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Improving Livelihoods of Upland Farmers Using Participatory Approaches to Develop More Efficient Livestock Systems (RETA No. 6067)

Semi-Annual Report – January to June 2005

A fresh forage market in Thailand – a new enterprise

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Summary

1. Good progress has been made during the January to June 2005 reporting period. The first part of the year has been a period of review of progress and planning, both for the remaining period of the final year of the Project and for developing an exit strategy ensuring that the results of the project are adopted and scaled out by the development sector.

2. In January 2005 the Project held its third Annual Review and Planning Project Meeting in Daklak, Viet Nam, reviewing progress and developing plans for the final year of the project and beyond. There are good prospects for continuation and accelerated scaling-out of results at most project sites, funded largely by local government and by donor-funded livestock development projects. Workplans were developed for each site, which incorporate activities designed to showcase and promote the outputs of the project to local, provincial and national governments. National and site coordinators reported the outcome of project activities for 2004. Excellent progress was achieved at many sites with collaborators concentrating on improving livestock feeding systems by working intensively with farmer groups and local extension workers on problems identified by the farmer groups. On-farm experiments were combined with improved feedback to communities and engagement of key farmers and representatives from nearby areas to quickly share the results and experiences with other farmers. A field visit to several project sites in Daklak highlighted the rapid development and uptake of market-oriented cattle production and fattening schemes in this district. Participants also saw the use of forage for feeding fish, an emerging industry based on forages introduced by the project.

3. The Project held an impact assessment planning workshop in Vientiane, Lao PDR in March 2005 to develop a strategy and detailed plan for assessing (i) adoption of forage and improved feed technologies and (ii) impact of the technologies on farm households at project sites. During the workshop, participants developed an adoption survey and a series of clearly targeted focus groups and individual household surveys for measuring impact of the adopted technologies on farm households. These surveys will be implemented during 2005 and the results discussed and finalized in a small workshop in November 2005.

4. At project sites the first six months of the year was a period of consultations with farmers, review of experiments, discussion of constraints and opportunities for further improvements, planning of field activities, and preparation for the beginning of the rainy season which, at most project sites, starts in May / June. Farmer experimentation has proven to be a very effective way of 'demonstrating' improved feeding technologies allowing farmers to experience new technologies and improve their livestock production systems.

5. A review of dissemination methods was conducted in a workshop with field workers in Indonesia. In the workshop, collaborating extension workers and livestock development staff analyzed the methods used for disseminating forage and feed technologies in East Kalimantan and identified impacts of these technologies on households. This activity built on experiences from similar workshops held in Viet Nam in 2004. Champion farmer case studies, dissemination histories and village case studies were conducted as part of the workshop and the results were presented at meetings with the Heads of Extension and Livestock Services offices. The presentations showed that many farmers who adopted improved feeding systems had doubled livestock production on their farms.

6. Project staff and partners continued to interact with a wide range of development projects, providing forage technologies and more effective ways of introducing agricultural technologies to smallholder farming households. Increased emphasis has been placed on

show-casing the results of the LLSP to government officials and on forging linkages with development projects to ensure that the scaling out of results of the project are continuing and accelerating beyond the end of the project.

7. Overall, the Project has made excellent progress during the January – June 2005 reporting period, and no major problems were encountered.

Background

8. The Asian Development Bank (ADB) funded project RETA No. 6067 – Improving Livelihoods of Upland Farmers Using Participatory Approaches to Develop More Efficient Livestock Systems, started in January 2003 for a period of three years. The project was given a short name by project participants and will be known as 'Livelihood and Livestock Systems Project' (LLSP). The overall goal of the LLSP is to contribute to reducing poverty in upland areas through increasing the welfare of men and women farmers and the resilience of the farming system (ADB[1], 2002). Participating countries are Cambodia, China, Indonesia, Lao PDR, Philippines, Thailand and Vietnam.

9. This LLSP follows the ADB-financed project RETA No. 5866 – Developing Sustainable Forage Technologies for Resource-Poor Farmers in Asia. The previous project developed forage technologies with smallholder farmers and demonstrated that adoption of forage technologies led to increased livestock production, reduced labor requirements for animal production, and improved soil and water conservation on small crop-livestock farms in the uplands. The LLSP will determine how these outputs contribute to more sustainable livelihoods and how they can be disseminated more widely. The project focuses on reducing poverty through increased and more efficient livestock production. The new project includes Cambodia and has a reduced level of activities in Lao PDR and Thailand.

10. The TA agreement between the Asian Development Bank (ADB) and the Executing Agency CIAT was signed on 7 January 2003. An inception workshop was held at the Chinese Academy of Tropical Agricultural Science (CATAS), Hainan, P.R. China, from 26 to 31 January 2003 to formally commence project implementation.

11. This is the fifth semi-annual report of the project.

Purpose and outputs

12. The **purpose** of the project is to:

1. improve the sustainable livelihood of small farmers in the uplands through intensification of crop-livestock systems, using farmer participatory approaches to improve and deliver forage and feed technologies; and
2. improve delivery mechanisms in participating DMCs for the dissemination of these technologies.

[1] Asian Development Bank 2002. Proposed Technical Assistance for the Seventh Agriculture and Natural Resources Research at International Agricultural Research Centers. ADB, TAR:Res 36472, Manila, Philippines.

The **outputs** of the project will be:

1. integrated feeding systems for livestock, that optimize the use of improved and indigenous fodders and crop residues, and farm labor;
2. improved methods to develop forage feed systems and extend them to new farmers, optimizing the use of M&E for feedback to others in the community;
3. Increased capacity in DMCs, at different levels, to expand the use of improved forage and feed systems and respond to local needs;
4. comparison of development opportunities, and market and logistic constraints, for intensification of smallholder livestock systems across sites in five countries;
5. improved regional interaction and linkages with national and donor funded development projects that ensure synergistic and multiplier effects.

13. The executing agency of the LLSP is the Centro International de Agricultura Tropical (CIAT), a Future Harvest Center (www.futureharvest.org). The DMCs implementing agencies in participating countries are:

Cambodia	National Animal Health and Production Investigation Centre, Department of Animal Health and Production, Phnom Penh.
China	Chinese Academy of Tropical Agricultural Science (CATAS), Danzhou, Hainan.
Indonesia	Livestock Services of East Kalimantan, Samarinda, East Kalimantan, and Directorate General of Livestock Services, Ministry of Agriculture, Jakarta.
Lao PDR	National Agriculture and Forestry Research Institute (NAFRI), Vientiane.
Philippines	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD), Los Baños, Laguna.
Thailand	Department of Livestock Development, Ministry of Agriculture and Cooperatives, Bangkok.
Vietnam	National Institute of Animal Husbandry (NIAH), Ministry of Agriculture and Rural Development(MARD), Hanoi.

Progress towards Project Objectives

Project management

14. There were no major issues affecting the progress of the Project during the reporting period. In January 2005, the Project held its third Annual Review and Planning Project Meeting in Daklak, Viet Nam, reviewing progress and developing plans for the final year of the project. The Annual Meeting was followed by a 2-day project management meeting which discussed the outcome of the Annual Meeting and developed work and action plans for project staff. In February 2005, the Project held an Impact Assessment Planning Workshop in Vientiane, Lao PDR to develop methods and plans for assessing the extent of

adoption of technologies developed by the LLSP and assessing impact of these technologies on farm households.

15. The Annual Meeting was held at Tay Nguyen University, Ban Ma Thuot, Daklak, Viet Nam from 24-28 January 2005. Participants included Mr. Bradford Philips, the Country Director of ADB for Viet Nam, project country coordinators, selected site coordinators, representatives of related CIAT projects, key researchers from Universities and the National Institute of Animal Husbandry in Viet Nam and project staff. A list of participants is attached in Appendix 1. The workshop commended with progress reports by country coordinators. A field visit to sites in Ea Kar was organized on Day 2. This highlighted the rapid development and uptake of market-oriented cattle production and fattening schemes in this district. Participants also saw the use of forage for feeding fish, an emerging industry based on forages introduced by the project. Day 3 gave other related projects an opportunity to share their results and experiences, and this was followed by a peer-assist session on implementation issues across sites and countries. The last two days of the workshop were allocated to develop plans for 2005 and beyond. A large part of Day 4 was devoted to discussing how project partners can sustain and scale-out the results of the LLSP beyond the end of the current project. There are good prospects for continuation and accelerated scaling-out of results at most project sites, funded largely by local government and by donor-funded livestock development projects. The more recently started sites in Cambodia and southern Lao PDR are more vulnerable than more established sites for attracting local funding for continuation of efforts. While progress at these sites has been very impressive and much faster than at older sites, impacts of forage technologies on individual households are still less pronounced and fewer households are involved than at sites where the project has been working longer. Workplans were developed for each site which incorporate activities designed to showcase and promote the outputs of the project to local, provincial and national governments. Excellent progress was achieved at most sites with collaborators concentrating on improving livestock feeding systems by working intensively with farmer groups and local extension workers on problems identified by the farmer groups themselves. On-farm experiments were combined with improved feedback to communities and engagement of key farmers and representatives from nearby areas to quickly share the results and experiences with other farmers. Production system improvements (Output 1) were linked effectively with scaling-out (Output 2). A CD of presentations at the workshop is available on request. Proceedings of the Annual Meeting are being edited and will be available soon.

16. Immediately following the Annual Meeting, project staff held a 2-day management meeting in Daklak to review the outcome of the Annual Meeting and develop training, site follow-up and travel plans for project staff. This was attended by P. Phengsavanh, F. Gabunada, D. Bonilla, J. Connell and W. Stür.

17. The project held an impact assessment planning workshop at the CIAT Regional Office in Vientiane, Lao PDR from 1-8 March 2005. This workshop was designed to develop plans for assessing adoption of technologies and impact of the technologies on farm households. Dr. Federico Holmann, a livestock systems economist from CIAT Colombia with extensive impact assessment experience and Dr. Douglas White, a resource economist of CIAT attended the workshop to assist in developing a series of targeted surveys for measuring household impacts. A basic adoption survey was also designed. Other participants included project staff (P. Phengsavanh, F. Gabunada and W. Stür) and a site representative, Dr Truong Tan Khanh from Viet Nam. Prior to the workshop, F. Holmann visited LLSP sites in Tuyen Quang, Viet Nam (a site with very intensive agriculture) with W.

Stür and Xieng Khouang, Lao PDR (an area with shifting cultivation and other extensive agricultural systems) with P. Phengsavanh to view and discuss the range of impacts that are occurring at project sites. The workshop started with a formal session on Day 1 when impact assessment methodology was reviewed and experiences shared among participants. This was an open session attended by other CIAT (Peter Horne, Rod Lefroy), ILRI (Esther van Hoeve), NAFES (Viengxay Photakoun) and NAFRI (Lingkham Doungsavanh, Thiphavong Boupha) staff members. There was general agreement that impact assessment has to be well targeted and clearly related to project outputs. A mix of tools including village feedback meetings, farmer focus group discussions, and individual household surveys were identified as suitable methods. A total of 13 studies were designed and will be carried out by project partners and staff before the end of the project. The results will be reviewed and finalized in a second workshop in November 2005.

18. P. Phengsavanh and F. Gabunada traveled extensively during the first of 2005 to assist country partners with implementation of site activities, training and to provide mentoring to site collaborators (Table 1). Reports of missions, workshops and training courses are attached in Appendix 1.

Table 1: Travel by project staff Jan – Jun 2005

Period	Traveler	Countries visited	Purpose	Report on Page
14-31 Jan 05	F. Gabunada J. Connell	Tuyen Quang and Daklak, Viet Nam	• Finalize dissemination assessment report for Viet Nam • Develop a plan for conducting a dissemination methodology workshop in Indonesia • Attend LLSP Annual Meeting	23
22-31 Jan 05	All project staff	Daklak, Viet Nam	• Participate in the Annual Review and Planning Meeting	25
4-13 Feb 05	P. Phengsavanh	Savannakhet, Lao PDR	• Develop workplan 2005 with provincial team, and • organize farmer focus group meeting	26
17 Feb – 11 Mar 05	F. Holmann (IA workshop attended by W. Stür, F. Gabunada and P. Phengsavanh)	Lao PDR and Viet Nam	• Field visits and Impact Assessment Planning Workshop	29
22 Feb-10 Mar 05	F. Gabunada	Lao PDR	• Finalize dissemination report for Vietnam • Attend workshop on impact assessment	38
23 Feb – 16 Mar 05	W. Stür	Viet Nam, Lao PDR, Cambodia, Indonesia	• Site visit to Tuyen Quang, Viet Nam with F. Holmann • Impact Assessment Planning Workshop in Lao PDR • Monitoring visit to Cambodia • Tsunami planning meeting in Bogor, Indonesia	39
14-19 Mar 05	F. Gabunada E. Magboo	Philippines	• Make arrangements and start gathering data for impact assessment • Assess accomplishments and formulate plans for LLSP activities in the site	43
20 Mar -2 Apr 05	P. Phengsavanh	Kampong Cham, Cambodia	• Assist Cambodian team to finalize workplans and transform into action plan • Visit project sites	53

Period	Traveler	Countries visited	Purpose	Report on Page
4-10 Apr 05	P. Phengsavanh	Tuyen Quang, Viet Nam	• Develop workplan 2005 and action plan with site collaborator in Tuyen Quang • Organize meeting to discuss about project basic data collection and impact study on forages for feeding fish	56
4-15 Apr 05	F. Gabunada W. Stur E. Magboo	Philippines	• Attend graduation program of the Farmer Livestock School in Malitbog, Bukidnon • Pre-test of the basic data survey form and try out farmer case studies • Conduct of a training on the importance of value-adding for farmers • Visit farmers in the sites • Conduct workshop to assess impact on capacity of collaborators	58
18 Apr-11 May 05	P. Phengsavanh	Luang Phabang, Xieng Khouang, Lao PDR	• Conducting impact study on using Stylo 184 for feeding pigs in smallholder systems in Northern Lao PDR	69
2-6 May 05	F. Gabunada	Philippines	• Facilitate start of basic data collection in Mindanao LLSP sites	73
7-28 May 05	F. Gabunada	Indonesia	• Conduct dissemination workshop for LLSP collaborators in Indonesia • Facilitate start of basic data collection in all sites • Conduct impact assessment on the capacity of LLSP collaborators	74
15-25 May 05	P. Phengsavanh	Savannakhet, Lao PDR	• Site visit and assist local collaborators to conduct farmer group and village meetings	90
30 May -10 Jun 05	P. Phengsavanh	Kampong Cham, Cambodia	• Conduct training course on forage management and utilization • Visit project sites and meet with new farmers	92
12-23 Jun 05	F. Gabunada	PR China	• Review with partners status of activities in the sites • Conduct impact assessment of collaborator capacity on FPR and forages • Pre-test and finalize basic data collection survey form	95
1-13 Jun 05	W. Stur	Indonesia	• Monitoring visit to Central, South and East Kalimantan and South Sumatera, Indonesia	98
27 Jun -1 Jul 05	W. Stür P. Phengsavanh	Ireland	• Participate in the International Grassland Congress, Ireland	102

Output 1: Integrated feeding systems for livestock that optimize the use of improved and indigenous fodders and crop residues, and farm labor

19. The first part of the year was a period of consultations with farmers, review of experiments, discussion of constraints and opportunities for further improvements, planning of field activities, and preparation for the beginning of the rainy season which, at most project sites, starts in May / June. In general, farmer experimentation has been very

successful in 'demonstrating' improved feeding technologies and was an effective way for farmers to experience new technologies and improve their livestock production systems.

20. In Cambodia, project partners worked with 80 farmers in 7 villages in Kampong Cham to evaluate forage varieties and to integrate the best varieties into their farms. By the end of 2004, farmers had selected 4 promising varieties; these were *Brachiaria brizantha* "Marandu", *Brachiaria* hybrid "Mulato", *Panicum maximum* "Simuang" and *Stylosanthes guianensis* "Stylo 184". The main activities of the project in the first half of 2005 were to assist collaborating farmers to expand their forage areas to overcome wet season feed shortages and to improve cattle management and productivity through better feeding. Expansion of forage areas commenced at the beginning of the wet season in May 2005 with farmers using their own planting material. Other farmers, observing the impact of forages on reducing labor requirements for feeding cattle during the wet season from 3-4 hours per day to less than 1 hour per day, also wanted to plant forages in 2005. Project partners from the provincial and district offices organized 8 farmer focus group meetings to discuss problems and opportunities for forage technologies with interested farmers. This was followed by village meetings where farmers, who had planted forages in 2004, shared their experiences with new farmers. Interested new farmers were identified through these meetings and invited to participate in cross visits to farms of successful farmers at the end of the dry season. Farmer-to-farmer learning is one of the key tools used by the project to scale-out successful feed technologies. As a result of these activities approximately 100 new farmers joined the project bringing the total number of farmers working with the LLSP in three districts in Kampong Cham to 180 households.

21. In Lao PDR, project activities in Savannakhet focused on working with farmers raising goats in project villages to improve their feeding and management systems. The project conducted focus group meetings in each village to facilitate farmer-to-farmer exchange of experiences with planting forages and feeding to animals. Improving extensive goat production systems, which are based on grazing, are continuing to provide a significant challenge. Intensification of goat production requires the simultaneous adoption of several technologies to produce significant productivity improvements. The key to reducing the high kid mortality is to control internal parasites. While drenching is effective, re-infection occurs quickly when goats are grazed repeatedly in the same field. The only sustainable solution is to confine goats in raised pens, ideally continuously or at least at critical times of the year (rainy season and wet days). Penning animals requires a readily available feed resource and good pen management. Introducing only one of these components – such as forages alone – has only a limited benefit as animals are still getting re-infected during grazing. The hurdle to introduce pens, forages and management changes simultaneously are considerable. The project has made good progress in introducing forages and improving the nutrition of animals. The availability of forages has resulted in increased confinement but not complete confinement of animals. The project held village meetings to discuss these issues and there are many farmers who are interested to work with the project in introducing the required technologies. The LLSP now works with 32 farm households in Outhoumphone.

22. A first impact assessment study was conducted in May in Xieng Khuang and Luang Phabang provinces, Lao PDR. The focus of the study was on use of supplementing village pigs with the legume *Stylosanthes guianensis* 'Stylo 184'. This feeding technology evolved from research by the Forages for Smallholders Project (FSP) in Lao PDR and Viet Nam, and in Lao PDR was taken up by the bi-lateral FLSP project. There is close collaboration between the LLSP and the FLSP and improved feeding technologies are shared across the

region through the LLSP. The result of the study (a mix of community meetings and individual household surveys) showed that there are two main benefits of supplementing pigs with Stylo 184. These are:

1. Saving of labour (predominantly women's time). The time needed for collecting and cooking feed was reduced from 3-4 hours to about 30-40 min per day during the time when Stylo 184 is available. Year-round supply is not yet available with shortages occurring especially in dry season (Nov-May). During this time women still spend 3-4 hours per day to collect and cook feed. To overcome this problem many farmers in Xieng Ngeun district, Luang Phabang province started to produce Stylo leaf meal (dried leaf and stem material chopped for easy storage and feeding). This has enabled them to preserve Stylo 184 and have a readily-available supply of Stylo 184 throughout the year. They reported that it also saves time when they are busy with other tasks, especially during the rice growing period and they also reported higher feed intake and better growth of pigs fed with Stylo leaf meal when compared to feeding fresh Stylo. Farmers reported that they use the time saved for other agricultural tasks such as taking care of rice production, cash crops, vegetables and look after other farm animals.
2. Improved animal productivity. Farmers consistently reported a doubling of pig growth rates. With traditional feeding systems pig growth rates were about 100 g per day. Traditional diets consist of maize, rice bran, cassava and weeds or natural vegetable, all high in energy but (with the exception of rice bran) low in protein. By supplementing approximately 300 g/head/day of Stylo 184 pig growth rates improved from 100 to 200 g/day. The maximum gain from feeding Stylo has been up to 400 g/day. For farmers, the improved growth rates reduced the production cycle (piglets to sale of fully grown pig) from an average of 18 months to about 8 months; increasing income by enabling farmers to produce twice as many pigs than before.

23. In Tuyen Quang, Viet Nam the project has initially supported the dissemination of forages to new villages and districts by the provincial government through training, cross visits and field days. In 2004, the focus of project activities shifted to working with farmers to improve the developing forage and feed systems, and hand over the responsibility for dissemination to local government. In 2005, the project team identified a range of problems and opportunities for improvement with farmers and extension workers. These were:

- Lack of feed resources in the winter (which is also the dry season).
- Increasing the quality of animal feeds (more protein in the diet).
- Options of sustainable forage production through the introduction of rotational cropping systems using legume lays to maintain soil fertility and grass productivity.
- Seed production of the tree legume *Calliandra calothyrsus* which has shown great promise but expansion has been constrained by lack of seed.

On-farm experiments on these issues were established during the reporting period and progress will be reported in the next semi-annual report.

24. Daklak, Viet Nam, was the first site to achieve substantial improvements in cattle production systems in 2003 and has continued to lead the project in developing innovative ways of working with farmers to improve cattle production and in linking Output 1 to dissemination activities to reach a large number of farmers. In early 2005, project partners consulted extensively with farmers groups and identified a range of important issues for research. These were:

- On-farm research to evaluate different diets for fattening young cattle utilizing locally available feed resources and planted forages. These experiments are carried out with farmers in Ea Kar district and are in progress.
- Supply of supplementary fresh feed (grasses and tree legumes) at night, and the use of Urea-Molasses Blocks for extensive grazing systems in M'Drak. These extensive areas are the supply chain of young cattle for smallholder fattening operations made possible by the project. Prices of feeder stock have risen steeply as more and more farmers are fattening cattle, prompting efforts by the project to assist farmers in the more extensive areas to develop more efficient cow-calf operations. These are based on grazing systems and there is scope to improve calving intervals and early growth of calves.
- On-farm experiments to produce forage silage and hay on smallholder farms.
- On-farm experiments aiming to improve forage seed crop management. There is high demand for forage seeds and a number of farmers have started to produce seed for their own use and sale to other farmers. The project aims to support the development of a seed industry through research and facilitating linkages with the Department of Livestock Development and seed producers in Thailand.
- Assess the impact of improved feeding systems in cow-calf and cattle fattening operations on households, and conduct an adoption survey.

25. In East Kalimantan, Indonesia, results of the experiments conducted in 2004 were reviewed with the farmers. This activity allowed the experimenting farmers to assess the practicality of the technologies that they tested. Most of the experiments highlighted the need for supplementation of basic grass diets with legumes or *ampas tahu* (a tofu by-product) to achieve good growth rates of cattle and goats. Once the participating farmers had evaluated the experiments, a meeting and field day was convened with other farmers in the district. In this meeting, the experimenting farmers presented the results of their experiments, and participants visited their farm to see the forage areas and animals. There was considerable interest from other farmers and extension workers are now encouraging other farmers to try these innovations on their own farms. The activity includes facilitating expansion of forage legumes to overcome the problem of inadequate legume availability. As a consequence of the positive results of legume and *ampas tahu* supplementation, the Livestock Service has started to identify and document the nutritive value of other locally-available feed resources including native vegetation, planted forages and by-products from oil palm processing with the aim of promoting the use of these materials for cattle and goat production.

