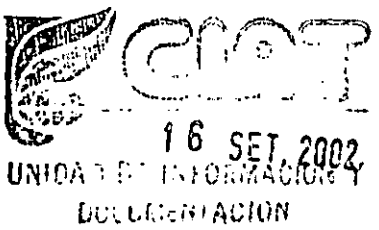
FORAGES FOR SMALLHOLDERS PROJECT (FSP)



REVIEW REPORT

VIENTIANE
April, 1998

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ATTACHMENTS

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List of abbreviations used:

AusAID	Australian Agency for International Development
BPTP	Assessment Institute for Agricultural Technologies
CAF	College of Agriculture and Forestry (Ho Chi Minh,Vietnam)
CATAS	Chinese Academy of Tropical Agricultural Science (Hainan, China)
CIAT	Center Internacional de Agricultura Tropical (CGIAR Centre)
CONCERN	Non-denominational NGO from Ireland
CONSORTIUM	Group of 3 NGOs working on refugee re-integration in Lao
CSIRO	CSIRO Tropical Agriculture (Australia)
DGLS	Directorate General of Livestock Development (Indonesia)
DLF	Department of Livestock and Fisheries (Lao PDR)
FPR	Farmer Participatory Research
FSP	Forages for Smallholders Project
LDD	Livestock Development Division
MARDI	Malaysian Agricultural Research and Development Institute
MRDP	Vietnam-Sweden Mountain Region Development Program
NIAH	National Institute of Animal Husbandry (Vietnam)
PCARRD	Philippines Council for Agriculture, Forestry and Natural Resources Research and Development, Department of Science and Technology
PD	Participatory Diagnosis
PTD	Participatory Technology Development
SEAFRAD	South East Asia Feed Resources Research and Development network
UPLB	University of the Philippines at Los Baños
ViSCA	Visayas State College of Agriculture
ZOA	Dutch Christian Aid Agency

SUMMARY

INTRODUCTION

An external review was conducted of the Forages for Smallholders Project (FSP) between March 19 and April 9 by Ron Staples (Economist) and Walter Roder (Agronomist). The project is implemented by CIAT in cooperation with CSIRO following the Project Implementation Document (PID) in accordance with AusAID guidelines. It has two centers one at IRRI, Los Banos, (Philippines) and the other in Vientiane (Laos) staffed with effective expatriate research scientists, with highly motivated and professional national coordinators in each participating country.

The review team visited 10 project sites in Philippines, Indonesia, Vietnam and Laos and attended the project's Regional meeting in Samarinda, East Kalimantan. This enabled the review team to meet also the coordinators from Malaysia, Thailand and China who only participate in the network component of the FSP. Site visits and discussions with government authorities, project staff, staff from related projects and farmers provided the review team with the opportunity to appraise the site specific conditions and problems and to experience the achievements and opportunities of the project.

ACHIEVEMENTS

The project is ahead of schedule in achieving the targets set in the Project Implementation Document (PID).

At the time of the review, seven forage production sites and 35 regional forage evaluation sites had been established. These activities resulted in the selection of 16 broadly adapted species which are presently being evaluated by cooperating farmers in 18 target areas (Attachment A). The contribution of the FSP towards germplasm availability was given high ranking when rating the importance of services provided.

The project makes a significant contribution towards regional information flow in forage R and D through:

i) the regional forage R and D network (the Southeast Asian Feed Resources Research and Development Network - SEAFRAD), facilitated by the project;
ii) regular meetings of project participants;
iii) liaison and communication with other sectors and projects within participating countries; and
iv) publications and participation in workshops and conferences.

FSP is developing a farmer participatory research (FPR) approach involving:

i) discussions with officials and others for initial site identification (participatory rapid rural appraisal –PRA);
ii) participatory diagnosis (PD) with farmers of problems associated with feed resources at the selected sites;

iii) participatory planning and experimentation with new species, with further
iv) participatory evaluation and modification of forage technologies over time.
(iii) and iv) are phases of participatory technology development-PTD)

Training is an important activity in the approach and includes training in English language, participatory R and D methodology and forage agronomy. The training is formal, semi-formal (through conferences and seminars) and on-the-job. Project staff and coordinators display a good understanding of the participatory approach to adaptive research, which is translated into training modules and publications.

Both CIAT and CSIRO are providing excellent support for the project though stronger links could be developed further with other relevant regional organisations/networks/ development projects that emphasise participatory approaches. In the four participating countries the participatory approach of the project has been adopted and appreciated as an approach that makes it possible to improve interaction with farmers. It is the approach that "brought the forages to the farmers". In several countries there is pressure to expand geographically the FSP approach through extension programs before the process of participatory technology development (PTD) is completed.

