. Simultaneous translation in the local language and English was essential during the whole workshop. Roothaert (2001) described examples of farmer-defined M&E questions.

Discussion

Impacts of the project

The main objective of the FSP Phase 2 has been twofold: (1) to further develop forage technologies with farmers with the aim of improving livelihoods, and (2) to scale out the process to new communities. The first objective resulted in increased farmer experience in cultivating the preferred species and accessions, and expanding their cultivation to a larger area within the farm. Farmers were also able to better qualify and quantify benefits from forages on household income, soil management, labor savings, and community aspects, as described by Bosma et al. (2003) in a study that was carried out in Malitbog and Cagayan de Oro in June 2002. The introduction of new forages reduced the time dedicated by women and children to tasks such as herding and cutting forages. While time was saved for animal husbandry tasks per animal, farmers increased their herd size and thus spent more time on livestock keeping. Other farmers used saved time to extend crop activities. The participatory approach of FSP changed the attitude of fieldworkers, and increased the number of farmers interested in training, workshops, and cross-project visits. This extended the impact of FSP to farmers' knowledge of soil conservation, crop rotation, and intercropping. Farmers also began to use participatory tools to facilitate decision making in their other activities.

Sparks in a flammable environment

There are certain prerequisites for scaling out to happen, be it spontaneous or structured, which have also been called "sparks" (IIRR, 2000). Some of

the biggest sparks in the FSP-Philippines have been beyond doubt the presence of champion farmers, who had tested, modified, and evaluated forage technologies with great success. They cultivated more forages than did average farmers, often had more different species and used them in more ways, and experienced larger benefits than average. These farmers also felt the desire to share their knowledge and experience with other farmers, and as a result obtained a higher social status. The FSP has encouraged these farmers to be socially engaged by making them the host for farmer cross-visits and using them as farmer trainers for new farmers. Both farmers and site managers in our case study evaluated cross-visits as highly effective (Table 3) for providing first-hand information that often complemented the official information from fieldworkers, for showing innovations, for providing planting materials, and for finally convincing new farmers. Sparks do not ignite anything without a conducive environment. The environment in this case has been the structure of project implementation, based on a sound policy for collaboration with LGU. Part of the environment was also the production of forage seed and planting materials by experienced farmers, and the facilitation by the project to distribute them. Training of government fieldworkers has fueled the environment even more. Other sparks have included the availability of training materials and technical publications.

Working with partners

Although numerous NGOs are active in the southern Philippines, the project opted for having its primary facilitation through the LGU because the structure was already in place. Also, LGU are considered more sustainable, because they are there to stay, as opposed to NGOs, which are generally more involved on a short-term basis. The weakness that often exists in LGU, the lack of funds to implement field activities, was compensated by modest project budgets in the form of research contracts. We have seen, however, that LGU have been able to acquire alternative funds from government and other sources to fund project activities that they prioritized, such as farmer cross-visits, farmer training courses, and field days to research stations.

At the beginning of every year, site managers developed annual workplans for each FSP site, based on their site priorities (Roothaert et al., 2001). These workplans would include the activities to be conducted for each project output, the time of year they would take place, and an expectation of results. Small research contracts with site managers were based on different outputs of these workplans. The workplans have been helpful to keep everyone in the team focused, yet allowing enough space for flexible ad hoc activities. The importance of workplans is illustrated by an example of the Sustainable Agriculture and Natural Resource Management (SANREM) Collaborative Research Support Project (CRSP) in Lantapan, the Philippines. Buenavista and Consuelo del Castillo (1997) reported that their project went astray after confusion arose between the

various institutional stakeholders and LGU about the latter's role in the partnership. The co-development of the Lantapan Natural Resource Management Plan rescued the project just in time. In FSP, workplans have also been a guide in the reporting of the project's progress on a regular basis.

Sustainability of scaling up

Lovell et al. (2002) compared several integrated natural resource management projects that had various levels of success in scaling up. Among the various conclusions, they state that a scaling objective needs to be in place right from the start, and that it needs to be agreed upon by all stakeholders. Another important conclusion was that community-based projects (such as NGOs) need to link up with larger structured programs (such as national policy); in other words, bottom up needs to link with top down. The FSP has benefited from the fact that the community-based projects (groups at focus sites) and the government (LGU) have been working closely together from the start. The basis for an effective link seems to be in place; however, it needs further institutionalization to higher political levels for scaling out to accelerate even more.

The sustainability of the scaling process depends on various factors:

- A genuine need for the innovation is felt at other places.
- Innovations do not require a high start capital or high labor input in the starting phase.
- Something "sparks" the scaling out process, e.g., champion farmers, market demand, or a "critical mass" of farmers.
- Fuelling the sparks: A facilitating structure is in place, planting materials are available, technical information is available in printed material in appropriate language and level of understanding.
- Communities and individuals in those other places have the resources to test new innovations.
- The facilitating structure meets the complexity of the innovation; the more complex, the more skills, thus capacity building is needed. The innovations that often diffuse without facilitation are simple, cheap, adaptable, handy, and elegant (IIRR, 2000).

Work on scaling out improved forages in Southeast Asia scores high on some and low on other factors of the above list. For example:

- A genuine need for the innovation is felt in many places, and if appropriate participatory diagnostic tools are used, those places can easily be identified.
- Forages do not require a high starting capital; most planting materials are vegetatively propagated and given out or sold at low prices by farmers at focus sites. One farmer can start small and expand later with her own planting materials. The poorest in a community might not have

ruminant livestock, which decreases the potential benefits of the innovation.
- The sparks are very obviously there: Many farmers champion improved forage systems.
- The facilitating structures are in place where FSP operates, and are expected to remain beyond project duration.