26. In the Philippines, farmer livestock field schools and farmer experiments have had an impact both at farmer and institutional level. In Manolo Fortich, Bukidnon, all farmers involved in the field school have improved feeding of their cattle. All have constructed improved feed troughs to avoid feed wastage, thereby increasing the efficiency of forage and labor utilization. In Cagayan de Oro, the participants in the field school have formed a registered small ruminant raisers' association. This will qualify them to avail of government assistance and loans from local banks to support expansion of goat production. The association has also made plans for further expanding and developing goat production. In Malitbog, the local government has recognized livestock production as a major component of its poverty alleviation project. All three sites plan to conduct more livestock field schools and on-farm experiments in the next six months, and new sites and farmer groups have already been selected. The staff incorporated their learnings in the selection of activity as well as in finding ways to reduce expenses in conducting the field school. One of the conclusions from 2004 was that farmer experimentation is an important element of livestock

field schools and additional experiments will be included in the field schools in the second half of 2005. The capability of local staff to conduct livestock field schools has improved greatly, both in the planning and implementation of field schools. During the reporting period local partners evaluated their experiences and modified plans on how to conduct field schools in the second half of 2005. The project assisted them in obtaining the knowledge and information needed for likely field school topics, and tools and methods for delivery.

27. In P.R. China, project partners facilitated farmer-to-farmer sharing of experiences in rabbit production through meetings, cross visits, and field days. Staff of the Chinese Academy of Tropical Agricultural Science (CATAS) provided technical inputs through the use of CD's highlighting rabbit production which they showed during farmer meetings. New experiments on feeding of rabbits were planned with farmers for the second half of 2005. The experiments aim to identify more economical ways of feeding rabbits to maximize profitability of this enterprise. The project also works with farmers raising goats in Qiaotou, Chengmai county. Following consultations, additional forage planting material was distributed to interested farmers for planting in the wet season. Another key forage production system for smallholder farmers collaborating with the project is seed production of *Stylosanthes guianensis* CIAT 184, largely for sale to other provinces on the mainland. The marketing of seed is facilitated by CATAS which acts as a broker between farmers and buyers. Unfortunately, seed yields in the 2004 / 05 season harvested in February were low because of an early end of the rainy season this year. This affected flowering and seed set of the crops. A short rainy season was experienced across all of Southeast Asia and many seed producers were affected. In 2005, the project will organize farmer experiments evaluating the effect of applying different levels of fertilizer on seed crops. The lack of adequate nutrient application to seed crops has been identified as a factor limiting seed yield by local project partners and seed producers.

Output 2: Improved methods to develop forage feed systems and extend them to new farmers, optimizing the use of M&E for feedback to others in the community

28. A review of the dissemination methods was conducted in a workshop with field workers in Indonesia. In the workshop collaborating extension workers and livestock development staff analyzed the methods used in disseminating forage and feed technologies in East Kalimantan and identified impacts of these technologies on households. Champion farmer case studies, dissemination histories and village case studies were conducted by the staff as part of the workshop. These studies were presented at a meeting with Heads of Extension and Livestock offices. In Indonesia, the major thrust of livestock services is to increase livestock population to reduce the import of livestock and livestock products. All projects are judged against this objective. The presentation by local collaborators showed the Heads of the collaborating offices that the LLSP is achieving this aim as forages have resulted in a doubling of livestock raised by participating farmers. They were impressed with the benefits of improved feeding systems on household livestock production and income, and the presentations suggested ways of integrating improved feeding systems into their livestock development programs. The response of the offices was very positive and the next six months will be devoted to helping extension services to integrate forage technology and farmer participatory methodology into their programs for 2006. The workshop provided a chance for the staff involved to learn about the extent of benefits that farmers from other sites gained from the forages. It also contributed to their

appreciation on the importance of being analytical and finding out ways to improve dissemination. Moreover, the case studies will be used examples for other farmers in dissemination of forage technologies.

29. Dissemination of forage technologies and improved feeding system components has continued at all sites. As described in previous semi-annual reports the basic principle is to identify success stories of farmers who have adopted improvements and ask these farmers to share their experiences with other farmers through cross visits, field days and other farmer-to-farmer interactions. Increasingly, the results of on-farm experimentation are shared immediately with other farmers thus increasing uptake of new ideas and improved feeding systems, and engendering an innovation culture.

30. In Cambodia, the LLSP team assisted local collaborators with case studies of champion farmers and organizing cross visit for farmers which are important tools for disseminating successful forage technologies to other farmers and villages. A plan was agreed to develop 5-8 case studies which will be developed by the end of August. These case studies will help local collaborators to better understand the reasons for adoption, identify possible constraints and opportunities, and provide a basis for further development of forage technologies and dissemination to other areas in Cambodia.

31. In the Philippines, the main dissemination activities were cross-visits to successful farmers both within and outside project sites. The local staff likewise visited and interacted with farmers in potential new sites to evaluate prospects of forage technology development in these areas. At institutional level, frequent contact with the local government unit heads helped to increase their appreciation for the methodology and technologies developed as well as the benefits for households from adoption of improved feeding technologies. The aim is to obtain local support to sustain activities at the sites beyond the end of the project.

32. In P.R. China, trainings and cross-visits were conducted for key farmers from project sites. One cross-visit was conducted with 20 farmers from the different sites to visit CATAS farm to see new forages and feeding of goats. Farmers exchanged experiences on forages agronomy and utilization. Another training event involving 60 farmers discussed the use of forages for rabbit production. New farmers were taken for cross visits to successful farmers in Fulong, Baisha county. Seeds were distributed to interested farmers in the counties of Chengmai (5 farmers), Dongfang (20) and Ledong (20). Farmers in Dongfang and Ledong are producing forage seeds for sale which are needed for continued expansion of forage technologies in Hainan and other provinces in southern China. The farmers in Chengmai have started to feed forages to goats.

33. All project sites have started to collect data on adoption of forage and feed technologies which, together with household surveys of impact of forages on the main livestock production systems, will be used to assess the impact of these technologies. This activity will be finalized in the second half of 2005.

Output 3: Increased capacity in DMCs, at different levels, to expand the use of improved forage and feed systems, and respond to local needs

34. Training events and workshops are listed in Table 2. Aside from formal trainings, mentoring by project staff is provided as part of field visits. This mentoring and helping national partners to gain proficiency with new methods and tools has become more and

more important as the project progressed. In addition, project partners have carried out a large number of training events for extension workers and key farmers.

35. The first project workshop in 2005 was the Annual Review and Planning Meeting of the project held in Buon Ma Thuot, Daklak, Viet Nam from 24-28 January. This was followed by the Impact Assessment Planning Workshop held in Vientiane, Lao PDR from 1-8 March 2005. The emphasis of the workshops was planning activities for 2005 and to develop a strategy for sustaining the outcomes of the project beyond the end of 2005. More details were provided in the section on Project Management.

36. Impact assessment commenced with a series of workshops on assessing the capacity of collaborators and local staff to develop improved feed technologies with farmers, and this activity will accelerate during the second half of 2005. The results of the capacity assessment workshops assessed not only the impact of the project on staff capacity to continue the work after the end of the project but also helped to finalize training and capacity building plans for the remainder of 2005. By now, all sites have staff capable to continue the outcomes of the LLSP and to train new staff in developing and disseminating improved feed technologies; a challenge for local partners is to source funding for continuation of training of extension workers from other areas. This is critical to enable local partners to accelerate the scaling out of project results.

Table 3: List of training courses / workshops

Country	Topics	Period	Trainers / Translators	Participants
Cambodia	Forage management, utilization and basic animal nutrition	4-6 June 05	P. Phengsavanh and Sorn San	18 participants
China	Use of forages for rabbits	27 May 2005	Tang Jun, Xia Wan Liang and He Huaxuan	60 farmers
China	Workshop to assess impact of LLSP/FSP on collaborator capacity in forage technology development with farmers	14 June 2005	F. Gabunada, Tang Jun and Liu Guodao	10 CATAS staff
Indonesia	Workshop to assess impact of LLSP/FSP on collaborator capacity in forage technology development with farmers	10 May 2005	F. Gabunada and Y. Pangedongan	12 local staff
Indonesia	Workshop to assess dissemination methodology	11-17 May 2005	J. Connell, M. Tuhulele, Y. Pangedongan, Ibrahim and F. Gabunada	12 local staff
Lao PDR	Impact Assessment Planning Workshop	1-8 March 2005	W. Stur, F. Holmann, Truong Tan Khanh, P. Phengsavanh, F. Gabunada, D. White	Project team, CIAT staff and Lao counterparts
Philippines	Training of farmers on value adding	8 April 2005	E. Magboo, G. Cania and C. Velasco	40 farmers
Philippines	Workshop to assess impact of LLSP/FSP on collaborator capacity in forage technology development with farmers	15 April 2005	F. Gabunada, E. Magboo and W. Stür	9 local staff
Viet Nam	Annual Review and	24-28 Jan	Project partners and	32 project partners,

Country	Topics	Period	Trainers / Translators	Participants
	Planning Meeting	2005	staff	representatives of CIAT, ADB and Vietnamese Government

Output 4: Comparison of development opportunities, and market and logistic constraints, for intensification of smallholder livestock systems across sites in five countries

37. The two market studies conducted during the previous reporting period (Smallholder goat production and marketing in Savannakhet, Lao PDR and Sale of fresh forage in Yasothon, Thailand) were further analyzed and results shared with stakeholders and project partners. No new studies were carried out during the reporting period.

38. In the Philippines, the farmer group in Manolo Fortich, Budkidnon has been evaluating the production and sale of cooked goat meat in the local market. This was inspired by the farmer training course on value-adding (in the livestock sector) which was held in April. In June, the farmer group sold cooked goat meat on market day (once a week). During the first two weeks, they adjusted their recipe based on feedback from buyers and gained some insights into consumer demand, costs and potential profits. They will continue this evaluation for another test run before a final evaluation of the enterprise. Local collaborators in Cagayan de Oro and Malitbog have developed plans to study the beef cattle and goat markets in Bukidnon during the second half of 2005.

Output 5: Improved regional interaction and linkages with national and donor funded development projects that ensure synergistic and multiplier effects

39. Project partners and staff interacted with a wide range of research and development projects including:

- Phonepaseuth Phengsavanh participated in a workshop on "The Use of Cassava Roots and Leaves for On-farm Animal Feeding" at Hue University of Agriculture and Forestry, Viet Nam from 17-19 January 2005. Cassava by-products can be used as supplements for fattening cattle and growing pigs, and the most promising technologies were introduced to LLSP sites for testing by farmers.
- Phonepaseuth Phengsavanh assisted the FLSP Project as facilitator in their mid-term meeting to review progress and share experiences on developing dissemination methods. The meeting was organized from 15-19 Feb 2005 in Luang Phabang, Lao PDR. The FLSP is a bi-lateral pilot livestock development project which is funded by AusAID. Lessons from the regional LLSP research project feed directly into the more development-oriented FLSP. Conversely, the LLSP has gained a lot of insights into implementation issues in its close association with the FLSP.
- He also assisted Peter Horne, FLSP with organizing a field day on impacts from forage technology development in the northern provinces of Lao PDR for high ranking government officials including the Minister of Agriculture and Forestry, the Australian Ambassador, Directors of NAFRI, NAFES, DLF from Ministry of Agriculture and Forestry, the Director of International Economic Cooperation, Ministry

of Foreign Affairs, and five District Governors from Luang Phabang and Xieng Khuang provinces.

- Werner Stür and other project staff provided inputs to consultants involved in the PPTA for the Participatory Livestock Development Project in Lao PDR during the reporting period. This provided an avenue for LLSP outcomes to directly feed into the design of a large development project.
- Francisco Gabunada forged a linkage with the Heifer Project International (HPI) in the Philippines. The Philippine HPI coordinator and his staff interacted with Francisco Gabunada and Werner Stür to discuss ways of introducing improved forage and feed technologies into the HPI program, and visited LLSP project sites to interact with collaborators in PCARRD, Manolo Fortich and Cagayan de Oro.
- Phonepaseuth Phengsavanh met and discussed options for disseminating forage technologies to a new province - Prey Veng - with officials of Mohareuxay Vet University, Prey Veng, Cambodia. Werner Stür initiated discussion with ACIAR, Australia to explore options for funding the continuation of activities in Cambodia which would be impossible to sustain without external funding. The reason is that Cambodia only joined the network recently and while it has made tremendous progress, the impact is still fragile and requires external input to achieve sustainability.

40. During the final year of the project, increased emphasis has been placed on showcasing the results of the LLSP to government officials and on forging linkages with development projects to ensure that the scaling out of results of the project are continuing and accelerating beyond the end of the project.

Appendices

Appendix 1: Program and list of participants at Annual Review and Planning Meeting in Daklak, Viet Nam

Program

Monday, 24 January 2005

08:00 – 09.00	**Opening ceremony** *Chair: Le Hoa Binh*	
09:00 – 09:30	Coffee break **Progress towards project outputs** *Chairperson: P. Phengsavanh*	
09:30-10.00	Introduction of the LLSP Project, participants the program for the workshop *Country presentations:*	Werner Stür
10:00 – 10:40	Daklak, Vietnam (25 min presentation + 15 discussion)	Truong Tan Khanh
10:40 - 11:20	Tuyen Quang, Vietnam (25 min presentation + 15 discussion)	Vu Hai Yen / Le Hoa Binh
11:20 – 12:00	Cambodia (25 min presentation + 15 discussion)	Sorn San / L Sophal
12:00 – 13:30	Lunch **Site / Country Progress Reports (cont.)** *Chairperson: F. Gabunada*	
13:30 – 14:10	East Kalimantan, Indonesia (25 min presentation + 15 discussion)	Yacob Pangendongan/ Ibrahim
14:10 – 14:35	DGLS, Indonesia (15 min presentation + 10 minutes discussion)	Djodi Suparto
14:35 – 15:00	P.R China (15 min presentation + 10 minutes discussion)	T Jun/L Guodao/ F Gabunada
15:00 – 15:30	Break **Site / Country Progress Reports (cont.)** *Chairperson: Truong Tan Khanh*	
15:30 – 16:10	Philippines (25 min presentation + 15 discussion)	Ed Magboo / Gemma Cania
16:10 – 16:35	Thailand (15 min presentation + 10 minutes discussion)	G Nakamanee/C Phaikaew/P Phengsavanh
16:35 – 17:00	Lao PDR (15 min presentation + 10 minutes discussion)	P Phengsavanh/ Bounmy
17:00 – 17:30	Summary of presentations	Peter Horne
19:00	**Official dinner hosted by Prof. Nguyen Xuan Thao, Rector, Tay Nguyen University**	

Tuesday, 25 January 2005

08:30 – 17:00 **Field visit to LLSP sites in Ea Kar district**

Wednesday, 26 January 2005

08:00 – 09:30	Key achievements and lessons learnt in the LLSP	John Connell / Francisco Gabunada / Seuth Phengsavanh
	Experiences from other projects and dissemination methodologies *Chair: Vu Chi Cuong*	
09:30 – 10:00	Forage and Livestock Systems Project, Lao PDR – technology development and dissemination	Peter Horne
10:00 – 10:30	Break	
10:30 – 11:00	Livestock market chain analysis in Xieng Khouang, Lao PDR	John Connell
11:00 – 11:30	AIRP – Methods for scaling out of forage and livestock technologies	Viengxay P. / Jo Millar
	Documentation and analysis of dissemination methodology in the LLSP *Chair: Peter Horne*	
11.30 - 12:00	Presentation of dissemination methodologies used in Vietnam	Francisco Gabunada / John Connell / Le Hoa Binh / Truong Tan Khanh / Vu Hai Yen
12:00 – 13:30	Lunch	
13:30 – 17:30	**Peer assist: Sharing experiences on implementation issues**	
13:30 – 15:30	Listing of issues and discussion groups	
15:30 – 16:00	Break	
16:00 – 17:30	Reporting and general discussion	

Thursday, 27 January 2005

	Planning for 2005 and beyond *Chair: John Connell*
08:00 – 08:15	Introduction
08:15 – 09:00	Vision - vision for each site / country - activities needed towards vision in 2005
09:00 – 10:00	Presentations of vision by country (5-10 minutes / country)
10:00 – 10:30	Break
10:30 – 12:00	Country partner and project needs for impact assessment:
12:00 – 13:30	Lunch
	Workplan development *Chair: Werner Stür*
13:30 – 13:45	Presentation of guidelines
13:45 – 15:00	Country workplan development – the big picture

15:00 – 16:00 Break
15:30 – 17:30 Country workplan development – the big picture (cont.)

Friday, 28 January 2005

Workplan development (cont.)
Chair: Werner Stür

08:00 – 10:00 Presentation of workplan outlines
10 min presentation + 10 min discussion
- Daklak
- TQ
- Cambodia
- East Kalimantan
- Indonesia (other)
- Thailand

10:00 – 10:30 Break
10:30 – 11:10
- Philippines
- Lao

11:10 – 12:00 Revise and finalise country workplans
12:00 – 13:30 Lunch
13:30 – 15:00 Discussion of project-wide activities: including SEAFRAD and germplasm needs
15:00 – 15:30 Break
15:30 – 17:00 Finalise workplans

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Appendix 2: Reports by project staff

Report of a Trip to Viet Nam, 14-31 January 2005

Francisco Gabunada and John Connell

Objectives

1. Finalize dissemination assessment report for Vietnam
2. Plan out how to conduct dissemination assessment workshop in Indonesia
3. Attend LLSP Annual Meeting

Itinerary

14 Jan 05	Arrive Hanoi
21 Jan 05	Hanoi to Daklak
30 Jan 05	Daklak to Ho Chi Minh City
31 Jan 05	Depart Ho Chi Minh City

People visited

1. Le Hoa Binh, National Institute of Animal Husbandry – LLSP country coordinator for Vietnam.
2. Dr. Trung Tanh Kanh and collaborators from Daklak Province and Tay Nguyen University.

Dissemination assessment report for Vietnam

A report of the dissemination assessment was drafted. The process involved reviewing the data gathered in the workshop to analyze them and identify if there were missing information. Missing information was gathered through Dr. Trung Tanh Khanh and Mr. Le Hoa Binh.

To follow are the main findings in the analysis of dissemination in Tuyen Quang and Daklak Provinces:

- Rates of expansion on the use of forages varied between sites within Tuyen Quang and Daklak Provinces.
- Immediate adoption of forages was not possible because forages were originally not part of the existing farming system. Instead expansion of the adoption and spread followed a certain pathway which consists of :
  a. There was an initial increase in number of farmers adopting when they found that forages could be used to solve a problem in their existing production system. In Vietnam, this was in the form of saving time and labor.
  b. Significant adoption only occurred when there are farmers who have gained impacts, which usually involved systems changes.
  c. Innovation by farmers was required to allow the shift from using the forages for solving problems in the existing system to producing system change.

- Developing forage technologies in an area consists of two phases, namely:
  - Establishment phase – this is the phase where new impact-yielding system emerge
  - Expansion phase – this is the phase where the impact-yielding systems can be used to gain a more rapid uptake of forages by more farmers.
- The activities of the extension workers are different for each of the phases. The extension workers need to recognize this so that they will be better able to enhance dissemination.

LLSP Annual Meeting

The LLSP Annual Meeting was held in Tay Nguyen University from 24 to 28 January 2005. The meeting was attended by 33 participants. The group included representatives from each partner country (at least two), ADB, Tay Nguyen University staff as well other similar CIAT projects in Asia.

The meeting provided a venue for the participants to:
a) learn about the accomplishments and experiences in the different countries
b) learn from experiences of similar projects especially in the issue of dissemination
c) plan activities for 2005
d) plan how to sustain activities after the LLSP ends in 2005.

Presentations of the results of farmer-experiments, experiences in dissemination and market studies yielded fruitful discussions and sharing of ideas by the participants. The presentations revealed the emergence of different forage-production systems in the sites. The field visit to the site in Ea Kar District enabled the participants to see the production systems and forage utilization technologies that have emerged in the field. Farmers in the district have evolved forage integration and utilization systems like cattle fattening, cow-calf production as well as use of forages for planting material sale and fish feeding.

A discussion on how to sustain activities after the project ends in 2005 was also conducted. Funding opportunities are still being sought. Each country was encouraged to include activities in 2005 that would help obtain support from the local government for sustaining the forage technology development and dissemination activities.

Annual Review and Planning Meeting, Ban Ma Thuat, Daklak, Viet Nam, 24-28 January 2005

All staff, national coordinators, selected site coordinators and guests

Summary

The Annual Meeting was held at Tay Nguyen University, Ban Ma Thuot, Daklak, Viet Nam from 24-28 January 2005. Participants included Mr. Bradford Philips, the Country Director of ADB for Viet Nam, project country coordinators, selected site coordinators, representatives of related CIAT projects, key researchers from Universities and the National Institute of Animal Husbandry in Viet Nam and project staff. A list of participants is attached in Appendix 1 (Page 20).

The workshop commended with progress reports by country coordinators. A field visit to sites in Ea Kar was organized on Day 2. This highlighted the rapid development and uptake of market-oriented cattle production and fattening schemes in this district. Participants also saw the use of forage for feeding fish, an emerging industry based on forages introduced by the project. Day 3 gave other related projects an opportunity to share their results and experiences, and this was followed by a peer-assist session on implementation issues across sites and countries. The last two days of the workshop were allocated to develop plans for 2005 and beyond. A large part of Day 4 was devoted to discussing how project partners can sustain and scale-out the results of the LLSP beyond the end of the current project. A copy of the program is attached in Appendix 1 (Page 18).

There are good prospects for continuation and accelerated scaling-out of results at most project sites, funded largely by local government and by donor-funded livestock development projects. The more recently started sites in Cambodia and southern Lao PDR are more vulnerable than more established sites for attracting local funding for continuation of efforts. While progress at these sites has been very impressive and much faster than at older sites, impacts of forage technologies on individual households are still less pronounced and fewer households are involved than at sites where the project has been working longer. Workplans were developed for each site which incorporate activities designed to showcase and promote the outputs of the project to local, provincial and national governments. Excellent progress was achieved at most sites with collaborators concentrating on improving livestock feeding systems by working intensively with farmer groups and local extension workers on problems identified by the farmer groups themselves. On-farm experiments were combined with improved feedback to communities and engagement of key farmers and representatives from nearby areas to quickly share the results and experiences with other farmers. Production system improvements (Output 1) were linked effectively with scaling-out (Output 2).

A CD of presentations at the workshop is available on request. Proceedings of the Annual Meeting are being edited and will be available soon.

Trip report to Savannakhet, Lao PDR 4-13 Feb 2005

Phonepaseuth Phengsavanh and Soukanh Keonouchanh (Director, Livestock research center, NAFRI and acting LLSP coordinator for Lao PDR)

Objectives

The aims of the trip were:

- Discuss progress of project activities and results, and develop a workplan for 2005 with the provincial livestock and fisheries office.
- Organize a focus group meeting with collaborating farmers.