The review team highlighted:

- the fragility of the participatory approach in its implementation and the slow and difficult process of changing the traditional R and D attitude of researchers;
- the participatory approach is a process, is continuous and is of equal importance as the ultimate product;
- that the approach and its process should be managed with realistic expectations;
- that the change from traditional research and extension approaches to participatory approach requires:
  - i) continuous training of researchers/extensionists who are implementing the activities at the selected sites;
  - ii) a limited number of sites that are reasonably accessible.
- the need to identify effective performance indicators that go beyond indicators such as numbers of species selected and participatory research training courses to the effect of those trained on training others and the effect that forages are having on the farming system, labour use and income at the household level;
- the need to recognise that initial decision making and species selection by farmers was limited by the individual farmer's (or group of farmers) previous experience with forage and their expectations. With increasing experience with forages and a growing awareness of their potential, farmers may make other choices. This emphasises the importance of seeing the approach as a process; and
- that the FPR process is a major strategic output and needs to be documented.

IMPACT

The impact or expected impact of the project was assessed at the regional, national, test site and participating farmer household levels.

The visible impact was considerable at the household level for several of the sites visited. This occurred without monetary incentives and the developed forage technologies were being adopted spontaneously in neighbouring villages.

At the national level, a strong impact on forage development and delivery systems was obvious in Vietnam and Laos, two countries which do not have strong formal systems for forages. In Indonesia and the Philippines, the impact appears to be limited more to the provinces where the project is operating.

Ruminant livestock production is an important component of most smallholder farming systems in Southeast Asia. Livestock (chickens, pigs, goats, sheep and cattle) provide an important source of cash flow and wealth security. Forages are not only expected to enhance livestock production but also to provide other benefits such as: weed suppression, soil/water conservation, and increased fertility for plantation or field crops. The activities may bring social benefits such as reduced labour in cut and carry systems, increased relevance of social groups and better control of grazing animals, cattle available for use as draft animals. There are indications that these improvements are being realised.

Environmentally, the anticipated forage systems with perennial plant species are expected to be more stable than the systems they are replacing (annuals and tillage). Furthermore other environmental advantages include: increased diversity, carbon sequestration and reduced herbicide use. In addition, there is considerable gender balance in the project with men and women represented and participating at all levels from collaborating farmers to national coordinator.

A financial and economic analysis has not been undertaken of the project. It is obvious, however, that considerable achievements have been made with a very limited investment. This indicates the potential for a robust financial and economic return.

Introducing participatory methodologies and developing and transferring forage technologies is a long-term process. Although substantial progress and innovation has been made at this stage the process of developing new forage technologies and the participatory methodology for R and D may require further external input for its continuation. By the end of the present project we may expect that researchers and extensionists will have achieved sufficient competence to carry out routine field work and that some advanced farmers will continue using their forages. These forages may further spread by farmer to farmer adoption and through the existing extension structures.

FUTURE DIRECTIONS FOR FSP

To reap the full benefit from the on-going activities of the FSP it is imperative that this regional project be expanded beyond 1999.

The review team makes several suggestions including:

- reviewing the project's objectives with the view to adapting them to the evolving realities;
- seeing FPR as a process of empowering farmers and developing appropriate technologies with farmer participation to ensure sustainability;
- reviewing and adapting the interaction and organizational arrangements with other organizations and development projects;
- developing quantitative indicators for monitoring participatory technology development and for use in future impact studies;
- the retention of the expatriate support to the project at existing levels but to seek short term inputs from specialists in fields such as socio-economy, FPR methodologies etc;
- consideration to concentrating and consolidating present activities. Further technology development should be limited to a few sites selected to represent all major upland systems and having a substantial number of farmers involved in the FPR process;
- documenting the technology development and transfer process;
- extending the training for selected individuals to provide greater depth of understanding of the FPR process from which to effectively train others. There is also a need to train FPR specialists in socio-economy, extension methodology and agronomy;
- considering future research activities based on the needs identified by the farmers with emerging issues such as germplasm selection, seed related problems, establishment, soil fertility and management;
- consideration of follow on projects designed at the country level. The FSP is opening up opportunities for bi-lateral development projects to use the technologies and approach that it is developing.

1. INTRODUCTION

1.1 BACKGROUND TO THE REVIEW

A mid-term review of the Forages for Smallholders Project (FSP) was suggested in the Project Implementation Document (PID). The proposal in the PID was for an AusAID review to be undertaken in February, 1998 coinciding with the Regional project meeting of country representatives of the seven countries participating in the project. The review team would participate in the Regional meeting and visit specific sites in several countries.

The review was conducted between 19 March and 9 April, 1998. AusAID was not able to participate in the review as proposed in the PID. The review was an internal management review of progress undertaken by Project management in accordance with Terms of Reference (TORs) agreed by AusAID. The TORs are at Attachment A to this Report.