On the last points, the project scores lower: The complexities of the forage innovations are high. A wide range of forage crops is offered with different growth habits, requiring different types of planting, management, harvesting, and feeding. Most benefits are long term, because forages have to be cultivated and passed through an animal for a certain period before increases in animal production can be observed. Similarly, benefits on soil management through forages are only observed after prolonged use. Some concerns are the equity issues in the communities, and the need for a relatively high level of skills required in the facilitating structure. Capacity building needs to be continuous and targeted. These are important messages for any project or government wishing to uplift the smallholder animal industry.

Availability of germplasm

If project funding were to stop, or if the project were to steer away from forage and scaling issues, there would be a benefit in having established local germplasm resource units on various islands of the Philippines. Currently, farmers produce most materials, and knowledge about species and varieties is accessible. There is a risk, however, that the ability to distinguish varieties will fade, resulting in farmers growing and comparing different accessions of species, thinking they are the same, or in communities growing the suboptimal accession in their environment. The preferences and uses of accessions have been well documented (Horne et al., 2000; Roothaert, 2000), but diversity of germplasm availability needs to be maintained at island level if we want to maintain comparative accession advantage. For example, there are eight accessions of *Pennisetum purpureum* K. Schum, two accessions of *Panicum maximum* Jacq., two accessions of *Setaria sphacelata* (Schumach.) Stapf & C.E. Hubb., three accessions of *Brachiaria brizantha* (Hochst. Ex A. Rich.) R.D. Webster, and five accessions of *Leucaena leucocephala* (Lam.) de Wit now widely cultivated in the FSP sites in Mindanao.

Conclusions

Research on complex innovations, such as growing improved feeds, animal nutrition, and monitoring productivity, need the involvement of researchers and users at every step of the design and implementation. The more these innovations are directed to support the livelihoods of the poor, the more participatory approaches gain in importance. The upland farmers in Southeast Asia are a very diverse group, and the forage systems they

have adopted vary considerably, not only among sites, but also within villages. Scaling out to similar target farmers elsewhere would not reduce the complexity, hence participatory approaches in scaling out remain essential.

During Phase I of FSP, an environment ideal for scaling out was created at focus sites. The enabling environment consisted of well-suited technical options for a diversity of applications, good printed technical materials, a network of well-trained local facilitators, and a planting material multiplication system adopted by farmers. Some spontaneous scaling out began, but it was greatly enhanced by structural efforts, resulting in an exponential increase of numbers of farmers. Many activities have been instrumental, but cross-visits are notable. They have empowered communities and resulted in key farmers becoming extension workers. Sustainability of the scaling process is enhanced by larger numbers of key farmer extension workers.

The enabling environment is highly susceptible to the political scene. This is again truer for complex innovations than for easy and smooth ones. The political scene affects the facilitation required for scaling out exponentially. Institutionalization of approaches and objectives will remain an important issue during the entire scaling process.

More research is needed on group processes and empowerment as a result of these processes. Groups could play an even bigger role in future in identifying and providing key farmers who take on the responsibility of extension. Some farmers are already paid for their services, and this might become a saleable product of groups. Many groups already have a tight internal financial control system. Other areas of research that deserve further elaboration are the questions of whether involvement in the project is influenced by household wealth status, and how much involvement in the project is influenced by receiving livestock on loan. The monitoring and evaluation tools developed by the project can provide some answers.

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Appendix 1

A. Questions for individual farmers

1. General: Number of livestock, farm size
2. When did you get involved with FSP?
    a. How did you know about FSP?
    b. What kind of interaction did you have with other farmers? Are you organized in a group?
    c. What FSP activities have you been involved in since the start?
3. What forages do you grow?
    a. Forage varieties.
    b. Ranking of varieties.
    c. Reasons or benefits.
4. What have you learned from FSP?
    a. General.

   b. Through own experience.
   c. With whom have you shared this information?
   d. What have they done with it?
   e. What is their relationship with you?
5. Application of knowledge
   a. How would you test a new variety if it were brought to you?
6. Innovative roles of project
   a. Is there any difference between this project and other projects?
   b. What are the differences?
   c. Are you working differently now in the community?
7. Information flows
   a. Where did you get the information that was most useful to you?
   b. What have you learned from other farmers? (farmer-to-farmer contacts)
   c. Rank sources of information.
   d. What did you get out of those sources?
   e. On what occasion did you get the information?
8. Gender roles and responsibilities
   a. Who does what in the livestock and forage activities?
   b. Who is responsible for planting, management, feeding?
   c. Who makes decisions about which forages to test and expand, or selling animals?

B. Questions for groups

1. History of group
   a. How did it start?
   b. When?
   c. Why?
   d. Activities?
2. Meetings
   a. How often are there meetings?
   b. What do you discuss?
   c. Which forage issues?
3. Are there farmers more active in FSP?
   a. How?
   b. How are these persons selected?
   c. What are their roles and responsibilities?
   d. Are there other committees or subgroups within the group? (repeat b-d)
4. Information flows
   a. If you need information, where or how do you get it?
   b. Are there committees or individuals within the group responsible for this?
   c. If yes: How do they access information?
   d. If no: How did they get information if extension worker is not there?
5. What role do key farmers and committees have in information feedback to other farmers or the group?