People met

Mr Khamchanh Sidavong	Deputy Head, Provincial Livestock and Fishery Office
Mr. Bounmy Pheowankham	Head of Livestock Production Unit
Boun Yod Namsena	Head, District Agriculture and Forestry Office, Outhumphone district
Phoulien Sihavong	District extension worker

Other extension workers from the district

Itinerary

4 Feb 05	Travel from Vientiane to Savannakhet
5-6 Feb 04	Visit villages with goat production in Outhouphone district
7-10 Feb 04	Visit villages with goat production in Khanthabouli district
11-12 Feb 04	Meeting with Provincial local authorities to discuss about projectactivities and also LLSP plan for 2004 in SAvannakhet
13 Feb 04	Leave for Vientiane

Summary

The trip was organized to meet with local authorities and project collaborators to discuss the workplan for 2005. The focus of activities will be on strengthening the activities in existing project villages and improve the capacity of local staff in forage utilization and basic goat management; these skills are needed to support implementation of project activities. Following the workplan, an action plan was developed for the next four months (March – June).

A site visit was organized to three villages. Most of farmers have managed the forage plot well. The forage performance is different from variety to variety. Even there has not been rain since September 2004, "Mulato" is the best in terms of growth and drought tolerance. Also, Gamba and Stylo 184 were still green. Only *Panicum maximum* "Simuang" has started to dry out.

A farmer focus group meeting was organized in Phin village to provide the opportunities for farmers to exchange experiences of forage planting and learn from each other how to overcome problems and get more benefits from forages. The plan for 2005 with focus farmers has been made and discussed during the meeting.

Details of visit

Site visit

The team visited 3 project villages and conducted forage evaluation with farmers. The situation of forage planting with farmers in all these 3 villages is very similar. Some farmers are still managing their plot well, but some farmers especially in the area where there is a need of forages only in wet season, farmers have taken out the fence and let animal to graze the plots. The staff has suggested farmers to keep out the animals otherwise the forage plots will be overgrazed and there will not be enough feed in the coming wet season again.

Although there has not been rain since September 2004, almost all forage varieties (*Andropogon gayanus* 'Gamba", *Brachiaria* hybrid 'Mulato" and *Stylosanthes guianensis* "CIAT 184") are still green. "Mulato" is the best in term of growth and drought tolerance. Only *Panicum maximum* "Simuang" has started to dry out.

The result of evaluation shows that most farmers prefer Mulato and Stylo 184 the most at this time because they are still producing green forages when other varieties are becoming stemmy and started to dry out.

Focus group meeting

Since the number of collaborating farmers in each village is small, we arranged to bring all farmers together in a joint meeting in one village (Phin Tay village). The aim of the meeting was to exchange and share experiences on planting forages among farmers in focus groups.

The staff from district and provincial office facilitated the meeting, which started with introduction of the aims of the meeting, then to find out what have been the main difficulties, benefits from planting forages and how have farmers overcame the problems so far.

Many farmers shared their problems and there were few main problems such as poor germination of few varieties and farmers had to plant many times, very slow growth of Gliricidia and difficult to build fence as animals like breaking into the plots. The benefits mainly save the times and labor to manage the goat flock and find feed for them during rice planting season.

The plan for 2005 was discussed at the end of the meeting. Although many farmers are still worried about how to fence their forage plots, most of them want to expand their forage plots in 2005. The staff then explain about the activities need to be carried out with farmers in 2005, especially activity on parasite control and improve management.

Meeting with local authorities and planning with local staff

A meeting with local authorities was organized in the District Agriculture and Forestry Office, Outhoumphone district to discuss the progress of the project and the annual plan for 2005. Bounmy, the site manager informed the meeting about the progress made by his team on forage introduction and evaluation with goat raising farmers in Outhoumphone district, the outcomes of LLSP annual meeting in Vietnam and also the 2005 plan.

The Deputy Director of Provincial Livestock and Fishery office suggested that LLSP needs to expand to another district, "Songkhon", which is located along the national way No. 13 south. LLSP team has informed him that the project will not be able to afford to work in many sites, as project needs to consolidate the forage development activities and improving the management in the existing villages to be good example for further expanding.

The workplan for 2005 will focus more on strengthening and support the activities in existing project villages. These activities are (i) help farmers who already planting forages to improve more goat management and production and select more interested farmers in the village to start testing and develop forage technologies, (ii) build up the capacity of local staff on the forage utilization and basic goat management and nutrition

Following the discussion with authorities, LLSP team (Seuth and provincial team) continued to work on action plan for next three month (March-May), there were a few issues have been discussed:

(1) Village meeting and new farmer selection

The village meeting is aiming to be organized at the end of April to the beginning of May, however, the time will be discussed again as it will depend on the situation (rain and forage re-growth) in the sites if it is good enough for field visit for other farmers. Farmers from focus groups will be selected for the talk on their experiences of forage planting. The provincial and district staff will assist in facilitation of discussion and select new interested farmers for 2005.

(2) Planting forage with farmers

There will be two main activities following the village meeting:

a. First is to work with new farmers on the fence, area selection and the size for planting forages. Help the farmers already planting forages to expand the forage areas and start to work with them on the management and parasite control issues. These activities will be carried out at the end of May.
b. Secondly is to help farmers in planting forages in their fields and do follow up during the week of planting to check the germination of forages and replant. This will be carried out in mid to the end of June.

Impact Assessment Planning Workshop, Vientiane, Lao PDR and field visits to Project sites in Lao PDR and Viet Nam, 17 Feb – 11 Mar 2005

Federico Holmann and Project staff

Objective

1. F. Holmann to visit field sites in Lao PDR and Viet Nam to become familiarized with project impacts in a range of farming systems
2. To develop a plan for assessing impact of the LLSP which will be integrated into site workplans for 2005, so everyone in the project will be involved in the collection and analysis of impact information.

Field visits in Laos

Federico Holmann traveled from Feb 21-23 to Xiengkhouang province with Phonepaseuth Phengsavanh to visit farmers who have adopted improved grasses and legumes to get an idea of the extensive upland farming systems they have. Four villages were visited accompanied by the local extension agents involved in the Forages and Livestock Systems Project. In general, these farming systems are based around the production of rice but livestock is an important source of income, averaging about 55% of total cash income per household. It is usual for farmers to own 3-5 heads of either cattle or buffalo. The main use of livestock is for draught power to prepare land for the rice crop. No milk market exists here, but beef is very important and it is becoming more popular.

Visited farmers had planted 7 forage species: *Brachiaria brizantha* cv. Marandú, the *Brachiaria* hybrid Mulato, *Panicum maximum*, *Andropogon gayanus*, sweet potato supplied by CIP, and two legumes: *Stylosanthes guianensis* and alfalfa (*luceme*). Of all options farmers preferred in all cases the two *Brachiarias*, *Andropogon*, and *P. maximum.*

The most important constraints mentioned by farmers were (1) the lack of feed during the dry season, which lasts about 6 months; and (2) the amount of time needed to find feed for the animals, which amounts to several hours a day during critical periods. Most farmers visited had adopted forages from 2001 to 2003. The ones who had adopted earlier were expanding the areas planted, mainly with grasses. In the villages visited about 18-27% of farmers started testing improved forages in 2001 and by now forages can be found in 61-81% of farms, depending on the village, a significant increase in 4 years.

The main reason for adoption was the increase in biomass production that improved grasses have over native grasses to provide feed to cattle and buffalo during the dry season. However, farmers have now discovered that improved forages not only produce more biomass, but also have superior quality in terms of more nutritive content and are now moving to fatten animals. Several producers were buying thin animals of all ages (ie., calves, steers, bulls), fattening then over a 4-5 month period, and then selling them for either slaughter or draft power.

Field visits in Vietnam

Federico Holmann traveled from Feb 24-28 with Werner Stur and Le Hoa Binh to Tuyen Quang province to visit farmers with upland intensive farming systems. Five villages were visited and the pattern was similar to the field visit in Laos: Farmers initially adopted forages for dry season feeding but are now moving into fattening. In addition, farmers in this site are incorporating forages in their production systems for two additional reasons: (1) to feed fish managed in ponds of varying size (ex., 800 to 1200 m^2); and (2) to sell forages to a large specialized dairy herd (ie., 1,300 cows) owned by the government. Main forages adopted here are *Panicum maximum* and elephant grass (*Pennisetum*). Producers in this province have more intensive farming systems than the field site visited in Laos. Here producers have irrigated rice using moderate levels of fertilizer and are managing forages in a similar way (ie., they use the manure from livestock as fertilizer and are often irrigated during the dry season.

In both Lao PDR and Viet Nam the way farmers have adopted forages is very different from Latin America. In SE Asia farmers plant forages as if they were planting rice (ie., in clearly defined rows where each grass plant is separated from each other) and managed in a cut-and-carry system intensively.

Impact Assessment Planning Workshop

The first day of the workshop was an open session attended by project external people. We set the stage to understand what impact assessment (IA) means and to agree on the concept of IA so that everyone understood what was it. A draft summary of the notes from these discussions is in Annex 1. Participants in the discussion of this working group were 8 people: Werner Stur, Peter Horne, Phonepaseuth Phengsavanh (Seuth), Francisco Gabunada (Papang), Truong Tan Khanh, Viengxay Photakoun, Esther van Hoeve (ILRI scientist based in Laos), Lingkham Doungsavanh (NAFRI), Thiphavong Boupha (NAFRI) and Federico Holmann. Douglas White joined the group from March 3 on.

From March 2 to 8, the working group only included the project staff (Werner, Seuth, Papang, Khanh), Douglas White and Federico Holmann. On March 2 we started discussing how to measure IA focusing on the LLSP. The primary aim of this day was to define what type of production systems based on forages were going to be assessed, and to select the countries where these systems were most relevant. During this time we developed the strategy to do the IA, which is included in Annex 2. In addition, the working group developed action plans for each objective and six survey instruments to collect the necessary data to meet the objectives.

My (F. Holmann) perception is that the forage research which started in SE Asia in 1992 is starting to pay off. Adoption rates are low (1,000's rather than millions of farmers) but increasing fast everywhere. My recommendation is plan another IA in a decade from now to do an adoption study similar to the one the Forges project did for Central America and Mexico last year (ie., based on seed sales / planting material).

The main benefits from forage adoption are mainly in labor saving compared to the traditional system of open grazing the native grasslands. After adoption takes place, producers usually expand the areas of planted forages. The project team identified 8 different forage-based

production systems: (1) for fish production, (2) for cattle fattening, (3) as planting material for sale to other farmers, (4) as fresh feed for sale to other farmers, (5) cow calf operation, (6) for pig production, (7) protein leaf meal; and (8) for seed production.

Product from this IA is most likely a working document with the potential for several journal publications.

Annex 1: What is Impact Assessment?

Notes of the discussion on Day 1

1. Definition

What are impacts, how do monitoring and evaluation (M&E) and impact assessment (IA) fit together, what is the difference between M&E and IA?

Benefit: a positive thing that happens immediately as a result of adopting or testing a new technology.

Impact: change in the system that occurs in the longer term as a result of adoption.

M&E is about counting inputs (money, human resources), about reporting activities and outcomes, but this M&E is a continuum that leads to IA when you evaluate the outputs or outcomes resulting from the execution of activities through indicators.

2. Why IA and for whom

IA for whom, how to make IA results useful, how to communicate the outputs, who pays for it, who will use the outcome of the IA?

IA is for donor agencies, the host country, and for research institutions in order to learn more how to implement projects to obtain the greatest impact. In addition, and in this particular case with the LLSP, we want to do the IA for ourselves because we as a project team want to learn how to do it. All stakeholders are interested to know all impacts. The difference among stakeholders might be in the level of detail when we communicate results.

3. Types of Impact

Economic, capacity or institutional building, livelihood, productivity, changes in land use and/or production system, NRM, and activities.

Levels: Income, productivity, social, livelihood

Scale: ease of measurement, importance to LLSP, importance to stakeholders/target groups.

4. Methodologies

How to identify what impacts to measure, how to capture data that are qualitative, how to assess capacity building, can we use case studies to quantify impact, what are the indicators for impact, what is the most popular methodology for IA?, when to measure impact?, qualitative vs. quantitative, how to stratify IA (gender, ethnic, equity).

We need to capture two things: numbers and the story and then put it together. For example, how to capture data to measure capacity building? In this case, we need to ask farmers, bosses, and extension agents how process has changed now compared to say, 2000? Ask bosses if their extension agents are now more capable of disseminating forage technologies,

ask extension agents to evaluate themselves if they are now better professionals, more confident, etc.

How to stratify IA (gender, ethnic, equity)? Difficult because we work with forages as entry points. But forages for small animals will tend to be more involved with women whereas forages for large animals will be more men-related.

Difference between case studies, focus groups, and surveys to obtain data? Focus groups are difficult. You need the right participants, clear objectives and methods, and a good facilitator. Focus groups are good to communicate results and get feedback. Case studies are seldom used (they provide a good story but little data). Surveys are the most common method for data collection. In the case of external evaluators, they prefer to get data from focus groups because they do not know the project but in the case of the LLSP, all staff have a good understanding of the forage work, the benefits, the production systems and thus, surveys are more appropriate.

5. Building capacity to do IA

How to build capacity of partners to do IA themselves.

The best strategy for project staff to do IA is to design the project since the beginning with a clearly defined M&E strategy because in the end, it is the M&E that becomes IA as a continuum process.

Doing case studies is also a way to build the capacity of extension workers or people who manage research to do IA because it is an easy way to capture the change, the benefits.

There must be certain skills needed to capture IA such as decide what are key numbers, recognize impacts at the household level, and have the ability to communicate results.

Annex 2: Strategy and plan for IA in the LLSP

Goal

To estimate the impact from forage adoption of the Southeast Asia regional "Livelihood and Livestock Systems Project (LLSP)", including some aspects from the "Forage and Livestock Systems Project (FLSP)" in Lao PDR.

Strategy

- Select the forage-based production systems to assess and the case-study countries to collect the data;
- Define the objectives from each forage-based production system and other benefits the project has facilitated;
- Define what to measure to estimate the impact of each objective
  - Define strategy to meet each objective
  - Collect data needed either through case studies, focus groups, or surveys
  - Design surveys needed
  - Action plan of activities and project staff responsibilities to meet objectives

Select forage-based production systems and locations for assessment

Site / country	Production system											
	Fish	Sale of feed	Cattle Fattening	Cattle Cow/calf	Planting material	Goats	Contour	Draught	Rabbit	Seed	Pigs	Leaf Meal
Viet Nam												
TQ	XXX	XXX	X	XX								
Daklak	XX		XXX	XX	XX							
Indonesia												
East Kalimantan			X	XXX		XX	X					
Central Kal.			X	XX								
Philippines												
CDO				XX		X						
Malitbog				XX			XX					
Manolo F.				XX								
Impasugong				XX								
Lao PDR												
FLSP			X	XXX							X	X
Savannakhet						X						
Cambodia												
Kampong Cham				X				X				
China						X			X	XX		
Thailand		XXX								XXX		

XXX = high use XX = medium use X = low use

Based on this table, the project team defined 8 forage-based production systems and 6 case-study countries: (1) fish in Vietnam, (2) cattle fattening in Vietnam, (3) planting material for sale in Vietnam, (4) fresh feed for sale in Thailand, (5) cow calf in Vietnam, and Indonesia, (6) pigs in Laos, (7) leaf meal in Laos, and (8) seed production in China, Thailand and Vietnam.

Objectives of this impact assessment

1. Collection of basic data to estimate adoption
2. Measure the impact of improved forages compared to native grasses on the productivity, income, number of animals, and labor saved of:
   - Cattle fattening in Vietnam
   - Cow calf operation in Vietnam, Indonesia and Philippines
   - Fish in Vietnam
   - Pigs in Laos
3. Measure the impact of forage adoption on *income* from the sale of:

- Fresh forage for sale in Thailand
- Planting material for sale in Vietnam

4. Describe why there are many farmers who maintain and "actively" keep a small area of forages for "convenience" but do not expand and capture the reasons of those who expand.
5. Measure the impact of the project on capacity building in terms of forage research, farm participatory research, and institutions
6. Describe the effects or benefits of networking by implementing regional projects vs. bilateral ones
7. Determine spillover effects of the LLSP in terms of forages being adopted in other sites through other institutions, projects, etc.
8. Describe other forage-based production systems using existing information and case studies

Define what to measure to estimate the impact for each objective

Collection of basic data to estimate adoption

In each site we want to update an inventory of how many farmers are adopting forages to estimate a gross adoption rate.

Each extension worker will estimate the number of farmers growing forages per commune or village as well as estimate the total number of farmers who own livestock and/or fish. Then select a sub-sample of 50 farmers per site and ask through a survey the following questions:

- Area planted in forages
- Year started
- Main forage species grown now
- Main use of forages
- Since starting to grow forages, have you changed the way you keep livestock?
- Did you planted forages to replace what?.

Measure the impact of improved forages compared to native grasses on the productivity, income, number of animals, and labor saved of:

Cattle fattening in Vietnam (Daklak) – Dr. Khanh with help from Seuth

- Select a sub sample from ~200 farmers fattening in the EaDar commune (~10-15% of these farmers selected randomly) to compare coffee production of the area replaced with forages over the last 12 months;
- For the coffee crop: estimate yield, price, area planted, production costs (fertilizer, labor use + value, insecticide, manure, etc.) – are these already available?
- For improved forages: collect area planted, body weight + price when bought, duration of fattening, body weight when sold and price, production costs (labor + cost, irrigation, fertilizer, manure, concentrate use + cost, veterinary costs)
- How is the extra income used? Are there any other benefits (e.g. schooling, gambling / disadvantages of doing cattle fattening?
- What are your future plans with livestock raising?

Cow calf operation in Vietnam (Ea Kar – Dr. Khanh with help from Seuth), Indonesia (Samboja (maybe also in Sepaku) – Yacob with help from Ibrahim and Papang)

- Use of focus group discussions with scoring and weighting of impacts. Maybe follow up with specific survey to quantify the most important impacts.
- Vietnam (EaKar): mostly 4 – 10 cows/household; only sell calves when they need money. Expected benefit: On native pasture farmers can only keep native cattle which have relatively low growth rates (and size) and have a lower price. On improved forages farmers can keep cross-bred cows (grow faster and higher price/kg). Also cows are more fertile and there is lower calf mortality on improved forages. Changed management system.
- Indonesia (Samboja): Compare improved forages vs. native under coconuts. Expected impact: able to keep more animals; better productivity; time saving; changed management system.

Fish in Vietnam – Tuyen Quang - Mrs. Yen / Binh / Seuth
Should we try to estimate adoption rates in communes where the project is working and neighboring communes?
Use a survey of fish producers who grow fish once per year. Compare now and before they had improved forages. Sample size of 30 farmers. Compare traditional system with improved forages. Expected impact: Labor saving; shorter period of fattening; increased productivity; higher price per kg for bigger fish

Pigs in Laos
Use targeted surveys on labor saving and growth rates of pigs + refer to 4 case studies. Expected impact: Saving of labor (4 hours to 1 hours / day). Compare Traditional feeds (Maize bran, rice bran + vegetables from upland fields and forest) vs. Stylo (to replace vegetables from upland fields and forest; also reduces bran). Benefits: Saving of labor (who benefits and how do they use the freed labor?). Higher growth rates (reach maturity quicker), Stratify by wealth and ethnicity. Other benefits such as higher sale prices, litter size and survival are described in the case studies.

Measure the impact of forage adoption on income from the sale of:

Fresh forage for sale in Thailand (F. Holmann)
We will use existing information from a case study of 15 farmers. Check that the economic information is adequate. (F. Holmann to revise).

Planting material for sale in Vietnam (EaKar) (Khanh and Seuth)
This forage-based system is "opportunistic" in the sense that there is a market for planting material when the adoption process is starting to happen and seed is not always available.

Two types of sales: (a) one sale going to other districts and the information is available from the extension office; and (b) another is farmer to farmer within the same district.

Data needed for (a): the event (when, for whom, how much forage, who supplied it, the price). Then go to a sub-sample of farmers to obtain the production costs of harvesting and replanting and how much each farmer individually supplies for that event.

Data needed for (b): Include a question about the number of farmers who supplied planting material to other farmers in the fattening survey and in the focus group of cow calf. Also ask how much, what price and to where. Also ask how much planting material is needed for ~1000 m^2.

Describe why there are many farmers who maintain and "actively" keep a small area of forages for "convenience" but do not expand and capture the reasons of those who expand. (W. Stur and Papang)

We want to capture the benefit of having a very small area under forages and on the other side, we want to capture the reasons of those who expand. In M'Drak, you find extensive grasslands as the main production system. So, crops have to be protected against animals grazing free and fencing is expensive. Thus, there is no incentive to adopt forages in larger scales because grazing land is plentiful. Small areas are planted for convenience (ie., a sick animal, or before parturition). However, there are producers who have expanded the planted areas under forages for fattening.

What are the conditions that make sense to intensify? (for example, open range grazing makes sense if you have labor available to care the animals or have many animals. But if your labor is severely limited and only have 1-2 animals, it makes sense to intensify planting more area.

W. Stur will start with putting together a first draft of what we know already. Then Papang will do 5 case studies at one or more sites to describe the benefits of those smaller plots.

Measure the impact of the project on capacity building in terms of forage research, farm participatory research, and institutions. (Papang and Seuth)

Ask the bosses about how the capacity of their staff has changed during the project life and what are the things that are particularly good. Papang and Seuth will list the sites, names of extension officers, and bosses to decide which bosses to ask. Then have Papang and Seuth write the methodology and define how results will be captured and analyzed (ie., spread sheet) to run the focus group.

Ask extension workers to list the skills they think are needed to do their job successfully and select the 3 most important ones and then ask them to rate the project on how it has helped them to develop these skills and what other things could the project do improve these skills. The strategy to obtain these data will be through focus groups with extension workers led by Papang (Philippines, Indonesia and China) and Seuth (Laos, Cambodia and Vietnam).

Describe the effects or benefits of networking by implementing regional projects vs. bilateral ones.

W. Stur will write a first draft for circulation and comments. Werner will write to all of the national and some of the site coordinators to ask about specific examples of things they learned from somebody else in the network which has led to a significant development at their sites.

Determine spillover effects of the LLSP in terms of forages being adopted in other sites through other institutions, projects, and NGO's. (Papang and Seuth)

Tell each of the site coordinators that we would like to estimate the spread of forages and participatory methods from the project area to other areas. The method we want to use is to make a table like the following:

Name of project	To where	When	Have you provided information materials?	Have you provided training?	Where did they get the seed or planting material	Estimated number of farmers growing forages in 2005

Papang will coordinate the work in Philippines, Indonesia and China. Seuth will do the same for Vietnam, Cambodia and Laos.

Describe other forage-based production systems using existing information and case studies

Leaf meal in Laos
We have information on the number of farmers making and using leaf meal from Stylo for pigs. In China it is also used for poultry and pigs as well. Seuth is going to write a case study for Laos. Benefits: they can feed more leaf meal than as fresh Stylo, cheap protein source during the dry season compared to concentrates.

Seed production in China, Vietnam and Thailand
Report the seed production in these countries by specie and year. W. Stur will write a first draft and circulate it for comments. Private seed companies John Rains Southedge Seeds and Papalotla. Do 1 or more case studies on smallholder seed production in China (Papang will look after the case studies).