1.2 OBJECTIVES OF THE REVIEW

The objectives of the review are stated in the TORs as:

i) to assess the progress in the achievement of the outputs for the project identified in the PID;
ii) to assess the expected impact of the project; and
iii) to identify the potential benefits of a "follow-on" project.

1.3 REVIEW TEAM

The review team comprised Ron Staples, Economist and Walter Roder, Agronomist. Curricula Vitae for the team members are at Attachment B to the Report. The team was accompanied in each of the countries visited by project Coordinators and Partners who were responsible for the itinerary of the team, explanations of project achievements and issues, and translation in discussions with farmers participating with the FSP. Project Management took the decision for the Team not to be accompanied by project Consultants whilst in the field and provided the opportunity for discussions with the Consultants on completion of field visits.

Ron Staples visited project sites in Cagayan de Oro and Los Banos prior to the Regional meeting in East Kalimantan as Staples was in the Philippines. The team (Roder and Staples) attended the Regional Meeting from 23 to 26 March, and included visits to project sites in East Kalimantan. The team visited project sites in Sumatra following the Regional meeting and then sites in Vietnam and Laos. The itinerary of the review team is at Attachment C to the Report.

1.4 REPORT CONTENT

The Review Report follows the requirements of the TORs and contains the background to the Review, its TORs and review team. The output achievements of the project to-date are identified and discussed. The outputs are those specified in the PID for the project. This section of the Report also contains an assessment of the approach to project implementation, support being provided by the Project Managers and other sources and lessons learned during implementation. The expected impact of the project is identified and discussed under a number of headings including relevance to partners and smallholders, social, environmental and gender and monitoring and evaluation of the expected impacts. Return on investment made through the project and the sustainability of project interventions are discussed. Finally conclusions about achievements, impact and the way forward are presented.

1.5 IMPRESSIONS FROM SITES VISITED

The team had the opportunity to visit 10 sites within Indonesia, Philippines, Vietnam and Laos. Characteristics of the sites visited are described at Attachment D to the Report. Activities at the sites visited included introduction sites, regional evaluation sites, on-farm sites, forage activities at research stations, and seed multiplication activities. Most of the sites visited had experienced extended periods of dry to extreme dry conditions. While this resulted in substantial stress at some of the sites, it provided an opportunity to appreciate the advantage of drought tolerant species. The visits also provided opportunities to interact with farmers, extensionists, researchers and government officials.

The various sites had many commonalties including:

i) small land holdings;
ii) importance of livestock as cash source;
iii) lack of prior experience with planting forages;
iv) limited resources available/allocated for forage research and development;
v) lack of suitable mechanisms/methods for technology transfer;
vi) the main source of ruminant forage coming from outside the farmers system, sources which may not always be available in the near future.

Country specific problems observed included:

i) implementation of forage research and development activities;
ii) expertise available in the fields of forages and participatory technologies;
iii) human and financial resources available.

The enthusiasm for forage development, the understanding of FPR and the professionalism in forage agronomy displayed by the contact persons which included researchers, extensionists and farmers was very encouraging and a strong testimony to the high standards in project

management and execution. The appreciation of the FPR approach and its implication for managers and researchers does, however, require further support.

The site visits and discussions with project staff, staff from related projects, staff from government authorities and farmers provided the review team with an opportunity to experience the achievements of the project. It is obvious that the project is proving successful in bringing forages to farmers. There is considerable interest in what the project is doing, how it is doing it and in its achievements. The project so far in implementation is showing indications of considerable success. These indications will become more obvious as the project nears its completion. The comments in this Report from the review team accept these considerable achievements and are for the purpose of contributing to greater achievement of the project in the future.

2. OUTPUT ACHIEVEMENTS

2.1 ACHIEVEMENTS GENERALLY

The project has made excellent progress towards achieving the targets set in the PID. Table 1 illustrates the achievements of the project in relation to the PID targets for the end of the project and identifies that achievement as a % of the PID target. The table illustrates the achievement in the four participating countries: Vietnam, Laos, Philippines and Indonesia.

Table 1: Achievements to date in participating countries

	Vietnam	Laos	Philippines	Indonesia	Other Countries	Target (1995-99)	Achieved (%)
Selection of forages							
Forage species/varieties available	16 Broadly-adapted species identified					20	80
Regional trial sites	7	8	9	8	3	25	140
Seed production		1	1			2	100
Delivery of forage systems							
Target areas operational	3	3	6	6		18	100
Sites with >40 farmers		2	2	2		18	33
RRA/PD	4	5	6	6	1	18	122
Training of farmers in forage management	2	3	13	5	1	54	44
Training in seed multiplication	1	5	14	5	1	36	72
Staff development							
Individual on-site training	1	3	1	2		10	70
English language		3 22 trained				2 12 trained	150[b] (183)
RRA & Participatory research[a]	1/20	1/35	1/17	2/20	1/17	5/50	120/[b] 218
Forage Agronomy training	1/18	1/21	1/15			15/150	20/36

a) "2/20" means 2 courses with a total of 20 people trained
b) % of targets courses/people trained