Report of a Trip to Lao PDR, 22 Feb-10 Mar 2005

Francisco Gabunada

Objectives:

1. Finalize the dissemination report for Vietnam
2. Attend workshop on impact assessment

People Met

1. John Connell – CIAT-Asia
2. Werner Stur, Phonepaseuth Phengsavanh – LLSP
3. Federico Holmann, Douglas White – CIAT, Cali, Colombia
4. Truong Tanh Khanh – LLSP collaborators from Daklak Province, Vietnam
5. Esther Van Hoeve – ILRI staff based in Vientiane
6. Peter Horne and Staff of CIAT-Asia based in Vientiane

Itinerary

22 Feb 05	Depart Manila
23 Feb 05	Arrive Vientiane
24-28 Feb 05	Finalized Vietnam dissemination report with John Connell
01-08 Mar 05	Impact assessment workshop
09 Mar 05	Depart Vientiane

Finalization of dissemination report for Vietnam

The dissemination report for Vietnam was drafted by John Connell. This was reviewed and suggestions for improvement were integrated into the draft. The draft was then submitted to W. Stur for his comments.

Impact assessment workshop

The following were identified during the impact assessment workshop:

a) forage production systems that evolved with the forage technology development activities, and
b) how to identify the impact of forages in the different production systems

A plan of activities in relation to impact assessment in the sites was then formulated. This included the schedule of the activities as well as the persons involved.

Details of the workshop results are found in the trip report of Federico Holmann.

Travel report to Vietnam, Lao PDR, Cambodia, Thailand and Indonesia, 23 Feb – 16 Mar 2005

Werner Stür

Objectives

1. Visit Tuyen Quang, Vietnam with Dr. Federico Holmann (CIAT/ILRI livestock economist), to discuss options for assessing impact of the LLSP. This is Federico's first visit to Southeast Asia and this field visit is necessary to familiarise him with smallholder farming systems in the region. It will also give a good opportunity to start discussions on impact assessment (IA) in a field situation.
2. Organise a 2-day Impact Assessment Methodology workshop with participants from CIAT, ILRI, NAFRI and Tay Nguyen University at the CIAT office in Vientiane, Lao PDR.
3. Detailed IA planning for the LLSP with Federico Holmann, Douglas White (CIAT resource economist), F. Gabunada, P. Phengsavanh and Truong Tan Khanh in Vientiane, Lao PDR.
4. Monitoring visit to LLSP partners in Cambodia and discussion of workplan for 2005.
5. Participate in a meeting with private sector seed company Papalotla, the Thai Department of Livestock Development, Michael Hare of Ubon University and Peter Horne to discuss progress with smallholder farmer seed production of Mulato in northeast Thailand in 2004 and plans for 2005.
6. Participate in a meeting with R&D organisations in Bogor, Indonesia, about livestock rebuilding options for tsunami-affected areas in Aceh and north Sumatra (paid by CIAT Asia Reserve Fund).

Itinerary

Wed, 23 Feb	22:50-05:00 (+1)	TG 984 Brisbane - Bangkok
Thu, 24 Feb	07:50-09:35	TG 682 Bangkok – Hanoi; Meet Frederico Holmann and Le Hoa Binh at Hanoi airport and take taxi to Tuyen Quang (4 hours)
	4 hours	Taxi to Tuyen Quang with F. Holmann and L.H. Binh
	p.m.	Meet with Ms. Vu Hai Yen in Tuyen Quang
Fri, 25 Feb		Visit LLSP field sites in Tuyen Quang
Sat, 26 Feb	a.m.	Discuss 2005 workplan
	p.m.	Return to Hanoi
Sun, 27 Feb		Free day
Mon, 28 Feb	08:25-09:25	VN 841 Hanoi – Vientiane
		Preparations for Impact Assessment (IA) Workshop
Tue, 1 + 2 Mar		IA Workshop in CIAT office
Thu, 3 Mar – Tue, 8 Mar		Detailed planning of IA and design of survey instruments, focus group and case studies
Wed, 9 Mar	10:10-11:40	VN 841 Vientiane – Phnom Penh; Meet with Sorn San
	p.m.	Car to Kampong Cham and visit to project villages
Thu, 10 Mar		Visit field sites in Kampong Cham and return to Phnom Penh
Fri, 11 Mar		Discuss 2005 workplan at Department of Animal Health and Production, Phnom Penh
	20:25-21:35	TG 699 Phnom Penh – Bangkok
Sat, 12 Mar		Meeting on Mulato seed production in Bangkok with Eduardo Stern

		(Papalotla), Chaisang Phaikaew and Ganda Nakamanee (DLD) and Peter Horne
Sun, 13 Mar	08:30-12:00	TG 433 Bangkok-Jakarta; car to Bogor
Mon, 14 Mar		Meeting in Bogor re Tsunami response
Tue, 15 Mar		Cont. meeting in Bogor
	17:15-22:15	TG 414 Jakarta – Bangkok
	23:30-11:35	TG 983 Bangkok – Brisbane
Wed, 16 Mar	11:15	ETA in Brisbane

Summary

The main objective of this visit was to develop a detailed plan for measuring adoption and impact of improved feed technologies. In addition, the visit provided the opportunity to visit sites in Tuyen Quang with F. Holmann (to give him the opportunity to see a range of impacts in the field) which enabled me to discuss the 2005 workplan with our site partners. I also took the opportunity to visit project sites in Cambodia and assist with development of plans for 2005. At a late stage I was invited to attend a brainstorming meeting with the Indonesian Government to identify opportunities in the livestock sector for rebuilding livelihoods in Aceh following the tsunami disaster in Bogor.

Vietnam

Federico Holmann, Mr. Le Hoa Binh (national coordinator for Vietnam) and I visited LLSP sites in Tuyen Quang. Ms. Vu Hay Yen is the provincial coordinator and she showed us a range of project areas with a variety of impacts from forages. These included forages for fish production (labour saving and production increases), forages for sale to the provincial dairy farms (like a cash crop), forages for cow-calf production (labour saving and income generation) and planting material for sale (cash income while new farmers are starting to plant forages). We also visited two dairy farms. This visit provided an excellent introduction to intensive upland farming systems for Federico and gave us an opportunity to start our discussions on how to best capture the impact forages have had on farmers' livelihood.

We also took the opportunity to discuss the 2005 LLSP workplan for Ms Yen and Mr Binh. Both of these will be further refined and discussed and finalised with Seuth during his next visit.

Impact Assessment Strategy Development, Lao PDR

See Trip Report by Dr. Federico Holmann.

LLSP sites in Cambodia

I visited project sites (villages) in several districts in Kampong Cham with Dr Sorn San (national coordinator – Department of Animal Health and Production, Phnom Penh), Mr. Lorn Sophal (provincial coordinator in Kampong Cham – Kampong Cham Department of Animal Health and Production), and several local collaborators. We also discussed the progress of the LLSP with Mr. Socheat, the previous LLSP coordinator in Kampong Cham and who has been promoted to Deputy Head of the Kampong Cham Department of Agriculture. He

continues to take an interest in the project and is very happy with the progress of the LLSP; forages are growing very well and are able to solve the wet season feed shortage; farmers are expanding their forage areas and many new farmers would like to obtain planting material. There has been a lot of interest by other projects and provinces, including a visit by the Minister of Agriculture to one of the LLSP project areas in Kampong Cham.

We visited villages in Prey Chhor district which have very little upland available (land not flooded in the wet season) and villages in Ponjeakrek district near the border of Vietnam where farmers have less lowland rice and more upland areas.

The field visit clearly showed the ability of forages to solve the main problem identified by farmers in participatory diagnosis – a shortage of feed during the wet season when the cropping area is planted with rice and flooded. During this time farmers need to go for long distances to find sufficient feed for their animals. In many cases this takes 3 hours a day and all family members including the children have to help to find and cut feed for cattle. All families have at least 2 cattle for ploughing and transport, so all households are affected. Farmers growing forages reported that they did no longer have to go out and search for grasses during the wet season saving 2-3 hours a day of labour during a time when labour is scarce and needed for working in the rice fields. They consistently reported this labour saving and also mentioned that children can now attend school more regularly. Many farmers are extending their upland land (which are not flooded during the wet season) by raising the soil level with soil from other areas to be able to grow more forages next year.

The main benefit of forages has clearly been labour saving. There has also been a small increase in livestock productivity as farmers are able to give animals more feed (easier available than before) but this effect is only small. A few (of the more wealthy) farmers have bought more cattle as they are now able to feed them. One big surprise to me was that many farmers are irrigating forages so they can also feed their animals better during the dry season when the only feed resource available is rice straw. They have replaced areas previously grown with cash crops such as cucumber and water melon with forages. I am doubtful that this will be a sustainable form of land use but it shows that the farmers are trying to look for ways of improving livestock production, now that they have solved their immediate problem – the feed shortage during the dry season.

Options for 2005

In areas with little upland (most of the land is flooded during the wet season), such as in Prey Chhor district, the opportunities for increasing livestock production is limited. The area which can be planted with forages is small, limiting the number of animals which can be fed during the wet season. Farmers are filling in some paddy areas to convert these into upland areas for forages and there may be an opportunity for some farmers to convert some of the higher lowland areas (which are only flooded for short periods) into forage areas using varieties tolerant to waterlogging such as *Paspalum atratum*, *Digitaria decumbens* (pangola grass) and *Brachiaria mutica* (para grass). Another option to increase upland areas would be ridging and planting forages on the ridges to get them out of the water. All of these are very labour intensive and costly. These would not have occurred to me if we had not seen farmers filling in paddy areas, effectively raising soil levels by 30 cm or more to gain more upland (non-flooded) area for forages. Options for improving animal nutrition in the dry season, when only rice straw is available and animals are supplemented sometimes with rice bran, include the planting of tree legumes around the houses, ammonia-treated rice straw and direct nutrient

supplements for animals (eg. N and P supplementation in drinking water or mixed with rice bran).

In areas with more upland available, such as in Ponjeakrek district, more market-oriented livestock production may be an option for farmers. Here the feed problem during the wet season has been resolved and many farmers have started to expand and irrigate forages in the dry season to overcome the next limitation – poor feed in the dry season when only rice straw is available for animals to eat. Many farmers expressed interest in expanding livestock production. There are opportunities for introducing dry season forage options (apart from the option mentioned above) such as tree legumes as protein-rich supplement to rice straw in these areas and there are also other feeding options (eg. cassava) for the dry season since farmers have upland areas available. Many of these areas are planted to fruit trees at a wide spacing and cash crops and forages are grown in between trees. There are also small fields which are grown to various cash crops many of which are marginal in terms of productivity and profit for farmers. Options for improved cattle production will be discussed with farmers and selected technologies introduced and evaluated in 2005.

As there is a lot of interest by other farmers to also grow forages I suggested to try to stimulate the private supply (trading) of planting material by farmers who are already growing forages. However, many of these farmers said that they don't want to sell planting material as they want to first expand themselves. I suggested to only provide small quantities of forage seed to new farmers and to promote expansion through vegetative propagation. I am confident that a private market for planting material will develop quickly.

We discussed the workplan for 2005 and this will be further developed and finalised during a visit by Seuth later in March. Briefly, the project will support the planting of forages for labour saving (wet season feed shortage) by new farmers in villages and districts where we are already working. The strategy is to first achieve a high rate of forage adoption in these villages before expanding to new districts and provinces, as this will be all the more impressive and make dissemination to new areas easier. This will be supported through field days and cross visits, and small amounts of seed. The second area of interventions will be livestock production improvements in areas where farmers have more upland land available and show particular interest in intensifying livestock production.

Trip report to Mindanao LLSP Sites
14 to 19 Mar 2005

Francisco Gabunada Jr. and Eduedo Magboo

Objectives

1) Make arrangements and start gathering data for impact assessment
2) Assess accomplishments and formulate plans for LLSP activities in the site

Itinerary

14 Mar	--	Depart for Cagayan de Oro (FGabunada and E. Magboo)
15 Mar	--	Meeting with Ed – plan details of impact assessment and site visit
16 Mar	--	Attend farmer meeting in Dansolihon, Cagayan de Oro Meeting with collaborators in Cagayan de Oro
17 Mar	--	Meeting with collaborator of Malitbog
18 Mar	--	Visit and meeting with collaborators in Manolo Fortich
19 Mar	--	Arrive Leyte

Persons Met

Eduedo Magboo	LLSP Country Coordinator- Philippines
Perla T. Asis	Cagayan de Oro City Veterinary Office
Judith Saguinhon	Municipal Agriculture Office – Malitbog, Bukidnon
Gemma Cania	Municipal Agriculture Office – Manolo Fortich, Bukidnon
Cynthia Velasco	Municipal Agriculture Office – Manolo Fortich, Bukidnon

Activities and Outcomes

1. Meeting with country coordinator (Ed Magboo)

The impact assessment activities for the different sites were discussed with Ed. The sites in the Philippines will be involved in basic data collection, assessment of staff capacity and spillover effects. Modifications of the data gathering instruments were made (Annex 1, 2 and 3).

The major agreement was to integrate the impact assessment activities in the workplan for each site. Arrangements needed and schedule of the activities will be discussed with each site collaborator.

The schedule and details of the capacity building workshop and visit to the sites (by Werner, Ed and Papang) on April 11-15 were also discussed. Arrangements will be made within this trip. Basically, the trip will involve one day visit to farmers and collaborators at each site (12-14 April). This will then be followed by a workshop involving the site leader and two other field workers from each site on April 15 (Appendix 4). The workshop will be held for one day in Cagayan de Oro (most accessible location). The first two hours will be

devoted to short reports on the status and general plans for each site. This will be followed by the capacity assessment workshop.

Arrangements were then made with the local collaborators for the visit to each site. The aims of the visit were to:

a) initiate the impact assessment activities – forms for the basic data will be discussed and left for the collaborators to gather necessary information.
b) get an indication of the general direction of activities in each site

2. Visit to Cagayan de Oro site

We attended the regular meeting of the Cagayan Goat and Sheep Raisers' Cooperative. Formation of this cooperative has been initiated by the participants and of the Farmer Livestock School (FLS) on goat raising and the City Veterinary Office. A total of 50 potential members (all raising goats; most have attended the FLS) have been identified. The number of goats raised by ranged from 2 to 60 heads.

The cooperative is in the process of getting official registration. To obtain registration, interested farmers need to contribute P550 for registration and capital build up. Once the cooperative is registered, it will obtain official qualification to apply for availment of government programs (e.g. dispersal and loans). To date 15 have already paid up the obligation.

The purpose of the meeting was to plan out immediate activities of the cooperative. These included :

a) processing of their official registration - for this, they scheduled the signing of their constitution and by-laws in their next meeting (April),
b) a cross-visit will be done in April 7 to 8 - the aim is for the potential members to see how goats are raised and managed in Bukidnon and Misamis Oriental goat farms; only participants of the FLS were qualified to join, and
c) formulation of programs and plan of activities for 2005 – this was scheduled for the meeting in April.

In the afternoon, we had a meeting with Perla Asis (site coordinator) and two of the collaborating field workers (Rey Dapanas and Fernando Lavictoria). The following were discussed in the meeting:

a) details on the basic data collection, capacity building and spillover effects – the information will be ready by the end of April.
b) visit to farmers in the site was scheduled in April 12. Perla will plan the itinerary. This visit will be done to see the status of the sites and get an insight on what activities can be done in 2005.
c) workshop for capacity building assessment will be done in 15 April – Ed will send the invitations for Perla, Rey and Fernando to attend. Perla agreed to prepare a short presentation of accomplishments last year and general plans for 2005.
d) plan of activities for the site in 2005 – the collaborators agreed to prepare a plan of activities for 2005. This will later be discussed and finalized. Ed will wait for Perla to submit the plan. Perla will consult the farmers for the plan to be formulated.

3. Meeting with Judith Saguinhon (Malitbog site coordinator)

We were able to meet with Judith Saguinhon, the coordinator of Malitbog site. It was learned that the farmer livestock school will hold its graduation on 6 April. The following were discussed with Judith:

a) details on the basic data collection, capacity building, convenience farmer case study and spillover effects. The convenience case study will be conducted on 4 to 5 April.
b) visit to farmers in the site was scheduled in April 13. Judith will plan the itinerary. This visit will be done to see the status of the sites and get an insight on what activities can be done in 2005.
c) workshop for capacity building assessment will be done in 15 April – Ed will send the invitations for Judith and two other collaborating field workers to attend. Judith agreed to prepare a short presentation of accomplishments last year and general plans for 2005.
d) plan of activities for the site in 2005 – Judith will prepare a plan of activities for 2005. This will later be discussed and finalized. Ed will wait for her to submit the plan.

4. Visit and meeting with collaborators in Manolo Fortich, Bukidnon

We were able to meet with Gemma Cania and Cynthia Velasco, the collaborating field workers in Manolo Fortich site. The following were discussed during the meeting:

a) details on the basic data collection, capacity building, convenience farmer case study and spillover effects. The convenience case study will be conducted on 7 or 8 April.
b) a farmer group meeting will be conducted on 7 or 8 April. The farmer group will decide on the exact date of the meeting.
c) visit to farmers in the site was scheduled in April 14. Gemma and Cynthia will coordinate with the farmers in will planning the itinerary.
d) workshop for capacity building assessment will be done in 15 April – Ed will send the invitations for Gemma, Cynthia and one other collaborating field worker to attend. Gemma and Cynthia agreed to prepare a short presentation of accomplishments last year and general plans for 2005.
e) plan of activities for the site in 2005 – Gemma and Cynthia will prepare a plan of activities for 2005. This will later be discussed and finalized. Ed will wait for her to submit the plan.

Annex 1a. Basic Data (to be supplied for each site)

Barangay: _____

No. of farmers growing forages: _____

Total population:_____ No. of households: _____

Estimated Land Area of Barangay: _____ hectares

Estimated Land Use:

Land Use	*Percentage of Total Area*
Planted to crops	_____
Vacant Area (cultivable)	_____
Area not suitable for cultivation	_____

Describe the barangay in terms of topography

Terrain	*Percentage of Total Area*
Flat	_____
Rolling	_____
Steep	_____

Livestock Population:

Livestock	*Total Number (heads)*
Carabao	_____
Cattle	_____
Goats	_____

Total No. of households raising cattle or goats or carabao: _____

Average Farm Size : _____ hectares

List of Farmers Growing Forages

Barangay: _____ Collaborator Assigned: _____

Name of Farmer	Wealth Rank (1- rich) (2- average) (3- poor)	Year Started Planting Forages	Estimated Forage Area (sq m)

Annex 1b. Survey instrument for basic data collection (selected farmers)

Name of Interviewer: _____

Name of farmer: _____

Wealth Category: _____ Source of information: _____

Date: _____

Place: _____

1. Which year did you first plant forages?
   _____
2. How much area did you plant with forages the first year?
   _____ equals _____ m^2 (or linear meters)
3. How much area do you have planted with forages now?
   _____ equals _____ m^2 (or linear meters)
4. What are the main forage species that you are growing now?

Name of species	Rank the 3 most important ones in terms of area	What is the main use of that specie?

5. What are the main uses of forages?

Use of forage	Rank the 3 most important
Cattle fattening	
Cow calf	
Fish	
Pigs	
Goats	
Rabbits	
Draught	
Contour hedgerows	
Forage for sale	
Planting material for sale	

Seed	
Leaf meal	
Fire breaks	

6. When you planted forages, what did you replace?

	Rank the 3 most important ones in terms of area
Natural grass	
Upland rice	
Lowland rice	
Coffee	
Other crops	

7. Since starting to grow forages, have you changed the way you keep livestock?

	Tick the ones that apply	Rank the 3 most important ones
No change		
More animals now		
More confinement		
Fattening animals before sell		
Providing supplementary feed at night		

Farm size		
Paddy	Upland	Other

Animals			
Cattle (>1 year)	Buffalo (>1 year)	Pigs (sows and boars, not piglets)	Fish pond (m^2)

Wealth indicators, compare:

Area paddy per farmer to the mean of district.

Number of large ruminants per farmer to the mean of the district.

Annex 2. Basic Information of Collaborating Staff (preparatory for capacity building assessment)

Name	:		Gender	:	
Office	:		Position Designation	: :	
Year Joined FSP	:		Educational Attainment	:	

What trainings conducted/facilitated by FSP/LLSP have you participated?

Topic of Training/Seminar/Workshop Attended (facilitated by FSP/LLSP)[a]	*Year Attended*

[a] *Does not have to be the specific title; just the topic or subject or focus of the activity*

Annex 3. Form for spillover effects of the LLSP in terms of forages being adopted in other sites through other institutions, projects, and NGO's.

Tell each of the site coordinators that we would like to estimate the spread of forages and participatory methods from the project area to other areas. The method we want to use is to make a table like the following:

Name of project	To where	When	What did we provided		Where did they get the seed or planting material	Estimated no. of farmers growing forages in 2005
			info. materials	training		

Annex 4. Program of activities for the capacity building assessment workshop

Date of Workshop: 15 April 2005
Venue : VIP Hotel, Cagayan de Oro City

Participants:

a) Cagayan de Oro:
   1. Perla T. Asis
   2. Fernando La Victoria
   3. Rey Dapanas

b) Malitbog:
   4. Judith Saguinhon
   5. Gaspar Velasco
   6. one more AT

c) Manolo Fortich
   7. Ernesto Ducusin
   8. Cynthia Velasco
   9. Gemma Cania

Activities and Schedule:

Time	Activity
0800 - 0900	Arrival of participants
0900 - 1030	Reporting of accomplishments and plans by site
1030 - 1045	BREAK
1045 - 1200	Card and Chart session on staff capacity
1200 - 1330	LUNCH BREAK
1330 – 1600	Continue capacity impact assessment
1600 - 1630	Closing Program

Trip report to Kampong Cham, Cambodia, 20 March-2 April 2005

Phonepaseuth Phengsavanh

Objectives

- To assist the Cambodian collaborators to finalize the workplan for 2005 and transform it into action-plan.
- Visit the sites and plan with site staff on the activities for the next three months in Kampongcham province.

People met

Dr. Som San	LLSP National coordinator, DAHP
Mr. So Phal	Site manager, Kampongcham province.
Mr. Chim Si Mach	Technician, AHPO, Kampongcham province.

Other village animal workers in the areas

Itinerary

20 March	Vientiane – Phnompenh
21-23 March	Work with Som San in Phnom Penh on workplan, action plan and the budget for 2005
24-25 March	Travel to Kampongcham and visit some sites
26-27 March	work with Som San in Phnom Penh
28-31 March	work with provincial staff on planning and visit the sites
1 April	Return to Phnom Penh
2 April	Phnom Penh-Vientiane

Summary

The trip was aimed to (1) Organize field visits, (2) Conduct participatory forage evaluation with farmers and (3) Develop an action plan for the dry season.

The workplan has been revised by Dr. Som San and Seuth to make sure that the activities will focus on the supporting the planting of forages for solving the feed shortage (mainly in wet season) by new farmers in villages and districts where we are already working. The second activity will be working with farmers already have forages to improve livestock production to move into more intensification of livestock production. The activities are to consolidate the forage development and achieve a high rate of forage adoption in these villages before expanding to new districts and provinces.

The meeting with provincial staff was organised to review the implementation of project and also plan for this final year of project. The staffs are happy with the achievements of forage technology development and adoption in the areas, but felt that they still need more supports in capacity building in both methodologies of working with farmers and improvement in forage and animal production. Another issue discussed during the meeting was the workplan for 2005 and transforming it into action plan for each three months. The action plan for April-June period is focused more on the (1) working with farmers to find out focus farmers' experiences in working with forages and share these experiences with other interested in the villages. (2)

Preparation and plan with all farmers on activities in 2005 and what supports are needed to implement these activities.

The field visits were organised for three days to visit existing sites in three districts of Kampongcham province. The team visited 8 villages in 4 districts such as Pnouv Lek village (Cheung Pray district), and Trapieng Raing (Prey Chhor), Kbal Damray, Kong Karng 1 and 2 and Taheav Krom (Pongnea Krek). Forages have been affected from long dry season (7 months), almost all varieties have been dried out, farmers initially solved problem by water the plots, but recently water in the water sources are very little or no at all. It is important now that the staffs visit farmers and explain that the forages will regrow again when the rain comes and the project will need to work with other legume trees that are good for the areas and can tolerate to the drought.

Workplan and budget for 2005

We spent almost three day to finalize the workplan in 2005 for Cambodia. The workplan have been focused on (1) the strengthening of forage technologies with farmers in the existing villages. These activities will be emphasize on exchanging experiences and lesson learnt on forage technologies among farmers from focus group and sharing these experiences with other interested farmers in the villages. Another important outcome from the activity is to help farmers already have forages to move further to improve livestock productivities, (2) developing methodologies for capturing information of benefits or impacts that can be used for dissemination in the future. These methodologies include case studies, cross visit and field day. and (3) training for local staff on forage management and utilization, animal nutrition and participatory evaluation with farmers to back up the activities in strengthening forage technologies in the project existing villages.

The details of workplan has been submitted and already approved by the project.

Planning meeting with site collaborators

The meeting was held in Provincial Agriculture and Forestry Office, in the meeting there were discussion about the workplan for 2005 and then go to more detail on develop action workplan for implementing the activities in the sites (The action plan is in the attachment).

The activities that need to be carried out from March to June 2005 including:

1. Organise farmer focus group meeting to discuss about the experiences of farmers in forage planting. It is important to find out what are the benefits and problems that farmer have experienced in the first year. Another important thing is to develop plan with focus farmers on what and how are they going to do with forages.
2. Organise village meeting to share the experiences of focus farmers on forage with other farmers in the villages. The outcome of this meeting will be (1) Sharing experiences on working with forages with other interested farmers in the village, (2) to select new farmers that would like to involve in forage activities.
3. Information collection. The information about the areas and varieties that farmers would like to plant in 2005 will be important for the team to plan out the needs of seeds and also the time for planting. Most of this information will be collected during the focus group and village meetings, but the important thing is to check the readiness of farmers to plant the forages (area selection and preparation etc)

4. Forage planting with farmers. The main activity for the staff is to help new farmers with providing technical information of forage planting and ensure good establishment of forages.
5. Training course on forage utilization and basic animal nutrition.
6. Developing case studies. This activity will help the provincial staff to easily capture the information about the benefit or impact of forages in smallholder system. This information then will help staff to work easily in the future on dissemination of forage technologies.

At the end of meeting there was a review about the working methodologies and process. In this discussion the provincial staff mentioned about their lessons learnt from project and the things that will need to be improved.

Field visit to existing LLSP sites in Kampong Cham

The field visits were organised for three days in all LLSP sites in three districts in Kampongcham province. The team visited Pnouv Lek village (Cheung Pray district), Trapieng Raing (Prey Chhor), Kbal Damray, Kong Kamg 1 and 2 and Taheav Krom (Pongnea Krek).

There was long dry season this year, although most of forage varieties are able to cope with drought, but they are struggling this year with more than almost 7 months without any rain and they are starting to dry out now. Recently, many farmers have tried to overcome the drought problem with watering their plots, however, the water sources (wells or lakes) in the villages is dried off.

Many farmers are afraid that they will not have any forage next year, so they collect some cuttings and plant near the houses, vegetable gardens and water them 2-3 times a week to save the cuttings for coming planting season. Therefore, the importance for staff now to visit all villages and let farmers know that even forages are drying out now but they will regrow again when the rain comes, and there will be a need for farmers to look after the fence so animals don't break into the plot and overgraze forage plots.

Trip report to Tuyen Quang, Viet Nam, 4-10 April 2005

Phonepaseuth Phengsavanh

Objectives

1) Develop workplan and action plan with national coordinator and site collaborator in Tuyen Quang, Viet Nam
2) Discuss about Basic data collection and impact assessment on forages for fish in Tuyen Quang province

Itinerary

4 April	Arrive to Hanoi
5 April	Discuss about the trip plan with Mr. Le Hoa Binh in Hanoi, and Travelling to Tuyen Quang
6-7 April	Work with Vu Hai Yen and Le Hoa Binh to develop workplan and make a plan for impact study
8 April	Field visit
9 April	Field visit and travelling to Hanoi
10 April	Fly back to Laos

Persons Met

Le Hoa Binh	LLSP Country Coordinator- Vietnam
Vu Hai Yen	Tuyen Quang Province
Vu Thi Huong	Ag. Extension Department, Yen Son District, Tuyen Quang
Doan Thi Lan	Phu Lam commune extensionists

Summary

Workplan and budget for 2005

We spent two days to develop and finalize the workplan in 2005 for Tuyen Quang site and Mr. Le Hoa Binh, the national coordinator. The workplan focuses on consolidating firstly the activities for improving availability and quality of feed in whole year round, aiming to increase animal productivities and sustainable use of forage plots, and secondly the team will focus on the developing methodologies for dissemination of impacts of successful forage and feed technologies to other farmers within and outside the areas through different methods of dissemination (training, cross visit, field days and case studies). All workplan and LoA were sent to project management team for comments and approval.

Meeting on preparation for impact assessment with site collaborators

The discussion on impact assessment on forages for fish has been held during the trip. The aims and methodologies have been introduced by Seuth and follow by discussion on the

setting up the team, who will responsible for carrying out the assessment and the timing. The outcomes of the discussion are:

(1) Binh and Yen will work together on building up the teams. The member will come mainly from Yen Son and Ham Yen districts.
(2) Binh has finished translating the survey form as a draft and will complete the final one as soon as possible so the team can test the form first.
(3) The study will be carried out in June 15-30 June and Seuth will go to help the team.

Field visit to existing LLSP sites in Tuyen Quang

The field visits were organised in order to visit experiment sites and discuss with farmers about the plan for this year in Fulam and Duc Ninh communes.

The team visited 5 farmers in Fulam commune, where two of them conducted experiment on Guinea grass seed production last year. Farmers are very confident that they can produce the seed for sale. The problem is there is very low demand for seed in the areas as most of farmers prefer buying the cuttings more than seeds. Farmers in the Fulam commune used to plant forages mainly for sale to dairy farms, only small amount of forage was used to feed their won animals. Recently, few farmers especially the ones whose children have gone to university and don't have labour to take animals for grazing, they have reduced number of animals from 3-4 heads to 1-2 head and changed from grazing to fattening, and improved forage is used as the main feed in this production system.

During this field trip the team has discussed with group of farmers, especially the ones who worried about their forage plots that give very low yield after 4-5 years. Many farmers have left the plot for fallowing. The team has discussed about solutions including applying manure or fertilizer, grazing and rotating grasses with legumes. Since the plots were already left for fallowing, farmers prefer to plant forage legumes such as Stylo 184 to improve soil fertility of the plots and they can still use for feeding animals.

Report of a Trip to LLSP Sites in the Philippines 04-15 April 2005

Francisco Gabunada, Eduedo Magboo and Werner Stür

People Visited

1. Perla T. Asis, farmers and collaborators from Cagayan de Oro City Veterinary Office
2. Mayor Osmundo de la Rosa, Mrs. Judith Saguinhon, farmers and collaborators of DA-LGU Malitbog, Bukidnon
3. Ernesto Ducusin, farmers and collaborators of DA-LGU Manolo Fortich
4. Ed. Sabio and staff of Heifer Philippines

Objectives:

1. Attend graduation program of the Farmer Livestock School in Malitbog, Bukidnon
2. Pre-test of the basic data survey form and try out farmer case studies
3. Conduct of a training on the importance of value-adding for farmers
4. Visit farmers in the sites
5. Conduct workshop to assess impact on capacity of collaborators

Itinerary

04 April 05	Arrive Cagayan de Oro Visit Heifer Philippines (EMagboo and FGabunada) Malitbog, Bukidnon
05 April 05	FLS Graduation in Malitbog, Bukidnon
06 April 05	Meeting with collaborators from Cagayan de Oro
07 April 05	Pre-test survey form in Manolo Fortich
08 April 05	Training of farmers in Manolo Fortich
09-10 Apr 05	In Cagayan de Oro
11 April 05	Pre-test survey form in Cagayan de Oro
12 April 05	Arrival of W. Stur Visit farmers in Cagayan de Oro (WStur, EMagboo, FGabunada and collaborators
13 April 05	Visit farmers in Malitbog, Bukidnon
14 April 05	Visit farmers in Manolo Fortich
15 April 05	Workshop with collaborators
16 April 05	Depart for Los Banos

Pre-test of Basic Data Survey Form

The basic survey form was pre-tested with farmers in the sites and modifications made to improve the questionnaire. Most of the questions were relatively simple and straightforward. However, care had to be taken in translation since grammatical translation sometimes led to misinterpretations and, therefore yielding wrong information. It was found out that contextual translation was very important.

Another important aspect that has become apparent was the need to make sure that the enumerators involved understand the questions to a point that would enable them to rephrase the questions in cases of farmers' misinterpretation.

To achieve this, the plan is to do a survey together with the enumerators with the aim of clarifying questions that they might find vague when they do the survey with the farmers. This session will involve actual farmers. It is preferable to do this with farmers from as many sites as possible, since it is expected that there would be different interpretations of the questions for each site.

The site collaborators also submitted the site description as well as the list of farmers planting forages and related data (year started planting and current forage area). These data was used for determining the farmers who will be included in the sample for the survey. A list of farmers for the survey was made based on the list in consultation with the collaborators.

It was agreed with the collaborators that basic data survey will be done starting in the month of May. The targeted date of completion was at the end of June. To start the data gathering, one visit will be done. The visit will be done to help the enumerators become more familiar with the survey, by doing it with a few farmers from the different barangays. Meanwhile, the collaborators will start scheduling the survey with the concerned farmers while the survey form will be translated and finalized.

Case Study for farmers who did not expand but maintained their forages

An informal data gathering was started in an attempt to study why farmers maintain but not expand their forages. This was done with two farmers each in Manolo Fortich and Malitbog.

A major finding was that the forages were used by farmers to provide feed only in certain/seasonal periods and for purposes that do not require intensive use of the planted forages.

The farmers were raising their animals mostly for draft or reproduction – which do not involve time-bound animal performance objectives. As such, the forages provided savings in labor for feeding as well as the much needed feed in periods when the main feed resource is not capable of supplying the need. In all cases, farmers still rely on native vegetation in surrounding areas as the main feed resource for their animals. All of the farmers reasoned that they feel their forage area is adequate to the number of animals they raised in relation to the way they use the forage; they felt that they will only expand if the number of animals they raise will increase.

Training on the importance of value-adding for farmers in Manolo Fortich

A training on value-adding was conducted for farmers in New Sankanan in Manolo Fortich. It was attended by 36 farmers; all members of the farmer-group that we collaborate with. The training was unique since it provided the participants with knowledge in two aspects; (1) practical experience on slaughtering and cooking goat, and (2) reflection session by trying to compute the profit earned from selling live goat compared to selling it in processed form.

The farmers first decided on how many recipes they would prepare from the goat. They were then divided into groups, each of which was assigned two recipes. Each group then proceeded to prepare their assigned recipes.

In the process of preparing the recipes, the participants learned from the facilitator as well as from each other on how to prepare each recipe. The process involved a very lively discussion between the participants while each helped in performing their assigned task.

When all the groups finished, all the cooked food were put together. Each group was asked how much would be the value of their cooked product if it was sold the market. The total value of all the cooked products was computed. Then the cost of the goat, other ingredients and inputs (including labor) were deducted and the profit was computed. These were then compared to the value of the live goat and related to the amount of time needed to attain such income. The main message was then derived as : Processing of the product (e.g. selling processed instead of raw product or live animal) enables the owner to earn more profit in a shorter period of time.

Before the training ended, the participants were challenged to think of how they can apply the principle of value –adding in their farming activities.

Visit to farmers in Cagayan de Oro, Malitbog and Manolo Fortich sites

The main activity in Cagayan de Oro has been the conduct of field school on goat production. As a result of the field school, the farmers were able to form a formal organization of goat raisers. The organization will enable them to obtain more assistance for expanding their goat production from the city government as well as other government agencies. From the LLSP standpoint, activities are planned to help the farmers improve their goat management system, especially those concerned with housing and feeding.

Goat farmers in Dansolihon, Cagayan de Oro have been able to obtain benefits from the goats that they raised with the help of forages. However, their forages were still insufficient to sustain their goats into the dry season. The system still involves free grazing in the dry season, thus causing damage to the forages. The farmers were planning to reestablish their forages in the coming wet season. Most of their plans were in relation to maintaining their goats and improving management of their animals.

The farmers in Malitbog, Bukidnon visited were raising cattle for reproduction and draft purposes. These farmers have just finished a field school on cattle raising. The farmers were interested to learn more about cattle management practices. Most of these farmers were integrating forages as contour hedgerows in their hillside farms. The forages were generally used to supplement the existing native feed resources. One farmer has tried fattening his cattle and obtained good results. He plans to do fattening at certain periods of the year only so that it would not run in conflict with his other activities. He identified capital for purchase of animals as the main constraint for going into fattening.

Among the three sites visited, Manolo Fortich site has the highest number of farmers planting large areas to forages. These farmers have received dairy cattle from the National Dairy Authority. The field school on cattle nutrition conducted last year resulted to improvement in utilization of the forages. Farmers have built sheds and started using well-designed feeding

trough, reducing the waste from the forages that they feed to their animals. At the time of the visit, farmers have started milking their animals. It was observed that there is still a big need to improve the milking management practices of the animals. For instance, it was observed that farmers were not using enough water for their cattle. One of the farmers has already started using a part of forage area for grazing instead of cut-and-carry. This implies that there might be a time that farmers need forage species suitable for grazing, or that farmers may need more knowledge on grazing management especially for cut-and-carry forage species.

Workshop of collaborators in Cagayan de Oro

A one-day workshop was conducted with collaborators (3 representatives from each site). The objectives of the workshop were to :

a) discuss the accomplishments and plans for each site, and
b) assess the impact of the project on capacity of the site collaborators.

Each of the sites presented their accomplishments in 2004 and plan of activities for 2005. It was agreed that the country coordinator and site collaborators will review the plans for each site during the succeeding visits of the coordinator.

Assessment of the project's impact on the capacity of the collaborators was done in the afternoon. The results of the activity are shown in Annex 1.

Annex 1. Results of the Impact assessment of collaborators' capacity

Capacity Building Workshop for LLSP in the Philippines
15 April 2005
Cagayan de Oro City

Objectives: Measure the impact of the project on capacity building in terms of :

- Forage and livestock technology development
- Farmer participatory research

Participants:

Department of Agriculture Regional Field Unit 10 – Livestock Division
1. Willie Nacalaban – staff (collaborator in the first 2 phases)

Municipal Agriculture Office, LGU-Malitbog, Bukidnon
Site : Malitbog

1. Judith Saguinhon – Municipal Agriculturist
2. Gaspar Velasco – Agricultural Technologist
3. Nelson Badilla – Agricultural Technologist

Municipal Agriculture Office – Manolo Fortich, Bukidnon
Site : Manolo Fortich

1. Cynthia Velasco – Municipal Agriculture Officer
2. Gemma Cania – Agricultural Technologist

City Veterinary Office, Cagayan de Oro City

Site : Cagayan de Oro

1. Perla T. Asis – Head, Animal Production and Diagnostic Laboratory Division
2. Rey Dapanas – Agriculturist II
3. Fernando Lavictoria – Livestock Inspector III

- Among the 9 participants, 3 are heads of their office/division. These three serve as the site coordinator and are often involved in the project meetings and workshops
- The staff from the DA-RFU had previously been involved with the previous projects (8 years)

Results:

A. Skills needed in doing forage and livestock technology development with farmers:

1. Participatory Skills – related to skills in facilitation with farmers (individual/group)
2. Participatory Tools – tools used in facilitating farmer participation
3. Livestock production and management – care and management of ruminants
4. Forage technologies – forage agronomy and utilization
5. Participatory Monitoring and Evaluation – monitoring and evaluation of activities with farmers

B. Importance of the skills

Skill	Importance Rating[1]	Range
participatory skills	9.1	8-10
livestock production and management	9.0	7-10
participatory tools	8.6	7-10
forage technology	8.1	6-10
PME	8.2	6-10

[1] *From a rating scale of 1-10 (1= least important; 10=most important)*

- All skills were rated by participants to be of high importance for conducting forage and livestock technology development activities with farmers
- All participants considered participatory skills as most important. This was followed by livestock production and management – this is an indication of the usefulness/applicability of the skill to most of the activities involved in forage and livestock technology development with farmers. Other skills may be useful only in some activities and not in others.
- Some participants rated livestock production and management as well as participatory tools to be of moderate importance (7).
- Forage technology skills and PME (participatory monitoring and evaluation) have the least importance compared to the others. Some participants have given it a rating of moderate importance (6 or 7).
  - in their normal work and interaction with farmers, livestock production and management issues are encountered more often than forage technologies
  - participatory skills are very useful in their work – could affect the quality of the output and have applicability in issues concerning different fields and commodities.

C. Self-assessment of collaborators for the changes of their skills before and after the project

Table 2. Assessment of participants on the changes in their skills brought about by the project[1]

SKILL	Before Joining the Project		After Joining the Project		Change in Skill		Contribution of Project to the Change	
	Ave	Range	Ave	Range	Ave	Range	Ave	Range
participatory skills	4.89	3-6	8.56	8-10	3.67	2-5	7.56	5-10
participatory tools	4.33	2-6	8.33	8-10	4.00	2-6	7.78	5-10
livestock production and management	6.22	1-10	8.56	6-10	2.33	0-5	9.00	6-10
forage technology	3.78	1-6	8.56	8-10	4.78	2-8	8.33	5-10
PME	4.78	1-7	8.33	8-9	3.56	1-7	8.00	5-10

[1] *assessed by 9 participants from the sites using a rating scale of 1-10 (1-least; 10-highest)*

Main messages:

- The project has made a big contribution to the increase in knowledge and skills that collaborators considered as important for forage and livestock technology development with farmers.
- The collaborators had low knowledge and skills related to forage technology before the project. With the project knowledge and skill of collaborators increased to a level they considered as high. The project had contributed much to this increase.
- Before the project, collaborators already had moderate knowledge and skills in participatory approach, participatory tools and participatory monitoring and evaluation. These were also increased to a level they considered as high with their experience in the project.
- Before joining the project, collaborators already had a moderate knowledge in livestock production and management. This was increased to a level they considered as high when they joined the project. Despite the small increase, the collaborators felt that the project had very high contribution to the increase in this knowledge.

Details of Results:

Before the Project

- facilitation skills before the project
  - varied from low (1-4) to moderate (5-7)
  - majority had moderate participatory skills before the project
- skills in using participatory tools before the project
  - varied from low to moderate
  - less than half had low skills in using participatory tools
- skills in livestock production and management
  - varied from low to high (1-10) – large variation is due to differences in educational background and nature of their job assignment
  - 2/9 low; 4/9 moderate; 3/9 high
- skills in forages varied from low to moderate
  - almost half (4/9) had low forage technology-related skills
  - slightly more than half had moderate forage technology-related skills

- skills in PME varied from low to moderate
    - most of the participants had moderate skills in PME

With the Project:

- facilitation skills were high after the project
- skills in using participatory tools were high after the project
- skills in livestock production and management after the project
    - varied from moderate to high
    - only 1 had moderate; the rest had high – related to nature of the job (in crops) and duration of exposure to livestock-related work (just got involved in animal project on the last half of the forage development work
- forage technology-related skills were high after the project
- PME skills were high after the project

Changes in skills with the project

- Increase in facilitation skills varied from 2-5 units in the scale
    - the increase in facilitation skills was not related to the skill rating before the project
- increase in skills for using participatory tools varied from 2-6 units in the scale
    - somewhat related to the skill before the project – those with low skills before the project had more increase in skill
- livestock production and management-related skills had the lowest average increase among all the skills identified by the field workers – could be due to relatively high skills of most field workers before the project
    - those who had low skills before had higher increase than those who already had high skills after the project
    - there were two participants who felt that their skills in livestock production and management did not increase
- increase in forage technology related-skills varied from 2-7. This had the highest increase among the skills considered as important by the field workers
    - those who had higher skills had lesser increase than those with lower initial skills
    - those with low initial skills felt they had higher increase in skills after the project
- increase in PME skills varied from 1-7 units in the scale
    - those who had higher skills had lesser increase than those with lower initial skills
    - those with low initial skills felt they had higher increase in skills after the project

Contribution of the project to the changes in skills

- participants felt that the project has contributed from 50-100% of the improvement of their skills in facilitation, use of participatory tools, forage technology and PME.
- The participants who experienced a change in their livestock production and management skills felt that the project contributed from 60-100% of the change.