2.2 FORAGES FOR DIFFERENT ECOREGIONS AND FARMING SYSTEMS

2.2.1 Assessment of Local Forage Systems

With few exceptions, livestock production is a traditional component of the farming systems at all the sites. The existing forage systems have been partly assessed through surveys carried out in the initial phase of the project (RRA, PD). The findings of these have not yet been fully documented. There is generally little quantitative information available on the relative importance of the various traditional fodder resources and its quality. As is the case with most participatory projects, there is a problem of how to document rapid rural appraisal (RRA) and participatory diagnosis (PD) data collection and make it more widely available. Having said this the main object of the project in the RRA and PD was to identify problems rather than fully describe the feed system.

Two studies were completed in Laos assessing the botanical composition of two grassland communities and were documented.

In the traditional production systems crop residues and grazing on common grassland, fallow land and/or in forest systems provides the main fodder resources. Long distances to be covered in getting access to these resources, poor quality of the resources during extended dry seasons, problems caused by free grazing animals, and decline in traditional fodder resources are the main problems listed. In many situations the livestock numbers are increasing simultaneous with a decline in the area of common grazing land. Availability of forage will seriously limit the potential for livestock production unless other fodder resources become available.

In some of the locations farmers had no previous experience with forages while in other locations, mainly in Indonesia, livestock production is a new venture for farmers.

2.2.2 Introduction of Forages

Forage species are assessed at forage introduction, regional evaluation and on-farm sites. At the time of the review seven forage introduction sites and 35 regional forage evaluation sites had been established as illustrated in Table 1.

A total of 16 broadly adapted species were selected from the regional evaluation sites for further evaluation at the farmers level. Table 2 identifies the species selected for regional evaluation on regional evaluation sites and those species that underwent participative on-farm trials. Although many of these species have been evaluated previously, until now these have never been moved from research stations to farmers. Additionally, better adapted accessions of many of these species have been identified. The species selected appear to have a very broad range of adaptation. Some of them, especially *Brachiaria* spp. and *Stylosanthes guianensis* were selected across all environments. The limited number of broadly adapted herbaceous legumes available is of some concern.

Table 2: Species selected in regional evaluation (R) and on-farm sites (F)

	Indonesia		Laos		Philippines		Vietnam	
	R[a)]	F[a)]	R	F	R	F	R	F
Andropogon gayanus cv. Kent and CIAT 621	6/6[b)]	2/3[c)]	5/7	1/3	4/7	0/6	5/5	0/3
Brachiaria brizantha CIAT 6780	7/8	3/5	7/7	3/3	7/8	2/5	8/8	3/3
Brachiaria brizantha CIAT 26110	5/5	1/3	7/7	0/3	3/5	2/5	2/2	0/3
Brachiaria decumbens cv. Basilisk	7/7	1/3	5/7	3/3	8/9	3/5	8/8	3/3
Brachiaria humidicola cv. Tully	7/7	2/3	3/7	0/3	7/8	1/5	4/8	0/3
Brachiaria humidicola CIAT 6133	5/5	3/3	3/7	0/3	6/6	3/5	4/8	0/3
Brachiaria ruziziensis ex. Thailand	0/0	0/0	1/4	2/3	0/1	0/0	3/4	3/3
Panicum maximum T-58	0/1	0/0	5/5	3/3	0/1	0/0	3/4	2/3
Panicum maximum CIAT 6299	2/4	1/3	5/5	0/3	4/5	2/5	6/8	0/3
Paspalum atratum BRA 9610	8/8	4/5	1/5	0/3	4/5	3/5	1/3	0/2
Paspalum guenoarum BRA 3824	2/2	1/3	0/4	0/3	0/3	0/1	0/3	0/2
Pennisetum hybrid cv. Mott	0/3	0/1	0/0	0/0	4/5	3/5	0/0	0/0
Pennisetum spp. (eg. King, Florida)	2/5	0/2	0/0	0/0	5/5	4/5	1/1	2/3
Setaria sphacelata cv. Kazungula	0/0	0/0	0/0	0/0	1/3	0/4	1/1	0/1
Setaria sphacelata var. Splendida	2/4	1/2	0/0	0/0	4/5	5/6	0/0	0/0
Arachis pintoi CIAT 22160	2/5	0/2	1/4	0/2	7/8	3/6	0/3	0/2
Chamaecrista rotundifolia cv. Wynn	0/1	0/0	3/5	0/3	0/0	0/0	5/5	0/3
Centrosema pubescens CIAT 15160	8/8	3/3	1/7	1/3	6/7	2/5	2/8	2/3
Centrosema macrocarpum CIAT 25522	2/5	0/2	0/3	0/3	2/3	0/3	1/6	0/3
Desmanthus virgatus ex. Thailand	0/0	0/0	0/4	0/2	1/3	0/3	0/0	0/0
Desmodium heterophyllum cv Johnstone	3/4	0/2	0/4	0/2	0/3	0/1	0/5	0/3
Macroptilium gracile cv. Maldonado	0/0	0/0	2/5	0/3	0/2	0/1	2/5	0/3
Stylosanthes guianensis CIAT 184	7/8	4/4	7/7	3/3	8/9	4/6	8/8	3/3
Calliandra calothyrsus ex. Indonesia	1/5	0/3	1/1	1/1	3/3	1/3	1/4	0/2
Desmodium rensonii ex. MBRLC	2/5	2/4	0/0	0/0	4/6	2/6	0/2	0/1
Flemingia macrophylla CIAT 17403	4/4	0/1	3/5	0/3	0/2	0/2	2/3	0/2
Gliricidia sepium prov. Retalhuleu	5/6	3/4	2/3	1/2	2/5	2/5	2/5	0/3
Leucaena leucocephala K636	2/5	2/4	0/2	1/2	4/6	3/6	1/5	0/3