Important learnings obtained from farmers

Learning	Source of Learning		
	farmers	others in project	project
participatory skills	0	2	13
technical learnings on forage and livestock	2	3	2

what personal attitudes are needed to do the work	8	5	2
nature of technology development and transfer	4	4	0
farmers' attitudes	7	0	0

Technical learnings on forage and livestock

1 knowledge in handling animals
2 new techniques of feeding

What personal attitudes are needed to do the work

1 awareness by seeing and doing
2 be frank and receive frank comments from others without getting embarassed
3 I can manage groups of farmers
4 I have more patience and humility now
5 It pays to be open
6 It pays to be sensitive to the needs of farmers
7 to be compassionate with farmers' problems
8 We must not rush

Nature of technology development and transfer

1 technology adoption is not immediate; it is gradually adapted and innovated by farmers to fit their farming system
2 Technology adoption is not immediate; takes time
3 There are different actors to be involved in technology transfer
4 you can't please everybody; you can approach each farmer according to their technology needs

Farmers' Attitudes

1 farmers are committed to change
2 farmers are committed to participate
3 farmers are committed to test options
4 farmers are innovative
5 farmers are receptive to technology or even field workers when you start asking for their problem
6 farmers are scientists by nature; they experiment and share
7 farmers usually observe first before adopting

Knowledge and skills needed in conducting forage and livestock technologies with farmers identified by collaborators

1. Participatory skills
   a. facilitation skills
   b. how to handle groups of farmers
   c. knows how to listen
   d. how to do cross-visits
   e. neutrality
   f. how to get started

g. familiarize the focus site
h. what is primary and secondary data

2. Participatory tools
   a. learn participatory tools (mapping, transect)
   b. how to conduct participatory mapping
   c. identify problems and options
   d. needs assessment

3. Livestock production and management
   a. training on livestock production
   b. care and management of animals
   c. feeding management
   d. dairy technology

4. Forage agronomy
   a. benefits from forages
   b. forage agronomy training
   c. what are the different kinds of forages
   d. pasture development and establishment
   e. identification of forages
   f. how to grow forages
   g. how to manage forages
   h. importance of forages
   i. uses of forages (grasses and legumes)

5. Participatory monitoring and evaluation

Process:

A. Do a card and chart session.

1. *Ask participants "If there is a technician from another site who wants to start forage technology development in a new site, what are the things that he should know?"*

2. *Sort out the ideas generated by the participants. Ideas that are related will be in the same column. While sorting out, encourage participants to come up with a common understanding on the idea in each card. This will involve validating and getting them to discuss how they understand the idea. In the discussion, there may be some additional ideas that would come out (make a card for it). There will also be cases where you need to change the words to make it clearer or you need to make two or more cards because the message in the card can be split into different ideas.*

   Comment : This part takes a big proportion of the time. There is a need to explain clearly what ideas we want from the participants.
   The responses of the participants varied and can be classified as :

   a) attitudes and values
      - commitment
      - compassion

- patience
- good in rapport
- his/her heart belongs to farmers
- willingness to work with farmers
- knows how to adjust
- sensitive to what the farmers feel

b) knowledge and skills
- knows what are the different kinds of forages
- pasture development and establishment
- identification of forage species
- how to grow forages
- how to manage forages
- importance of forages
- use of forages
- care and management of animals
- dairy technology
- familiarize the focus site
- what is primary and secondary data
- participatory tools (mapping, transect)
- how to conduct participatory mapping
- identify problems and options
- needs assessment
- facilitation skills
- how to handle groups of farmers
- how to listen
- how to do cross-visits
- neutrality
- how to get started

c) training needs (more on how the participant can get the knowledge and skill
- forage agronomy training
- training on livestock production

With this, there is a need to explain clearly what ideas we want from participants. It would be good to define what we mean by "knowledge" and "skills". Knowledge refers to information (like answering the questions beginning with "what, why and where"), while skills refers to "how to do something".

An example of skill will be : "how to identify problems and options". For knowledge, this will be "importance of forages".

For our purpose, the values and attitudes will not be rated. As such the headings to be identified will only be for the "knowledge" and "skills".

3. *Decide with participants what would be suitable headings for the sorted cards under "knowledge" and "skills". Make a card for each heading and place on top of each column. These headings will be the criteria to be rated by the participants.*

B. Ask the participants to rate the importance of the knowledge and skills (correspond to the headings in A3) in doing forage and livestock technology development with farmers.
   1. *Distribute the blank rating sheets for knowledge and skills.*
   2. *Ask the participants to fill the column on "knowledge or skill" with the headings (one cell for each heading).*
   3. *After all the headings are put in, ask the participants to use the second column (Importance of the knowledge or skill) using a scale of 1-10 (1-least important; 10 most important)*

C. Ask the participants to rate their level of knowledge and skill before and after the project for each of the heading. The same scale will be used as in B.

D. Ask the participants to rate the contribution of the Project to the improvement of each knowledge and skill. The same scale will be used as in B.

   Comment : There is a need to explain this part a bit more to the participants. Some participants might take the difference between before and after and just put it as the rating. There is a need to explain to them that what we want is the proportion in the change of their knowledge and skill that has been contributed by the project. As such, they should:

   a. rate only the knowledge or skill which had increased after the project, and
   b. consider in their rating that it may not only be the project which contribute to the increase in their knowledge and skills (they may be involved in other projects, or have undergone training outside the project, or have learned from experience in activities outside the project.

Trip report to Luang Phabang and Xieng Khouang, Lao PDR 18 April - 11 May 2005

Phonepaseuth Phengsavanh

Objectives

- The aim of the trip is to collect information for impact study on using Stylo 184 for feeding pigs in smallholder systems in the north of Lao PDR.

Traveling people

Phonepaseuth Phengsavanh	LLSP Sub-regional coordinator
Bounmy Phewankham	LLSP collaborator.
Somsy Phimmasane	Driver from Livestock Research Center

People met and work together

Luangphabang province: 1 PAFO and 2 DAFO staffs
Xiengkhuang provinces: 3 DAFO staffs

Itinerary

18 April 05	Travel from Vientiane to Luangphabang
19 April 05	Meet with provincial and district staff to discuss about the plan of study
20 April 05	Testing the form of data collection and interview technique in Kew Ya village
21-24 April 05	Conducting survey in four villages in Xieng Nguen district
25 April 05	Travel to Xiengkhuang
26 April 05	Meet with provincial and district staff to discuss about the plan of study
27 April 05	Testing the form of data collection and interview technique in Ta village
28 April – 1 May 05	Conducting survey in four villages in Pek district
2 May 05	Travel from XK to LPB for collecting additional information
5 May 05	Seuth travel back to Vientiane Bounmy continued working for collecting additional information in Luangphabang
10 May 05	Bounmy left LPB for Vientiane
11 May 05	Bounmy left Vientiane to Savannakhet

Summary of the outcomes of impact study

The detail of this study will be described in the separate report. Following is a summary of main activities and the outcome of the study:

1. Working approach for the study

The survey has been conducted from 18 April to 10 May 2005 in Pek district, Xiengkhuang province and Xieng Ngeun district, Luangphabang province. The study team consists of 2 main members (Seuth and Bounmy) and 4 provincial and district staffs from each province. Before conducting the survey in each province, the team has met to discuss about the objectives and plan for the study. The details are as the followings:

1. Based on the information from provincial and district staff, 4 villages and 15 farmers have been selected in each province for interviewing. The criterion used for selecting are (1) farmers who have experiences of using Stylo 184 for feeding pigs and have significant impacts in both animal productivities and farmers livelihood, (2) the different production systems of reproductive and fattening, and (3) farmers who use fresh Stylo and Stylo meal for feeding pigs.

2. The team went together to practice interviewing farmers in the selected villages. The aims of which are to test the forms and staff to familiar with the questions and how to do it with farmers

3. Questionnaire (survey form) was used for interviewing individual farmer in the villages. Meeting with village committee and key farmers also has been organised in each village to discuss about the general information of pig production and wealth status of interview farmers.

   After interviewing, each day the team met back in the office to discuss about the results, interview techniques and prepare for the following day

2. Result

2.1 General information

People living in these eight villages are from three main ethnic groups: The number of pigs per household in these 8 selected villages at the present time ranged from 2-30 heads with an average about 9 head per family, which depends on the production systems in each village. Lao loum, Hmong and Khmu. In Lao loum village, farmers mainly do fattening, they buy piglets at the age of 3-4 months, with an average weight about 15 kg and feed them until getting to about 60-80 kg. These farmers always raise about 3 pigs per production cycle with a range from 2-6 pigs per family. In contrast, most of Hmong and Khmu farmers produce piglets by themselves and start fattening them at similar system as Lao loum. The average number of pigs for these farmers is about 13 heads/family, with a range of 10-30 head per family.

There are two main pig production systems. The pigs for reproductive purpose are kept either in confinement or scavenging. The fattening pigs are always kept in pens. The main feeds for pigs are rice bran, cassava root, maize and natural vegetable. Recently, Stylo 184 has been introduced and used as supplement feed and mainly in wet season. Few farmers now are starting to produce and use stylo leaf meal for feeding pig in dry season and busy time in planting season.

The wealth status of the interviewed households was based on the information gained from discussions with village head men and also information about rice availability throughout the year from households. Most of the interviewed households were medium and few poor.

2.2 Impact on labour and time saving

The benefit of saving labour and time has initially been the major impact to farmers, as by supplementing Stylo to the diet the time of collecting and cooking feed has reduced from 3-4 hours to about 30-40 min. However, the Stylo is mostly available only during the wet and beginning of the dry seasons (7-9 months), so the rest of the time farmers spend 3-4 hours to collect and cook the feed as before. To overcome this problem and in order to have high quality feed throughout the year, many farmers in Xieng Ngeun district, Luangphabang province have started to produce Stylo leaf meal and the experiences of feeding stylo leaf meal show that it help farmers to save time especially during the busy time and need to spend more time for rice production and other activities. Apart from that pigs seem to consume more feed and grow better.

Most farmers have used the labour and time released from feeding pigs for mainly taking care of their rice production, cash crops and vegetable plantation and also look after other animals.

2.3 Impact on the productivity

The pig productivity (growth rate) has been increased twice. In traditional feeding systems, the pig growth rate was very low; pigs could get about only up to 100 g per day. It is believed that the traditional feed (Maize, rice bran, cassava and weeds or natural vegetable) is lack of protein, as most of the feeds are energy sources. By supplementing about 300 g/head/day the pig growth rate has been improved from 100 to about 200 g/day. The maximum gain from feeding stylo has been up to 400 g/day.

This fast growth of pigs has reduced the production cycle in average from 18 months to about 8 months that allow farmers to increase the cycles almost two times a year.

Table 1. The improvement of pig productivity by supplementing Stylo 184 to traditional diet.

	Feed		SE
	Supplemented with Stylo 184	Traditional feed	
Initial Weight, kg	15.0	14.0	± 0.44
Final Weight, kg	65.1	65.3	± 3.16
ADG, g/day	207.2	106.5	± 12.08
Duration of production cycle, (month)	8.7	18.0	± 0.95

2.4 Other benefits

In addition to the two main benefits, there are several other benefits such as:

(1) Reduction of rice bran in the diet.

By adding Stylo into diet, there is not only reduction of using vegetable but also rice bran. The information from the study shows that the rice bran has been reduced in about 25%. This helps farmers to save some money to spend for other needed things.

(2) Increasing number of pig per cycle and cycle per year.

As mentioned above that the supplantation of Stylo into diet has improved the growth rate of pigs, which help farmers to have more production cycles from 1 in 18 months to about 2 cycles. Many of them also said that they have been able to increase the number of pigs per cycle as well.

Farmers who raise pigs for reproductive purpose have mentioned that by supplementing Stylo to the sows before and during farrowing time, it helps the sows to recover quicker then usual, as before the sows will take about 4-5 months to get into the good condition, but now it is about 2-3 months. The piglets are healthier and less mortality.

(3) Income for schooling, medicine and other.

The income for family is mostly comes from selling livestock (many farmers mentioned about 70-80%), and this is mainly from selling poultry and pigs, as large animals as buffalo and cattle are sold only when family need a big cash for building a new houses and other. The income is mainly spent for children schooling as a first priority, then for buying medicine and other household utensils.

Report of a Trip to LLSP Sites in the Philippines, 02-06 May 2005

Francisco Gabunada

People Visited

1. Perla T. Asis, farmers and collaborators from Cagayan de Oro City Veterinary Office
2. Mayor Osmundo de la Rosa, Mrs. Judith Saguinhon, farmers and collaborators of DA-LGU Malitbog, Bukidnon
3. Ernesto Ducusin, farmers and collaborators of DA-LGU Manolo Fortich

Objective

Facilitate start of the basic data collection survey in Mindanao LLSP sites

Itinerary

02 May 05	Depart Visca
03 May 05	Start survey in Cagayan de Oro
04 May 05	Start survey in Manolo Fortich
05 May 05	Start survey in Malitbog
06 May 05	Depart for IRRI

Conduct of survey in the different sites

The basic survey was conducted using the same approach for all the three sites. The approach consists of :

a) meeting with the enumerators (the site collaborators) to review and discuss the questionnaire. Interpretation of the questions was done. Then the plan of data collection activity was discussed. This includes validation of the names of farmers selected and planning on how and when each farmer will be interviewed.
b) the team interviews one to two farmer representatives from the villages covered. Each enumerator interviewed a farmer in the presence of the rest of the team. The rest of the team will observe and help (when needed) the enumerator in clarifying and explaining questions.
c) after each of the enumerator has interviewed at least a farmer, the team gathers again to discuss if there are problems or questions that need to be modified and clarified.
d) where necessary, the questions were reworded or changed to make them more accurate and fit with the intended data to be gathered.
e) After the questions were all clarified, the questionnaires were reproduced and left to the site coordinator.
f) A target date of completion for the survey was then agreed with the collaborators. The agreed date of completion was in the end of June.

The activity highlighted the need for adequate preparation of the questionnaire before conducting the survey. A big part in the preparation is working with the enumerators and pre-testing the questionnaire with representative sample of farmers from as many villages as possible. The need to reword and explain a question further for farmers to understand the specific information needed cannot be avoided. This makes it a necessity to assure that the enumerators understand the question well enough to reword and/or probe further so as to get the desired type of information asked from the interviewed farmer.

Report of a Trip to LLSP Sites in Indonesia, 07-28 May 2005

Francisco Gabunada

People Traveling

1. Francisco Gabunada
2. John Connell
3. Maimunah Tuhulele

People Visited

1. Ir. Ibrahim, Ir. Yakob Pangedongan and site collaborators from Indonesia
2. Ir. H. Amsyarudin, Ir. Dadang Sukarya and staff of Dinas Peternakan East Kalimantan
3. Heads of Livestock Services in the districts of Penajam Paser Utara, Kutai Kartanegara, Samarinda and Pasir
4. Graduate faculty and students of Socio-Economics in Mulawarman University

Objectives

1. Conduct a dissemination workshop for LLSP collaborators in Indonesia
2. Facilitate the start of basic data collection in all sites
3. Conduct impact assessment on the capacity of LLSP collaborators

Itinerary

07 May 05	Depart from Manila
08 May 05	Arrive Balikpapan
09 May 05	Depart for Sepaku
	Meeting with workshop facilitators
10 May 05	Final preparations for workshop
	Arrival of participants
11-17 May 05	Dissemination workshop
	Impact assessment of collaborator capacity
18-21 May 05	Drafting of report
	Seminar at Mulawarman University
22-27 May 05	Start of basic data collection survey for all sites

Dissemination workshop for collaborators in LLSP sites

The workshop was conducted in Sepaku and attended by 12 collaborating field workers (Annex 1). Each participant had prepared a draft of the champion farmer case study as well as a set of information that would be used for the dissemination histories and community case studies. This was attained by sending to each of them a guide on what information to gather and how these will be organized and presented three weeks before the workshop was conducted (Annex 2, 3 and 4). This facilitated the conduct of the workshop.

The participants presented their champion farmer case studies at the start of the workshop. Pictures of the champion farmers were also included in the presentation. The other participants and facilitators made suggestions on how to improve the presentations. The

activity enabled all the participants to learn (a) how to make the case studies and (b) how forages are used by successful farmers and benefits have been gained from the forages. The latter was considerably important because most of the field workers had very little chance to go across to the other sites due to distance and institutional boundaries.

The dissemination histories were made by the participants during the workshop. To do this, the participants were asked to report their main dissemination activities since they started forage technology development with farmers in their sites. This was relatively easy for the participants who were involved since the start of the activities. For those who started late in the sites, the inputs of Ibrahim, Maimunah and Heriyanto helped. Each participant then reported their outputs followed by a discussion. The activity enabled the participants to learn from each other's experience in working with farmers on forages.

The village case studies were aimed to let the participants know the dynamics of the dissemination and information exchange activities within the village/community. To achieve this, the participants were first briefed on how to do the village case study. They were then divided into two groups, each of which were assigned to do a case study in one site. One group was assigned to do a village case study in Sepaku; another group did the case study in Samboja.

All the three activities were aimed to develop the analytical skills of the participants. As such, a lot of time was devoted for discussion and exchange of ideas between the participants and facilitators. A shift in the participants' way of thinking was observed in the discussions. Whereas, at the start of the workshop, they were talking more about technical issues, they started talking about strategies in dissemination (looking at the bigger picture at the farmer household and village level, rather than just how a technology works). Many of the participants appreciated the learnings about the process but felt that it was important that the heads of their offices would have the same level of appreciation.

The presentation of the participants' outputs to the heads of the livestock services in the districts and the province then became a very relevant highlight in the workshop. The outputs of one site from each of the four districts involved were presented by a selected participant. John made a presentation on the potential of forages in increasing beef production. Ibrahim then ended up the session with an explanation of how the outputs and level of success were attained, and what were the implications of the process on the type of support that the heads of the livestock services need to provide to their staff.

The heads appreciated the technical aspects of the presentation (benefits obtained by successful farmers). In terms of the process, they pledged support in sustaining the activities in their areas after the completion of the project. This implies the potential for continuing forage technology development after LLSP as well as the need for follow-up activities within this year to enhance the capability of the collaborating field workers as well as the district livestock services in continuing the activities.

Workshop in assessment of the impact of the project to the capability of collaborating field workers

A workshop was conducted to assess the impact of the project on the capability of the staff in developing forage technologies with farmers. This was done in two night sessions during the dissemination workshop. A card and chart session was conducted on the first night to identify what skills and knowledge were needed by the staff in order to carry out their work with farmers on forages. The next night session, each staff was asked to rate the importance of

the knowledge/skill in their job, as well as to rate their capability for each knowledge and skill. Each staff was also asked to identify what other activities can be done to further develop their capacity in developing forage technologies with farmers.

Conduct of survey in the different sites

The basic data collection survey was started in all the sites. The farmers to be surveyed were selected from a list submitted beforehand by the collaborating field workers. The list included the name of the farmers who planted forages, their forage area, wealth rank and year when each farmer started planting forages. Likewise, the questionnaire was translated by Maimunah Tuhulele beforehand.

The sites where many farmers would be surveyed were visited and a survey was done together with the field workers assigned. This was done to assure that (a) the field workers would understand the questions to a point where they could ask probing questions, and (b) identify if there are other relevant information that were not covered in the questionnaire (such as benefits and situations that are unique to a certain site).

The sites visited for this purpose were Palaran, Makroman, Samboja, Sepaku, Gunung Intan and Penajam.

The basic survey was conducted using the same approach for all the sites. The approach consists of :

c) meeting with the enumerators (the site collaborators) to review and discuss the questionnaire. Interpretation of the questions was done. Then the plan of data collection activity was discussed, which included validation of the names of farmers selected and planning on how and when to interview each farmer.
d) the team interviewed one to two farmer representatives from the villages covered. Each enumerator interviewed a farmer in the presence of the rest of the team. The rest of the team observed and helped (when needed) the enumerator in clarifying and explaining questions.
e) after each of the enumerator has interviewed at least a farmer, the team gathered again and discussed problems or questions that need to be modified and clarified.
f) where necessary, the questions were reworded or changed to make them more accurate and fit with the intended data to be gathered.
g) After the questions were all clarified, the questionnaires were reproduced and left to the collaborating field worker.
h) A target date of completion for the survey was then agreed with the collaborators.

There were a lot of clarifications made by the field workers during the practice survey, indicating that the activity helped in giving them a better understanding of the questions in the survey form. There were no unique issue or additional questions/modifications to be made in the survey forms. The agreed date of completion was in the last week of July.

Annex 1. Dissemination Workshop in East Kalimantan

Facilitators:

- John Connell
- Maimunah Tuhulele
- Yakob Pangedongan
- Ibrahim

- Francisco Gabunada

Participants and Site:

Name	Site
1. Jumiati	Makroman, Samarinda
2. Edi Supiono	Palaran, Samarinda
3. Mahmud	Tanjung Harapan, Samboja
4. Rahman	Karya Jaya, Samboja
5. Elvira	Sepaku, Penajam Paser Utara
6. Heriyanto	Sepaku, Penajam Paser Utara
7. Masturi	Sepaku, Penajam Paser Utara
8. Yusni	Penajam, Penajam Paser Utara
9. Bambang Surijadi	Penajam, Penajam Paser Utara
10. Oddang	Gunung Intan, Penajam Paser Utara
11. Mansur	Rangan Barat, Pasir
12. Abubakar	Tanah Grogot, Pasir

Program of Activities:

Date	Activity
10 May (Tue)	Arrival of participants
11 May (Wed)	Review of Champion Farmer Case Studies
12 May (Thu)	Dissemination Histories
13 May (Fri)	Preparation for conduct of Community Case Studies
14 May (Sat)	Conduct of Community Case Studies
15 May (Sun)	Analysis of Community Case Studies
16 May (Mon)	Preparation for Presentation to Bosses
17 May (Tue)	Presentation to Heads of District Livestock Services (AM) Departure of Participants (PM)

Annex 2. Outline for composing case studies of champion farmers in each site

Messages to be gained from Case Studies

After reading a case study the reader should have understood;

- the constraints the farmer had previously faced in raising livestock.
- How forages had been used, including management of the forages and of the livestock
- What new levels of production had been gained, and whether these had affected the family's livelihood (e.g. children now able to attend school regularly)
- And the plans for the future

Here's a short example of how a case should illustrate the limitations and new opportunities from forages:

> *When the cows were calving, the farmer used keep the cows close to the house and hand feed them. However as he could not collect enough grass from the forest to feed the cow, the calves were born week, and half had died (2 of the 4 over the last four years). As a result his herd size increased very slowly.*

Now with forages grown in a plot (50x50 m of guinea) close to the house, he has been able to feed the cows 2 to 3 times a day when they have been calving. The calves have been born stronger, and the cow produced good milk. Calves survival was 100% and have grown quickly.

In the last 3 years, the herd size increased. At the same time, the farmers has begun to sell cattle regularly and so purchased comforts for the family (e.g. TV, motorcycle) and reduce the area of shifting cultivation for rice . This had released more time and the family has diversified into other crops.

This is not a full case. It is not an economic assessment, but it is clear to any reader that this farmer is now able to achieve productivity which he previously could not do without forages.

It is also useful to think what is the key element (or focus) of the case being selected. For the LLSP, it can be

- Animals that are involved (fish, cattle, poultry etc)
- The type of impact (see below)
- The type of forages used (e.g. stylo, or sweet potatoes)
- The production system (e.g. forages as an under story; as contour rows, etc)

Content of Cases

In preparing a full case it will be useful to also note

Technical details about forages: such as type of forages that the farmer preferred (according to the growing condition or their use with different animals or different times of the year, etc.), how they were managed, and how management of his livestock changed.

The effects from forages: these might include better milk production, the cattle required less water to be hauled up, comparison between animals born the same time but fed with and without forages; improved glossy coat (which might affect the price a farmers will gain). Be aware also of the time/labor saved, and what other activities this allowed.

Impacts: productivity: this might include; increase in survival rate of young, better weight gain, opportunity for fattening; etc.

Impacts: associated impacts: such as income gained form sale of manure, cuttings or fresh forages.

Impacts: 'livelihood' impacts, which can include, reduction of shifting cultivation, children able to go to school etc., more comforts in the home, etc. These may in fact be more compelling to interest new farmers than just describing the productivity impacts. An example of this was, the wife of one farmer who now was able to dress nicely and go to the market, when before she spent most of her times just weeding the rice field. It might sound trite, but it represents a terrific change in life and opportunity for that woman. Her life has a new dimension. Reduction in shifting cultivation or a shift out of poverty are also factors in reporting-up as these are issues administrators are concerned about.

Expressing information

Creating Images: When expressing various production factors (such as the area of a forage plant or the amount of feed provided) often need to be done numerically in order to show that the case is real and feasible.

But sometimes this can hinder the reader. We need to find a way to make the info more accessible. Some examples might be:

- One of the farmers in the Philippines used to sell 30, 000 bananas to market every 2 weeks. Sounds lot, but it is easier for the average reader to understand if we also say, *"this was a full jeepney (mini-truck) load"*.
- Or later, that he had increased his forage area to 2 ha, which was *now 1/3 of his total land.*
- Or another farmer in Vietnam whose income from selling cuttings as planting material has been *equivalent to the sale of a 2-year old calf.*

All these give the reader an 'image' that they can relate to.