[a)]R = Regional evaluation sites, F = On farm sites

[b)]Sites where species was selected/Total test sites

[c)]Sites where farmers are evaluating species/Number of on-farm sites where species were available for farmers to select

The contribution of FSP towards germplasm availability was given high ranking when rating the importance of services provided by FSP. Table 3 illustrates the rankings by the individual countries of the services made available through the FSP. These rankings were made by the Country Coordinators for the FSP. Farmers almost always expect introduced forages to provide supplementary fodder only and the selection was therefore strongly biased on species suitable for cut and carry systems.

Table 3:Ranking by individual countries of the importance of services provided by FSP[a)]

Services	Thailand	Malaysia	Hainan	Vietnam	Laos	Philippines	Indonesia
Germplasm being made available	2	1	1	1	5	1	5
Delivery of technology to farmers	-	-	-	2	1	3	1
Human resources development/training	3	2	2	5	2	2	2
Access to information through the Project	4	1	3	3	3	3	3
Regional networking	1	3	3	4	4	5	4

a) Ranking importance of FSP activities by individual country coordinators/government officials connected with FSP, most important service being given rank 1. Some of the services are strongly interlinked e.g. human resource development and delivery of technology. There is no 'delivery of technology to farmers' component in the FSP for Thailand, Malaysia and Hainan.

It is important to recognise that the decision making and selection process by the farmers was limited by the individual farmer's or individual group's previous experience with forage and their expectations. With increasing experiences with forages and growing awareness of their potential, farmers may make other choices. Therefore, the following needs to be considered when assessing the present selections made:

i) most species were selected with the objective of cut and carry management. It may be expected that grazing systems will evolve at some of the sites (especially in Laos and Vietnam);

ii) decisions on species suitability were generally made following one season of observation. A longer period is required to assess persistence of species. Further, climatic conditions in the period of observation may have been highly atypical (e.g. extensive drought in Indonesia, early rain in Laos);

iii) forage of high quality is required for pig, chicken and fish production;

iv) green appearance during the dry season was mentioned as a major selection criteria at most sites. At the same time farmers usually indicate that the main requirement is for additional feed during extended dry seasons. In other words they require species which can accumulate dry matter over the entire growing season and retain acceptable quality through the dry season. Sugar cane, already appreciated for this property by farmers in M'Drak, is a good example of such a species;

v) more emphasis needs to be given to legumes. At some sites no suitable legumes are available: and

vi) the PID repeatedly highlighted the need for and potential of forages in complementing/improving slash and burn, fallow rotation or agroforestry systems. Although species have been selected for such systems they have not

been adopted by farmers at this point in time. After the initial selection for 'cut and carry' systems, farmers may come back for grasses and legumes for other needs. It has to be recognized that this is a long term learning process and potential forages need to be available when demanded by farmers.

The development of forage resources and their integration in a particular farming system must be seen as a dynamic process. Farmers may find other requirements for forage production, identify other needs and potentials with increased sophistication of their livestock production systems and/or may alter other parts in their production system. It thus becomes necessary to continue the introduction and selection process as a process through time using FPR.

2.3 THE DELIVERY OF FORAGES INTO SMALLHOLDER FARMING SYSTEMS

The project has made substantial progress towards building up the mechanisms for delivering forages to selected on-farm sites. At the same time experiences were accumulated and capacities developed at all levels of the participating staff which will make it possible to develop forage systems for selected farming systems.

The delivery of forage systems through FPR is meeting the targets set for the project in the PID. At the end of 1997 18 target areas were operational with 6 of these sites involving more than 40 cooperating farmers.

The project is providing the opportunity for Coordinators, partners and project staff to obtain knowledge and experience in FPR. Research is being undertaken by farmers on their farms. Research of this nature is not new. What is new is that farmers are actively participating in the development of technology. On-farm research usually involves the researcher identifying technologies for adaptive testing on-farm. Farmers willing to cooperate are identified to provide suitable land and labour. The research is undertaken by the researcher who decides which technologies are successful and recommends these for dissemination in the area. The farmer is participating but the extent of participation is minimal.

FPR is far removed from this approach. FPR involves the farmer as the researcher or the developer of the technology (hence Participatory Technology Development –PTD). It allows the farmer to select suitable components and modify or develop the technologies on-farm. It enables the farmer/researcher to take decisions on the development and suitability of the technologies in the context of his/her farming system.

The project is developing an approach to FPR. The approach is developing upon what was originally envisaged in the project design in the PID. It currently involves the steps of: discussions with officials and others for initial site identification;

i) participatory diagnosis with farmers in the selected area to identify problems and possible solutions;
ii) participatory planning and experimentation; and
iii) participatory evaluation and modification of technologies.

FSP staff recognised the need for an evaluation or monitoring step in the process and recommended at their March, 1998 Regional Meeting that a baseline data collection step be included in the participatory process.

Flexibility is a hallmark of the approach. In some areas in the project farmers are identified to demonstrate/trial the technologies. In other instances groups of interested farmers prepare an area of land working together to jointly demonstrate/trial the technologies. Farmers evaluate these demonstrations/trials, select species and prepare their individual on-farm trials. The stages in the approach are not dogmatic and fit the circumstances of the areas concerned. A facilitator (development worker) with expertise is needed to ensure the stages in the process remain participatory. There is a concern that such a capacity in FSP partners is limited.

The participatory approach is fragile in its implementation. There are "forces" in project implementation which work against the effective use of the approach. These forces range through the management requirement to meet targets on time and within budget, to strong directive management cultures in societies within which the project is working. This range of "forces" is evident in various forms in the areas within which FSP operates.

In Makroman there is the example of a researcher from outside the FSP conducting an on-farm adaptive trial side by side with FSP activities. In Marenu, a Transmigration Scheme, technologies are made available to farmers through TRANSINDO, the scheme's management, and through FSP. One tends towards the directive and FSP the participatory approach. There is always the concern that the traditions of the past may withstand being influenced by the FPR approach. It is important that the FPR approach be implemented by the FSP as principled as possible and thereby not further adding to the "hostile" environment. There are examples of the potential for the FPR approach being compromised:

i) inadequate training of lower level staff involved in the participatory process;

ii) tending to view the approach as an entry point to farmers (a one off activity) and not as a process of continuous learning with farmers;

iii) deciding for farmers from technical experience the most appropriate technologies from a participatory experiment; and

iv) inadequate time to satisfactorily undertake the process.

The process of changing attitudes is slow. It is important that during this process development workers are aware of the environment in which they work and the "forces" at play that work towards the maintenance of the status quo rather than change.

2.4 STAFF TRAINED IN FORAGE AGRONOMY AND TECHNOLOGY TRANSFER

2.4.1 English Language Training

English language training is being undertaken by the project. The training was limited to Lao participants. This training is much needed and to the extent it has been undertaken it is effective. The training undertaken is outlined in Table 4 and elaborated in Attachment E to the Report.

Table 4 English Language Training

Course	Duration	Participants
Introduction to English Language - Nam Souang Livestock Research Centre, Vientiane	23 January to 23 February, 1996 - 1 month	13 Participants from Provincial Livestock Officers to staff of Research Centres
Basic English - National Agricultural Research Centre, Na Phok, Vientiane	March/April, 1995 - 6 weeks	4 Participants – Division of Livestock and Fisheries Vientiane and Provincial Agricultural Office Xieng Khouang
Agricultural English 1 - National Agricultural Research Centre, Na Phok, Vientiane	September/ October, 1995 - 6 weeks	3 Participants – Division of Livestock and Fisheries and Provincial Agricultural Office Xieng Khouang

Three of the four participants at the March/April 1995 course attended the September/October course. The participants at the January/February 1996 course were new to the English language training program. Consideration needs to be given to continuous training in English language to a specific group of people intensively involved in the project. This training could also take the form of distance learning, if appropriate.

There is a need for English language training for participants in all the countries involved in the project and not solely for the Lao participants. The training is needed so that the concepts involved in participatory approaches to development can be communicated and understood. This is in addition to the need for English language communication for the forage technologies. The training should be in program form and therefore continuous.