Pictures

It is very important to use pictures to illustrate a case, whether it is for a PowerPoint presentation, a poster or even in a report.

Pictures for cases however should not be of just the animals or the forages, but of the farmers. We need to see the people that we are talking about. If possible these pictures should be of the farmer: with the animals; and/or with benefits that they have gained (e.g. new motorcycle).

Conducting the Interviews

At the core of the interviews, we are trying to discover (a) how does he raise livestock and gain impacts now (which he couldn't previously, without forages), and (b) what exactly was it that forages enabled him/her to do this. So the interview is a little like detective work. There are a couple of tools and processes that can assist.

Process of the interviews

Introduction: It's pretty normal to start with farmers giving a general description of the farm and how they currently raise livestock. Regard this as an introduction, and perhaps don't worry too much about detail straight away.

From there try to return to the past, before forages were used. Here you need find out how livestock were being raised, (how animal were managed, the feed resources in all seasons and the purpose of raising the livestock), and what the limiting factors were.

Introduction of forages. Why was the farmer interested to plant forages. What problem was he trying to solve. What expectation did the farmer have. And then what were the effects he noticed from their use. What encouraged him to continue and expand his use of forages. This may have taken a number of directions and steps. The specific points to track over a number of seasons are:

- of forages grown and whether they replaced other crops;
- the types and any inputs provided,
- any changes in the management of the livestock;
- the animals, which eventually might have led to impacts

produced; those

These tools allow you to probe as to why decisions were made, and to see the role of livestock and forages in a broader context; e.g. seeing that land previously devoted to sweet potatoes has been planted to forages, might lead to an explanation of the benefits the farmers felt he was gaining from forages, etc.

Annex 3. Guidelines for Dissemination History for each Site (Kecamatan)

Description

The 'dissemination history' will provide a broad picture of the introduction and expansion of forages. This will provide an overview of the expansion and the gross indicators, and the type of activities that extension staff carried out.

This will include four sets of information

(a) a table which lists the year, communities worked in, the number of farmers and the estimated area typically grown by farmers

(b) map of the area which shows the target communities, road links and where we can track how the work expanded from one area to another. (for instance, if one desa gained impacts and then was used for study trip for other communities to visit, or was a source of planting material etc)

(c) description year by year of the extension work plan. This would contain
- the plan or the year, nos. of desa/ farmers etc, what the expected out come what (eg want to introduce forages to 10 new desa, and assist farmers in old village know how to use forages for fattening, etc.)
- the activities carried out, (meetings, trainings, provision of planting materials etc.)
- the results that staff felt they gained that year

This data should be taken from their records. If these are incomplete, then they can estimate, but indicate that this is an estimate only. This will still be sufficient for us to gain a picture of the overall expansion.

(d) description of any external events, or policies that stimulate the plan (eg special funds for import substitution, dispersal of livestock, or big increase in prices for beef, etc.). Staff do not need to record this, but be ready to talk about. Sometimes this may simply be an impression they have rather than some officially recognised event. This is still valuable to understand what can assist the dissemination of forages.

As well as this broad data, staff should also try to recall

(a) any special difficulty or challenge that felt at a particular stage of the work and how this was resolved.
(b) Any special success that seemed to get good results and how this was gained
(c) Bring any pictures they have of their work with farmers

- One of the farmers in the Philippines used to sell 30, 000 bananas to market every 2 weeks. Sounds lot, but it is easier for the average reader to understand if we also say, *"this was a full jeepney (mini-truck) load"* .
- Or later, that he had increased his forage area to 2 ha, which was *now 1/3 of his total land.*
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Conducting the Interviews

At the core of the interviews, we are trying to discover (a) how does he raise livestock and gain impacts now (which he couldn't previously, without forages), and (b) what exactly was it that forages enabled him/her to do this. So the interview is a little like detective work. There are a couple of tools and processes that can assist.

Process of the interviews

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From there try to return to the past, before forages were used. Here you need find out how livestock were being raised, (how animal were managed, the feed resources in all seasons and the purpose of raising the livestock), and what the limiting factors were.

Introduction of forages. Why was the farmer interested to plant forages. What problem was he trying to solve. What expectation did the farmer have. And then what were the effects he noticed from their use. What was it that encouraged him to continue and expand his use of forages. This may have taken a number of directions and steps. The specific points to track over a number of seasons are:
(a) the area of forages grown and whether they replaced other crops;
(b) the selection of forge types and any inputs provided,
(b) the way forages were used and any changes in the management of the livestock;
(d) benefits to the farmer or effects on the animals, which eventually might have led to impacts

Two useful tools can be used are PRA and PD type tools

Time line. On one side have the animals that were being raised, off-spring produced; those sold off (or returned to pay back loans). On the other side, indicate the expansion of forages areas and the ways they were planted, as; plots, under story etc. Significant changes in areas of forages and the numbers of livestock either held or sold can be probed.

Farm Land-use map: This should indicate use of all the land, including activities other than livestock.

Field walks: forage plots and animals: This will indicate management practices, technical issues associated with forage production, and is a good time to ask details about feeding etc.

Table 1. Forage expansion/adoption histories

Location (*desa/kelompok*)	Year 1: _____		Year 2: _____				
	No. of Farmers	Ave. Forage Area (sq. m)	No. of Farmers Expanding	Ave. Forage Area (sq. m)	No. of Farmers not maintaining the forages	No. of New Farmers	Ave. Forage Area (sq. m)

Table 1. Forage expansion/adoption histories *(continued)*

Location *(desa/kelompok)*	Year 3: _____				
	No. of Farmers Expanding	Ave. Forage Area (sq. m)	No. of Farmers not maintaining the forages	No. of New Farmers	Ave. Forage Area (sq. m)

Table 1. Forage expansion/adoption histories *(continued)*

Location *(desa/kelompok)*	Year 4: _____				
	No. of Farmers Expanding	Ave. Forage Area (sq. m)	No. of Farmers not maintaining the forages	No. of New Farmers	Ave. Forage Area (sq. m)

Table 1. Forage expansion/adoption histories *(continued)*

Location *(desa/kelompok)*	Year 5: _____				
	No. of Farmers Expanding	Ave. Forage Area (sq. m)	No. of Farmers not maintaining the forages	No. of New Farmers	Ave. Forage Area (sq. m)

Table 2. Description of extension activities and results for old and new sites each year

Year 1: _____	Location *(Desa/Kelompok)*: _____

1. Extension Worker's Objectives:

a. Why did the extension worker decide to introduce forages to farmers in the site?

b. What were the farmers' problems that the extension worker wanted to solve by planting forages?

2. Extension activities carried out

a. What activities were carried out by the Extension Worker to attain the objectives (shown in 1.a.)?

3. Results of the activities:

a. What were the results of these activities?

b. Describe any special difficulty or challenge that you felt at this stage of the work. How did you resolve this?

c. Describe any special success that seemed to get good results. How was this gained?

4. BRING PICTURES OF THE ACTIVITIES/RESULTS OF YOUR ACTIVITIES IN THIS YEAR (Year 1).

FOR YEAR 2 in OLD LOCATION

Year 2: _____	**Old Location (from Year 1)** ***(Desa/Kelompok):*** _____
1. Extension Worker's Objectives: a. What were your objectives for working with the farmers in the site? OR Why did you decide to continue working on forages with the farmers in the site?	
2. Extension activities carried out a. What activities were carried out by the Extension Worker to attain the objectives (shown in 1.a.)?	
3. Results of the activities: a. What were the results of these activities? b. Describe any special difficulty or challenge that you felt at this stage of the work. How did you resolve this? c. Describe any special success that seemed to get good results. How was this gained?	
4. BRING PICTURES OF THE ACTIVITIES/RESULTS OF YOUR ACTIVITIES IN THIS YEAR (Year 2).	

FOR YEAR 2 in NEW LOCATION

Year 2: _____	**New Location** ***(Desa/Kelompok):*** _____
1. Extension Worker's Objectives: a. Why did the extension worker decide to introduce forages to farmers in the site? b. What were the farmers' problems that the extension worker wanted to solve by planting forages?	
2. Extension activities carried out a. What activities were carried out by the Extension Worker to attain the objectives (shown in 1.a.)?	
3. Results of the activities: a. What were the results of these activities? b. Describe any special difficulty or challenge that you felt at this stage of the work. How did you resolve this? c. Describe any special success that seemed to get good results. How was this gained?	
4. BRING PICTURES OF THE ACTIVITIES/RESULTS OF YOUR ACTIVITIES IN THIS YEAR (Year 2).	

FOR YEAR 3 in OLD LOCATION

Year 3: _____	**Old Location (from Year 1 and 2)** *(Desa/Kelompok):* _____
1. Extension Worker's Objectives: a. What were your objectives for working with the farmers in the site? OR Why did you decide to continue working on forages with the farmers in the site?	
2. Extension activities carried out a. What activities were carried out by the Extension Worker to attain the objectives (shown in 1.a.)?	
3. Results of the activities: a. What were the results of these activities? b. Describe any special difficulty or challenge that you felt at this stage of the work. How did you resolve this? c. Describe any special success that seemed to get good results. How was this gained?	
4. BRING PICTURES OF THE ACTIVITIES/RESULTS OF YOUR ACTIVITIES IN THIS YEAR (Year 3).	

FOR YEAR 3 in NEW LOCATION

Year 3: _____	**New Location** *(Desa/Kelompok):* _____
1. Extension Worker's Objectives: a. Why did the extension worker decide to introduce forages to farmers in the site? b. What were the farmers' problems that the extension worker wanted to solve by planting forages?	
2. Extension activities carried out a. What activities were carried out by the Extension Worker to attain the objectives (shown in 1.a.)?	
3. Results of the activities: a. What were the results of these activities? b. Describe any special difficulty or challenge that you felt at this stage of the work. How did you resolve this? c. Describe any special success that seemed to get good results. How was this gained?	
4. BRING PICTURES OF THE ACTIVITIES/RESULTS OF YOUR ACTIVITIES IN THIS YEAR (Year 3).	

FOR YEAR __ in OLD LOCATION (THIS IS TO BE FILLED FOR EACH OF THE SUCCEEDING YEAR)

Year __: _____	**Old Location (from Year 1,2, _____)** ***(Desa/Kelompok):*** _____
1. Extension Worker's Objectives: a. What were your objectives for working with the farmers in the site? OR Why did you decide to continue working on forages with the farmers in the site?	
2. Extension activities carried out a. What activities were carried out by the Extension Worker to attain the objectives (shown in 1.a.)?	
3. Results of the activities: a. What were the results of these activities? b. Describe any special difficulty or challenge that you felt at this stage of the work. How did you resolve this? c. Describe any special success that seemed to get good results. How was this gained?	
4. BRING PICTURES OF THE ACTIVITIES/RESULTS OF YOUR ACTIVITIES IN THIS YEAR (Year __).	

FOR YEAR _____ in NEW LOCATION (THIS IS TO BE FILLED FOR EACH OF THE SUCCEEDING YEAR

Year __: _____	**New Location** ***(Desa/Kelompok):*** _____
1. Extension Worker's Objectives: a. Why did the extension worker decide to introduce forages to farmers in the site? b. What were the farmers' problems that the extension worker wanted to solve by planting forages?	
2. Extension activities carried out a. What activities were carried out by the Extension Worker to attain the objectives (shown in 1.a.)?	
3. Results of the activities: a. What were the results of these activities? b. Describe any special difficulty or challenge that you felt at this stage of the work. How did you resolve this? c. Describe any special success that seemed to get good results. How was this gained?	
4. BRING PICTURES OF THE ACTIVITIES/RESULTS OF YOUR ACTIVITIES IN THIS YEAR (Year _____).	

Annex 4. Guidelines for Village/community case studies

Description

Village/community case study is a tool used to describe and analyse the dynamics of the dissemination and information exchange activities within the village/community.

This tool involves selection of two villages/communities where the field workers did the dissemination activities, as follows:

1) relatively active/successful village, and
2) not active/successful village.

This will enable a comparison of the villages that have extreme outcomes from the dissemination activities.

This tool will be applied through a focus group discussion involving farmers from the selected villages. Mapping and time lines/histories will be used to obtain the desired information and to guide the discussions. The following information will be focused in the village/community case studies:

- numerical data – number of farmers and areas planted by year (mapping)
- entry problem/point for starting the work in the village
- objectives of the dissemination activities for each year
- farmers' expectations
- dissemination/extension activities
- how forages are integrated in the farm with time
- effects/impacts/problems observed
- evolution of farmers' plans and activities with time

From the discussions, the main points to be obtained are as follows:

- external factors that affected the dissemination and benefits obtained from forages
- period/point in time when farmers adopted system changes
- other problems and plans desired by the farmers to further improve benefits derived

Procedure:

For the purpose of dissemination assessment in East Kalimantan, two sites will be selected (Sepaku and Samboja). To follow are some details conducting the village case studies:

1) Select two villages (*desa*) from each site : (a) relatively active/successful village and (b) not so active/successful village
2) Select a focus group from each *desa* consisting of 10 farmers that were involved in the forage technology development activities.
3) Conduct focus group discussion with each focus group. One group will be done in the morning and the other in the afternoon.
4) After all the focus group discussion, the facilitating field workers prepare a report to share to the other participants in the workshop.

An example of the workshop results is shown in Table 1 (below).

Table 1. Village case study results for a site in Tuyen Quang, Vietnam.

External effects :	External effects :	External effects :	External effects :	External effects :

2000	2001	2002	2003	2004
Numerical data No Fmrs – 1 Area – few sq m	**Numerical data** No fmrs 20 Area: 50 – 360 m Livestock – 45 cattle/buffalo	**Numerical data** No fmrs +25 = 45 Area 360 - 800 m	**Numerical data** No fmrs 45 Area	**Numerical data** No fmrs 45 Area: Livestock: 67 cattle/buffalo
Fmrs' Expectations Mr. Thong was the single fmr in the village who fattened. Had difficulty to find enough grazing feed. Took 5 mth to fatten. Wanted to find feed resources.	**Fmrs' Expectations** Mt Ich (buffalo as draft) assessed difficulties which he wanted to resolve: - difficult to find feed (10 k) - slow to re-grow → required labor to provide → not sufficient → thin	**Fmrs' Expectations** - better, fatter animals. - raise more animals - Will save time - Maybe can fatten	**Fmrs' Expectations** Want to raise livestock.	**Fmrs' Expectations** Beginning to consider how to maximize livestock at expense of other activities.
Extension Activities	**Extension Activities** Mr. Ich heard from friend (Ha Mien) and immediately went to see, Tried small area for 2 mth (guinea, pas). Raised interest amongst 18 HHs, requested support from Mrs. Yen Study Trip (15 HHs) to Duc Ninh, Tu Quan. Observed can be a feed, save time, some effect (milk) Training + leaflets provided. Seed provided; (guinea, pas., sorghum, flmaingia, Leucaena)	**Extension Activities** Forages and livestock become issue of discussion in regular village meetings Normal follow-up to individual fmrs Provide more planting material Hamlet mtg: livestock and forages begins to be discussed.	**Extension Activities** Follow-up for forages relegated to normal activities.	**Extension Activities** → see previous

2000	2001	2002	2003	2004
	Follow-up to each fmr			
Fmrs' Use of forages Integration of forages:	**Fmrs' Use of forages** Integration of forages: Planted into 'gardens' along streams Cut+carry for stall feeding to cattle. So easy to see effect.	**Fmrs' Use of forages** Integration of forages: → as before Expand guinea, elephant, 360-800m (other species discarded) Replace s. potatoes, peanut and soy bean.	**Fmrs' Use of forages** Integration of forages: Water and urea applied. Would appear from field walk that forages have replaced paddy rice in lower yielding paddy.	**Fmrs' Use of forages** Integration of forages: → see previous
Effects/ Impacts observed	**Effects/ Impacts observed** - Animals better condition, - no. of animals increase due to additional feed. - reduce time for grazing by children Reduce fattening time from: 5 mth (grazing+conc.) to 2-3 mth (forages+maize/cass.)	**Effects/ Impacts observed** Clear benefits obtained	**Effects/ Impacts observed** 4 fmrs buying and fattening cattle.	**Effects/ Impacts observed**

Trip report to Savannakhet, Lao PDR 15-25 May 2005

Phonepaseuth Phengsavanh

Objectives

Meet with provincial and district staff to discuss about the workplan and conduct on-farm works.

Traveling people

Phonepaseuth Phengsavanh	LLSP Sub-regional coordinator
Bounthavone Kounavongsa	LLSP National coordinator.
Somsy Phimmasane	Driver from Livestock Research Center

People met

Mr. Bounthien	Head of Provincial Livestock and Fishery Office
Mr Khamchanh Sidavong	Deputy head of Provincial Livestock and Fishery Office
Mr. Bounmy Pheowankham	Head of Livestock production unit
Kamphai	Head of District Livestock and Fisheries Unit (Outhumphone district)
Phoulien Sihavong	District extension worker

Itinerary

15 May 05	Travel from Vientiane to Savannakhet
16 May 05	Meet with provincial and district staff to discuss about the project activities for 2005
17 May 05	Meet with farmer group in Nong A Hong villages
18 May 05	Meet with farmer group in Xayyamongkhoun villages
19 May 05	Meet with farmer group in Nonvilay villages
20 May 05	Meet with farmer group in Phintay villages
21-24 May 05	Planting forages with new farmers in all four villages
25 May 05	Leave for Vientiane

Summary

The trip was organized to meet with local authorities and project staff to discuss the action plan for May-July 2005. Activities will focus more on assisting new farmers to plant forages and follow up with few visits to provide technical assistances in planting and early management. To support local staff with technical knowledge, the training course on forage management and animal nutrition has been planned to organize in July.

The meetings with Farmer focus groups have been done in four villages to plan for planting forages this year. There will be 40 farmers working with project this year, and following the plan that has been made from last meeting, almost all of these farmers have prepared the

fence and the land for planting forages. According to plan made in the meeting, the planting forages will be finished at the end of May.

Developing workplan and action plan for 2005 with provincial team

The team reviewed all activities that have been planed for 2005. As reported previously, in 2004 the LLSP- Lao team worked with 12 farmers in three villages. These farmers have been as a representative of farmer interest group to try 4 forage varieties of Andropogon gayanus "Gamba", Brachiaria hybrid "Mulato", Panicum maximum "Simuang" and Stylosanthes guianensis "CIAT 184". At the middle of dry season many farmers preferred Mulato as the best variety, but right now in the beginning of the rainy season where there have been two to four rains, most farmers prefer Gamba grass because of the fast regrowth from this year long and harsh dry season. Apart from forage technology development, the capacity building was the main activity for 2004 as well, where district staff has been trained on both technology development with farmers and the forage agronomy.

In 2005, the project activities will focus on:

(1) Strengthening the forage development activities with farmer focus group in existing villages. The aim of this activities in to expand the outcomes and also farmer experiences to other farmers in the village.
(2) Continuing to build up capacity in forage management and animal nutrition for local staff. The local staff will need to learn more on how to manage forages in order to maximize the forage utilization in order to be able to assist farmers who will be ready to expand the forage areas and use forage as the main feed for their animals. Therefore, project will need to provide all required technical capacities to local staff.

In order to fulfill these objectives, action plan for each three month has been developed. In this trip, the team has worked together to modify the last action plan and developed action plan for May-July, where the activities are focused on assisting new farmers to plant forages and follow up with these activities. The training course on forage management and basic animal nutrition has been agreed and planned to conduct in July.

Meeting with farmer focus groups to prepare for planting forages in 2005

The team has been to all four target villages to meet with farmer focus group. In the meeting, the LLSP team has reviewed the outcomes from the last farmer focus group meetings which were organized in February this year, then started to discuss about the plan for this year, which are about the preparation for forage planting such as fence and land preparation and setting up the date for forage planting in order to help staff to plan and come to provide some technical assistances.

There will be about 40 farmers (12 from last year) to worked with project this year. All of these farmers are willing to plant four main varieties of Stylo 184, Mulato, Gamba and Simuang. According to increasing in number of farmers, the staff cannot visit and help individual farmer, so staff has changed the way of helping farmers to plant forage from individual to group of farmers. In the day of planting, staff organized the demonstration on planting forages for group of farmers (new farmers) in one farmer's filed, then distribute the seeds and make a plan with farmers for the next visit.

Trip report to Cambodia, 30 May – 10 June 2005

Phonepaseuth Phengsavanh

Objectives

- To conduct a training course on forage management and utilization for provincial and district staff.
- Visit the project sites (including old and new project villages) to provide needed technical information.

People met

Mr. Khan Phor	Director General, DAHP, MAFF
Dr. Sorn San	LLSP National coordinator, DAHP
Mr. So Phal	Site manager, Kampongcham province.
Mr. Chim Si Mach	Technician, AHPO, Kampongcham province.

Itinerary

30 May	Vientiane – Phnompenh
31 May-2 Jun	Work with Som San in Phnom Penh on planning and getting approval from DAHP for training course
3 June	Travel to Kampongcham and meeting with provincial team
4-6 June	Training course
7-8 June	Field trip to sites
9 June	Field trip and return to Phnom Penh
10 June	Phnom Penh-Vientiane

Summary

Training course was organized for two days in Kampongcham province. There were 18 participants; most of them came from districts where LLSP has been working. The training content included: The history of forage technology development in SE Asia and Cambodia, History of forage technology research and development in South East Asia and in Cambodia, What are forages and the roles of forages in smallholder farming systems, How to select these best varieties based on climate, soil and uses, Description of promising varieties in Cambodia, Forage Establishment, Forage Management and Utilization, Basic ruminant nutrition.

A meeting with provincial staff was organized to review the implementation of project especially on preparation for working with farmers in the rainy season of 2005, after that the team has discussed about plan for the next 3 months of July-September, the activities in which are (1) follow up of forage plantation with farmers, forage evaluation, developing case studies of champion farmers and other.

The field visits were organized for three days in all LLSP sites in two districts in Kampongcham province. The team visited Trapieng Raing (Prey Chhor), Kbal Damray, Kong Karng 1 and 2 and Taheav Krom (Pongnea Krek). Many farmers that have been planting

forages since last year have expanded their forage plots by cuttings, especially two varieties of Guinea and Mulato. There will be about 100 new farmers will join with project, which many of these farmers have already prepared their land for planting forages in this middle of June.

Outcomes of the trip

Training course

The training was conducted for 2 and half days. A total of 18 participants were attended. The participants include 4 staffs from provincial animal health and production office, 4 district staffs and 4 village animal health workers (Ponge Krek and Cheung Prey districts), and 6 from Mohareuxay Vet University (Prey Veng Province).

The following topics were discussed in the training:

a) History of forage technology research and development in South East Asia and in Cambodia
b) What are forages and the roles of forages in smallholder farming systems
c) How to select these best varieties based on climate, soil and uses.
d) Description of promising varieties in Cambodia
e) Forage Establishment
f) Forage Management and Utilization
g) Basic ruminant nutrition

The course was emphasized more on forage management and utilization, as most of the participants are from the districts where LLSP is implemented and farmers are now moving from testing varieties to using them for feeding animals. Another important thing is that almost all participants have been trained in animal health, so they need to learn more on animal nutrition and production.

Meeting on planning with site collaborators

The meeting was held in Provincial Agriculture and Forestry Office to discuss about:

(1) *Developing case studies of champion farmers in forage technology development.*
The case study development has been discussed in order to capture the information and impact of champion farmers in each village, which can be used for further dissemination of forage technologies in the larger scale.
The provincial and district staff will need to make list of champion farmers and start to collect information of the ways farmers develop forage technologies and what are benefits that they start to get.

(2) *Basic information of forage development for project.*
The basic information about number of farmers joining with project, what species are they grown and how big the areas will be collected by provincial and district staff in June-August, then will be sent to project for summary of forage technology development with farmers in Cambodia and also for project completion report.

(3) *Development of an action plan for the three-month period for July-Sept.*
At the end of the meeting the team has discussed about the plan for implementing project activities from July to September. The details are as the followings:

Action-plan for July – September 2005

Activities	July				August				September			
	1	2	3	4	1	2	3	4	1	2	3	4
• Follow up on forage planting, first cutting and management		X	X					X				X
• Forage evaluation with farmers								X				
• Developing first draft of case studies										X		
• Collect basic information for project	X	X	X	X	X	X	X	X				
• Organise the meeting with farmers on forages for convenience use										X		
• Meeting with group of farmers on preparation of forage management in dry season.												X

Field visit to existing LLSP sites in Kampong Cham

Field visits were organized for three days in all LLSP sites in two districts in Kampongcham province. The team visited Trapieng Raing (Prey Chhor), Kbal Damray, Kong Karng 1 and 2 and Taheav Krom (Pongnea Krek).

Many farmers from last year have expanded their forage plots by cuttings. Most of them prefer Guinea and Mulato and expand these two varieties more than other. There will be about 100 new farmers will join with project. Many of these farmers have already prepared their land and will plant forages in this middle of June. Some of them have taken cuttings from their neighbors and already planted in their land.

Report of a trip to China-LLSP Sites, 12-23 June 2005

Francisco Gabunada

People Visited

1. Tang Jun – LLSP country coordinator – China
2. Liu Guodao – director, Tropical Crops Genetic Resource Institute, CATAS
3. Yi Kexian – director, Sub-tropical crops Institute, CATAS
4. He Hua Xuan, Xia Wan Liang and staff of Tropical Pastures Research Center, CATAS

Objectives:

1. Review with partners the status of activities in the sites
2. Conduct impact assessment of collaborator capacity on FPR and forages
3. Pre-test and finalize basic data collection survey form

Itinerary

12 June 05	Arrive Hainan
13 June 05	Meetings with CATAS collaborators to discuss and plan activities
14 June 05	Impact assessment on collaborator capacity in FPR and forages
15 June 05	Visit Sifanmuchang Village, Dongfang County
16 June 05	Visit Jiaba Village, Ledong County
17 June 05	Visit CATAS experiment in Linxhui (stylo under mango)
18 June 05	Return to CATAS
20 June 05	Visit Wentou Village, Baisha county
21 June 05	Visit Wenchang Village, Chengmai County
22 June 05	Final meeting with collaborators
23 June 05	Departure of Papang from Hainan

Activities

1. Meetings with CATAS collaborators to discuss and plan activities

The accomplishments of LLSP in China for the first half of 2005 were discussed. The results of the activities were reviewed and plans were laid out for the upcoming activities.

The farmer experiment on rabbits were discussed and analyzed by the staff with the farmers who did the experiment. The results of the experiment showed that there were only small improvements in the treatments over the control. Accordingly, the main limitation of the treatments was the amount of feed eaten and the variety of the diet. For the control, feed offered was higher and more varied. The only significant difference in terms of economics was amount of labor used : gathering native vegetation took 1 hour daily, while planted forages took only 20 minutes to gather.

Most of the activities done in the first half of the year was on farmer trainings, encouraging more farmers to plant and starting the distribution of planting materials. More farmers signified interest to plant forages and were just waiting for the rains to come since the wet season has not started in June as expected.

An informal training was conducted in May for 20 farmers on forage agronomy. This training consisted of gathering the farmers and getting the experienced farmers to share their experience on forage and rabbit production.

A formal training on the use of forages for rabbit was conducted in Baisha county in May. This was attended by 60 farmers from Baisha county: the training was conducted using a CD on rabbit production followed up with discussions.

Farmer visits in existing and potential sites were also conducted. Thirty new farmers are interested to plant forages from Fulong town in Baisha County.

Seed distribution has also been started in the counties of Chengmai (5 farmers), Dongfang (20 farmers) and Ledong (20 farmers). The farmers in Chengmai intend to use the forages for goats; those from other counties will use forages for seed production.

The impact assessment activity was explained to the collaborators. basic data collection survey and impact assessment were planned for China LLSP sites. The capacity building impact assessment was scheduled for 14 June. This was intended to involve collaborators from TPRC. These collaborators were able to take part in trainings and some field activities of the FSP/LLSP.

Likewise, schedule of visits to the sites for the basic data collection was also finalized.

2. Impact assessment on capacity building of CATAS collaborators

A workshop was conducted to assess the impact of FSP/LLSP on the capacity of CATAS collaborators in FPR and forages. It was attended by 10 staff of CATAS who have joined FSP/LLSP activities or trainings.

A major finding was that CATAS staff felt the project helped them realize the value of getting farmers' feedback and knowing the farmer circumstances before deciding on a technology introduction activity. The project also provided the staff the chance to work with smallholder farmers; unlike the usually resource-endowed, commercial farmers they normally work with.

3. Pre-testing of basic data collection survey questionnaire

The basic data collection survey questionnaire was pre-tested in Dongfang, Ledong and Baisha sites. The activity provided the opportunity for the team to pre-test the form as well as get an idea on other issues that need to be included in the questionnaire. A distinct issue that needs to be included in the survey for China was that on seed production. This issue is not common to those in other collaborating countries. As such the survey form was modified to include seed production.

4. Learnings from the site visit and implications to workplan

a. Forage Seed Production. The site visit revealed some learnings that might be useful for activities in China sites. The sites in China are quite unique in terms of activities. For instance, forage seed production is the main activity with farmers in Dongfang and Ledong counties. Farmers in the area are producing seeds of forages like *Stylosanthes guianensis, Stylosanthes scabra* and *Macroptilium* for the legumes as well as *Melinis minutiflora* for the grasses.

The seed production system in the area involves a private individual who serve as contact person of CATAS. This individual is the one who contacts the farmers. Often, this individual provides the contact farmers with technical assistance and inputs to get the farmers into seed

production. He feeds back to CATAS technical problems and solutions are provided by CATAS. The process is facilitated by regular visit of CATAS staff to the site.

CATAS sets a quota on the amount of seeds to be produced by each contact person. This person then contacts farmers and allocates the seeds (from CATAS) and inputs to them. Upon harvesting, the contact person buys the seeds from the farmers. The cost of the inputs is deducted from the payment. The contact person then sells the seeds to CATAS. The contact person buys the seed from the farmers at a price slightly lower than the CATAS buying price. As such, the contact person obtains income from the activity. On the other hand, CATAS does not need to pay the contact person. The main inputs of CATAS will be in the form of technical assistance, constant communication and provision of seeds and other necessary inputs.

This system has been working for a considerable amount of time. The situation represents a step to one of the aims of the LLSP, which is to encourage extension of technologies and support for innovation by private individuals. It would be worthwhile to look more closely and learn from the system.

Last year, seed production was low because of the early onset of the dry season. In some cases, the seed production was reduced by 50%. The farmers stated that as early as September, the rains have already stopped. This caused slow regrowth from the clearing cut, thus affecting seed production.

In this connection, the possibility of doing an experiment on the effect of irrigation (both in terms of seed yield and economics) with farmers in the area was identified. This will be done this year if the dry season occurs early.

Another experiment identified was on fertilizer rates. It was observed that one of the biggest benefits obtained by farmers was from the fact that forages could produce seeds even in very low fertility soils. Farmers are currently applying minimal amount of fertilizer for their forage seed crop. It would be important to know whether, the fertilizer rates currently used are already optimum in terms of yield and profit. The results of the fertilizer experiments with farmers would provide very important information on how to improve seed yields and profit for the farmers.

b. Goat Production in Chengmai County. Farmers in the site at Chengmai (Wenchang Village) are still starting to establish forages in their farms. Establishment is expected to be done more intensively as the rainy season progresses. At the time of the visit, farmers were still busy with land preparation and planting of their main food crops since the rains have just started.

Goat and pig production is a very common activity in the village. Goats are commonly grazed by herding while pigs are commonly confined and fed mainly with sweet potato vines and leaves. It is hoped that forage options for feeding goats and pigs be developed in this site. Meanwhile, more effort has to be devoted to encourage farmers to establish and integrate forages in their farms.

Travel report to Indonesia, 1 – 14 June 2005

Werner Stür

Objectives

1. Monitoring project progress at project sites in South, Central and East Kalimantan and South Sumatera in Indonesia.
2. Initiate an adoption study in Central Kalimantan.
3. Present project outcomes to Government Officials in East Kalimantan to solicit increased local support for continuation of activities in 2006.
4. Meet with Peter Horne (CIAT-FLSP) to prepare presentation for invited paper on participatory approaches to forage technology development in the tropics to be presented at the International Grassland Congress, Dublin; and participate in a CIAT-Asia strategy meeting in Bangkok.

Itinerary

1 Jun	10:15-16:10	SQ 256 BNE – SIN
	18:45-19:20	SQ166 SIN-JKT
2 Jun	05:30	Meet Ibu Muznah and Ibu Maimunah at airport gate
	06:40-09:25	GA 520 JKT-BJM (Banjarmasin, South Kalimantan)
		Field visit in South Kalimantan and discussion
3-5 Jun		Field visit in Central Kalimantan and discussion
6 Jun	12:35-13:20	Batavia Air 261 BJM-BPN (Balikpapan, East Kalimantan)
		Commence field visit in East Kalimantan
7 - 9 Jun		Field visit in East Kalimantan and presentation of LLSP results to Provincial Government officials to solicit support for 2006
10 Jun	10:05-11:00	GA 513 BPN-JKT (Jakarta)
	12:00	Meet Pak Djodi outside departure gate to Palembang
	13:50-14:50	GA 114 JKT-PLM (Palembang)
		Commence field visit in South Sumatra
11 Jun		Field visit in South Sumatra
12 Jun	8:30-9:30	GA 113 PLM-JKT with Garuda
		Discussion with Mrs. Maimunah Tuhulele to discuss progress with Adoption Study in Central Kalimantan
13 Jun	9:00-11:30	Meeting with the new DG of DGLS, Ir. Mathur Riady
	14:25-17:00	SQ159 Jakarta – Singapore
	18:30-19:55	SQ 68 Singapore – Bangkok
		Asia Hotel Bangkok
14-15Jun		Prepare IGC Presentation with Peter Horne
16 Jun		CIAT-Asia Planning Meeting
17 Jun	12:40-19:00	Depart Bangkok

Field visit in South Kalimantan

Mrs. Muznah, Mrs. Maimunah Tuhulele and I visited Tanah Laut, Kecamatan Pelaihari, Kabupaten South Kalimantan, where the project has started to disseminate forage technologies to new farmers. The key contact is Ir Yusof Talin. The selected area has good potential for cattle development with large areas of upland, a high cattle population and farmers are showing great interest in growing forages. As cattle are grazed in vacant

cropping areas, forage plots need to be fenced to prevent accidental grazing by cattle of other farmers. This is likely to be the main hurdle for forage development in this area. To date forage plots are relatively small (a few hundred square meters each) because of the need for fencing. Several farmers we visited are planning to expand their forage areas into the more marginal cropping areas and it will be interesting to see how they will manage the fencing issue. One solution would be to restrict free grazing through local regulations but this has not yet been canvassed widely.

The tendency of the staff is to want to continue to disseminate forages to more farmers and I recommended concentrating activities in one area first to help farmers develop larger forage areas which will improve productivity of cattle before further dissemination.

Field visit in Central Kalimantan

The main purpose of visiting Central Kalimantan was to develop plans for assessing adoption of forage technologies in this province. This will be conducted by a local consultant, Mrs. Maimunah Tuhulele, following the visit and a second period in August 2005. We visited the original forage introduction area, Kecamantan Maliku, Kabupaten Kapuas, and the dissemination area of the LLSP, Kecamatan Besarang, Kabupaten Pulang Pisau. We also met with staff of the Livestock Service of these two Kabupaten to discuss forage development and develop plans for Mrs. Maimunah to conduct the adoption study together with staff of the Livestock Services.

The main forage species grown by farmers in Central Kalimantan is *Brachiaria humidicola* which has now spread to more than 1,000 farmers in this province. The main process was through farmer-to-farmer extension with minimal involvement of the Livestock Services. Since the start of the LLSP, the Livestock Services have become much more aware of the benefits and potential of forages and are now actively disseminating forages to new areas. In Kecamatan Besarang, the LLSP introduced a wider range of forage species in an attempt to broaden the varieties grown. While many are growing well, *Brachiaria humidicola* cv. Tully is outstanding in its ability to grow fast and suppress weeds. This is the main criteria for farmers to choose this variety first although other species are of higher quality and more productive. Mrs. Maimunah Tuhulele stayed in Central Kalimantan for the beginning of the adoption study. Mrs. Muznah returned to Jakarta and I continued to Balikpapan, East Kalimantan. The details of the adoption study will be available in October 2005.

Field visit in East Kalimantan

I visited several field sites in Kabupaten Penajam Paser Utara (Desa Giri Mukti and Desa Sola Loang, Kec. Penajam, Desa Gunung Intan, Kec. Babulu and Desa Rangan Barat II, Kec. Pasir, and Kec Sepaku) with Ir. Yacob Pangedongan and Ir. Ibrahim. There has been good progress in expanding forages to new areas in PPU. Farmers at new sites tend to expand to much larger areas as soon as they can grow enough planting material; this is very different from the original sites where farmers started in very small plots and then expanded slowly to larger and larger areas over a number of years. The main difference is that new farmers can see what is possible with large forages areas during cross visits and this translates into quicker expansion. The promotion of Ir. Ibrahim to Head of Agriculture in PPU has resulted in extensive dissemination of improved feeding systems for cattle and goats in this district. This expansion will continue beyond the end of the project.

Ir Yacob and I then continued to visit field sites in Sambodia, Kabupaten Kutai Kartanegara.

Desa Karya Jaya, Kec. Sambodja, Kab. Kutai Kartanegara

This is a new expansion site. We met with the PPL, Mr. Rachman and visited several farmers in Karya Jaya. One of the farmers we visited was Mr. Paiman, Kelompok Bangkit Jaya, who grows *Paspalum atratum* and *Setaria sphacelata* 'Splendida' on wide bunds and irrigation channels in paddy area and *Brachiaria humidicola* 'Yanero' on slopes of upland areas. He applies manure to his forages and sells fresh forage and planting material to other farmers; prices are Rupiah 10,000 per bag (he said 60kg but other farmers often mentioned 30-40kg per bag) for fresh feed and Rupiah 15,000 for planting material. The areas were previously planted with cassava but yield was low. He previously raised 3-4 cattle, now manages 6-8 cattle (just sold 2 animals so has 6 cattle). Main purpose is production of calves which he raises for up to 2 years before selling. He previously spent 4 hours per day for cut & carry of feed, now it's less than 1 hour. He first heard about forages from the PPL, then cross visit to Tangjung Haropan to see and collect planting material. His forages grew very well and were well managed.

We also visited Mr. Wahudin and Mr. Mudakir (father and son), Kelompok Rukun Berkah, Desa Karya Jaya who were busy propagating forages when we visited. They grow the same species but all in upland areas and obtained planting material from Mr. Paiman (with facilitation from the PPL) approx. 6 months ago. They had already established quite a large area (>0.5 ha) already for their 3 cattle and reported that cattle were much fatter than before and it took a lot less time to feed. "It's easy now to raise cattle". The areas was previously planted with cassava or left without crops. Small areas are cultivated with vegetables. Forages grew very well.

Desa Tanjung Haropan, Kec. Samboja, Kab. Kutai Kartanegara
This is the early adoption site in Samboja where farmers grow forages (mainly *Brachiaria humicicola* 'Yanero') under coconut for cut & carry for their cattle. Adoption of 'Yanero' has continued at this site and forage areas can be seen almost everywhere. We met with the PPL, Mr. Mahmud who showed us several forage areas including new species. *Brachiaria* hybrid 'Mulato' was growing well, also *Paspalum atratum* and *Gliricidia sepium* 'Retalhuleu'.

We visited Mr. Satram, who has large areas of 'Yanero'. He sells 5 bags (approx. 30kg) of 'Yanero' daily to another farmers who has not enough himself for Rupiah 5,000/bag. There are several other farmers who also sell forages: Sobari, Umar and Durhamid. Mr Satram applies manure and fertiliser to his forages (2 ha): 50 kg urea, 50kg TSP and manure every 3 months for the 2 ha. He himself now has 12 cattle which he sends for unsupervised grazing – they return for cut feed 3 times/day. He puts feed just inside the fence of his area and the cattle come and feed through the fence.

Another Kelompok (the original site of the LLSP in this area) has sold planting material to 84 customers since 2002 including 600 bags to Dinas Peternakan (or Peternakan) in Kota Bontang (2 hours north of Samarinda) and 200 bags Dinas from Kec. Melak, Kab. Kutai Barat. Bags cost Rupiah 10,000 and are about 30-40 kg each.

At the end of the visit in East Kalimantan I presented a summary of the success of the LLSP to a meeting of Livestock Services Officers from many districts in East Kalimantan at the provincial livestock office. This meeting was organised by the Head of the provincial Livestock Office to give the project an opportunity to promote its result to all Livestock offices in the province. The presentation was well received and the discussion showed that most District Heads of Livestock Offices were well aware of the activities of the LLSP and keen to integrate the results into their plans for 2006.

It was clearly evident from the field visit that farmers in new areas, who have seen forage adoption in successful sites (often through cross visits), often establish quite large areas of

forages (>0.5 ha) within the first few months; they do not go through the phase of evaluating forages in small areas first for 1-2 years. Also, management seems to be very good and 'better' than in earlier sites.

Field visit in South Sumatera

The final part of my Indonesia visit was a field visit to the dissemination site in South Sumatra. I undertook this visit together with Ir. Djodi Suparta, the DGLS Liaison Officer of the LLSP. Djodi selected this dissemination site in 2003 and there has been excellent progress. We first met with the Head of Livestock Services of South Sumatera, Ir. Hasjal Fauzi to discuss the progress of the project. He was very happy to have the project in South Sumatra and felt that forages have good potential in this province.

Together with the extension officer responsible for implementation of the LLSP, Ir. Zulkifli, we visited and met with three farmer groups involved in the project: Kelompok Harapan Maju, Kelompok Sumber Rejeki and Karya Tani in Desa Putak, Kecamatan Gelumbang. Farmers are growing fruit trees, oil palms, rubber, peanuts, corn, vegetables and other food crops on generally 1 ha of their own land. They were part of resettlement programs and, in 2003 and 2004, participated in cattle dispersal programs. Now most households have 3-6 cattle and grow forages to feed these cattle. The number of cattle is expanding rapidly and farmers are integrating forages with other crops on their land. All cattle looked in excellent condition. All farmers kept their cattle in a communal area where they erected cattle pens adjacent to each other but managed individually. All looking were clean and well managed. Farmers tended to select *Panicum maximum*, Mulato, *Paspalum guenoarum*, Stylo 184 and *Aeschynomene hystrix* as main feeds. They are also establishing Indigofera, Gliricidia and Leucaena tree legumes. Soil fertility is relatively high and farmers are used to apply manure and fertiliser to their crops so management of forages is very simple for them. All species grow extremely well and produce high yields. No fencing is required for establishing forages as there is no free grazing of livestock in the district. This makes establishment easy and cheap, and enables farmers to plant difficult to establish forages such as tree legumes.

There is no doubt that a thriving livestock industry, based on improved feeding systems, will be successful in this area. Farmers reported increased income, reduced labour and increased availability of manure as major benefits of growing forages. Ir. Zulkifli has done an excellent job in disseminating forage technologies in this area. I recommended to continue working with the existing farmer groups to help them further develop their feeding system and then use this area as an example for other districts. We also discussed options for investigating marketing constraints and opportunities as there is a great production potential in this area. Marketing may quickly become a constraint and new channels may need to be developed to access the Palembang meat market.

Meeting with Director General of DGLS, Jakarta

On the last day of my visit, Ir Djodi and I met with the newly appointed Director General of the Directorate General of Livestock Service of Indonesia in Jakarta. He was well aware of the LLSP and keen to expand forages and feed technologies developed by the LLSP to other provinces in Indonesia. Following the successful example of expanding to 3 new provinces in 2003, DGLS is now planning to expand to more provinces in 2006. Ir Mathur requested CIAT to support the Indonesian Government in this effort.

International Grassland Congress, Dublin, Ireland, 27 June – 1 July 2005

Werner Stür and Phonepaseuth Phengsavanh

Objectives

1. Participate in the 2005 International Grassland Congress to be held in Dublin, Ireland, to interact with livestock and forages researchers from around the world; building linkages and update knowledge on recent advances
2. Present an invited plenary paper entitled "Participatory research for smallholder livestock systems – applying common sense to complex problems".

Summary

The International Grassland Congress (IGC) is held every 4 years and brings together scientists from around the world to discuss progress with research and innovations in forage and grassland systems. Dr. Peter Horne and Werner Stür were invited to present a plenary paper on our experiences and advances with farmer participatory research as developed by the Forages for Smallholders, FLSP and LLSP projects. Werner Stür combined the attendance of the congress with personal leave travel and only registration fee, accommodation and meals were charged to the LLSP. The participation of Mr. Phonepaseuth Phengsavanh was seen as professional development and financed by CIAT.

The plenary paper was well received by the audience. Points highlighted in the paper included:

1. 'Research' – as a distinct activity separate from the everyday life of farming – is a relatively new phenomenon. Trying new ideas has been at the core of agricultural activities since humans first started farming.
2. Participatory approaches to research (PAR) lessen this distance by bringing researchers closer to farmers, the intended users of research outputs.
3. Active, functional participation of farmers in the evaluation and development of new technologies requires researchers to make an important commitment: respecting the knowledge, skills and opinions of farmers while maintaining confidence in their own scientific knowledge.
4. Farmer experimentation is not usually suitable to provide quantitative biophysical data (this can be achieved more effectively in researcher controlled experiments) but to provide qualitative information and improve understanding. This type of information can be collected systematically to enable rigorous analysis.
5. While participatory approaches are likely to lose some of their current 'favoured status', the principles of farmer participation will remain an essential component of agricultural research.

It was evident from the discussion that scientists accept that participatory approaches to research, particularly at the research – development interface has gained general acceptance and is likely to stay for the long term. There were many examples of successful participatory research which were presented as posters during the session. The paper has been published in a book: Grassland: a global resource (ed. D.A. McGilloway), 20th International Grassland Congress, Ireland and the UK. Wageningen Academic Publishers.