2.4.2 Training in Participatory R and D Methodology

The training activities in participatory research methodologies is at two levels; training of trainers and in-country training by the trainers who are trained. The concept is appropriate. It is difficult to gauge its effectiveness in achieving an understanding of the participatory R and D methodology at the level of interaction with farmers. From the sites visited an appreciation of

the participatory approach by officials involved in the project is evident from the activities being undertaken by farmers.

Project Coordinators were trained in the participatory methodology from 10 July to 5 August, 1995 in the Philippines. The course was practical and involved undertaking a FPR activity at one of the project's sites in the Philippines.

A summary of the activities undertaken by these trained personnel on return to their respective countries is at Table 5.

Table 5: In-Country Training - Farmer Participatory Research (FPR)

Country	Course	Duration	Participants
Lao PDR	FPR - Luang Phabang	11 to 23 December 1995	14 from FSP actively working with farmers 7 associated with FSP but not working with farmers 15 from assoc. organisations
Thailand	FPR	19 to 29 February 1996	19 participants from DLD
Indonesia	FPR - Provincial Livestock Service, Samarinda	1 to 14 March 1996	8 from FSP actively working with farmers 6 FSP not working w/farmers
	FPR - Sungei Putih, North Sumatra	22 July to 2 August 1996	12 FSP participants working directly with farmers 4 FSP not working w/farmers
Philippines	FPR - PCARRD at Isabela	8 to 21 October 1995	9 FSP participants actively working with farmers 6 FSP not working w/farmers 2 from involved organisations
Vietnam	FPR - Ba Vi, Son Tay	7 to 14 October 1996	9 FSP participants working directly with farmers 11 FSP not working w/farmers

Farmer participatory research training is also incorporated in the training undertaken by the project in "Developing Forage Technologies with Farmers". There were also jointly conducted training courses on Farmer Participatory Research with the CIAT Cassava Project on 4 to 13 September, 1997 in Pakchong, Thailand and 17 to 26 September, 1997 in Bac Thai, Vietnam.

The training in FPR is considerable and involves a large number of people. Consideration could be given to a more focused approach to training of a smaller group of people more intensively and continuously. There appears to be a want to expand rather than to train a select group of people. The training should be contained and consolidated. The need for continuous training is recognised by the project in its on-the-job training strategy. The training approach could take the form of action-reflection. Small groups of people in each of the countries could come together in-country and regionally to review where they are in FPR. They could identify their concerns and shortcomings and overcome these shortcomings through training where

necessary and more generally through the exchange of experiences. These exchanges could take place through SEAFRAD.

The approach to training both FSP participants who deal directly with farmers and others who supervise those who deal directly with farmers is valuable. It is important that supervisors are aware of the FPR approach and of its implications and limitations. The project may wish to consider courses specific to supervisors in the FPR approach which clearly identifies and caters for discussion of the implications of the approach for them as supervisors and program managers.

"Training Modules for Farmer Participatory Research" were produced by participants of the Regional training of trainer courses. These modules are an example of participatory development at work. The project could consider an evaluation of how the modules are being used by the trainers in the in-country courses.

2.4.3 Training in Forage Agronomy

A regional training activity in "Forage and Seed Production and Supply" was undertaken for 22 participants in Khon Kaen, Thailand between 21 and 29 October, 1996. Seven of the participants were not directly involved in FSP activities.

A number of training courses have been undertaken in "Developing Forage Technologies with Farmers". Two Regional courses for the training of trainers were conducted:

i) 21 to 29 November, 1996 in Khon Kaen, Thailand involving 22 participants, 15 of whom were actively involved in FSP and mainly Coordinators for project activities in the participating countries; and

ii) 4 to 13 November, 1996 at Pakchong in Thailand involving 22 participants of which 15 were actively involved with FSP and mainly the Coordinators from the participating countries.

The in-country training courses that followed the Regional training are summarised in Table 6.

Coordinators involved in the Regional training of trainers activity have been undertaking the in-country training. An evaluation of the capacity of these people to undertake the in-country training from training and technical perspectives could be an activity the project could consider for the future.

The extent of on-site training and cross visits undertaken through the project by Coordinators and project partner staff is detailed in Attachment E. The on-site training is a sound approach for individuals to gain practical experience in participatory techniques. The cross visits undertaken are mainly technical and deal with seed production.

Table 6: In-Country Training - Developing Forage Technologies with Farmers

Country	Course	Duration	Participants
Philippines	Developing Forage Technologies with Farmers	4 to 15 August, 1997	15 participants, 10 of whom are actively working with farmers and mainly partner representatives
Lao PDR	Evaluating Forage Technologies with Farmers	26 to 28 January, 1998	13 participants, 11 of whom are actively working with farmers and represent specific Project sites
	Developing Forage Technologies with Farmers	6 to 13 April, 1998	21 participants, 16 actively working with farmers and representing partner organisations involved in the Project.
Vietnam	Developing Forage Technologies with Farmers	16 to 22 February, 1998	18 participants, 13 of whom are actively working with farmers and representing partner organisations with the Project.

"Developing Forage Technologies with Farmers" was produced by the participants at the Regional training of trainer training sessions. The Training Manual, which is being field tested by the Coordinators, will be modified in a training session and finally produced. The preparation of this training document is in itself a wonderful example of participation at work. The document, produced by the Coordinators with facilitation and support from project staff, will be "owned" by the Coordinators. Consideration should be given by the Coordinators to not calling the document a Manual. This implies that there is only the manual's way of dealing with farmers and in itself becomes prescriptive.

2.5 INFORMATION SYSTEMS ON FORAGE R AND D

2.5.1 Annual Regional Project Meetings

Three annual Regional meetings have been conducted by the project:

i) 16 to 20 January, 1996, Vientiane, Lao PDR;
ii) 19 to 24 January, 1997 Hainan, PR of China; and
iii) 22 to 26 March, 1998, Samarinda, Indonesia.

Proceedings of the Lao and China meetings are completed and constitute a record of achievements of the project in undertaking FPR in the participating countries. The record of

proceedings reflects a balance between forage technologies and participatory approaches in bringing these technologies to farmers through FPR.

The Regional meeting in Samarinda did suffer from some of the participants' poor ability with English. There was the feeling that there was some confused thinking in relation to FPR brought about through miscommunication due to lack of use and understanding of English.

2.5.2 Liaison and Communication with Other Sectors and Projects within Countries

There is considerable liaison and communication with other projects within the participating countries.

There may be a need especially in Lao PDR for the project to consider a Workshop comprising institutions and organisations involved or planning to become involved in extension activities in the agriculture sector in Lao PDR. On the one hand the project is involved in activities associated with FPR and is developing an approach for implementation of participatory adaptive research activities. There is a fine line between such activities and extension. On the other hand there are organisations such as the Asian Development Bank (ADB) and the EU planning to become involved or are already involved in agriculture extension activities in the country. The two hands need to be brought together otherwise the participatory approach of FSP could be lost as a result of considerable resources being made available that may not necessarily be used for the development of effective extension approaches in the sector.

The project could consider placing some emphasis on enabling the findings of FSP to be incorporated into the design of projects under preparation and in implementation in the agriculture sector in participating countries. This may warrant the involvement of government planners in learning some of the lessons of FSP that are relevant to their project preparation and development activities. Such institutions are the National Economic and Development Authority (NEDA) in the Philippines, BAPPENAS in Indonesia, the National planning office in Vietnam, and a similar organisation in Lao PDR. This may be a practical way of influencing policy in the preparation of projects.

There is considerable "spillover" of project activities into organisations and institutions in the participating countries. Development projects with support from the World Bank and the EU are approaching the FSP exchanging ideas and developing strategies for employing the FPR approach into their projects. This is happening to a considerable extent in Indonesia where the partner agency for the FSP is the Department of Livestock Services.

2.5.3 Creation of a Regional Forage R and D Network

The project is involved in the creation and development of a Regional Forage R and D Network. The current situation in relation to the Network is described in "Sustaining a Research and Development Network: Experiences with the Southeast Asian Feed Resources Research and Development Network (SEAFRAD)".

The introduction of an email facility linking the Partners in the FSP is improving communications and providing a link that may eventually result in a sustaining and viable technical forages network. In the short term it is a medium through which enthusiasm of the Partners for communication on forages can be maintained.

All countries appreciated the contribution by the network towards the exchange of information as illustrated in Table 3.

2.5.4 Publications, Workshops and Conferences

Staff of the project and project Partners have written a considerable number of articles and attended numerous conferences and workshops. The articles written illustrate the extent of development of the FPR approach and technical achievements of FSP in the area of forage research and development in the participating countries. The workshops and conferences attended by staff and Partners is providing the opportunities for learning and to publicise the project and its achievements. Publications by the project from January, 1995 to March, 1998 are contained in a compendium prepared by the project titled "Forages for Smallholders Project, Publications, January, 1995 to March, 1998". The publications and conference papers include a wide range of contributions from various partners directly or indirectly linked to FSP.

2.6 PROJECT MANAGEMENT

2.6.1 Project Implementation Document (PID)

A PID was prepared for the project in accordance with AusAID guidelines. The PID describes in a general way project activities across seven countries. It is by its nature general and it is this generality that provides project management with the flexibility needed to successfully implement the project.

2.6.2 Monitoring, Review and Annual Plan Preparation

The project is planned annually in accordance with AusAID guidelines. Reporting to the annual plan is on a six monthly basis. Planning is undertaken in a participatory manner on a country basis involving the coordinators and partners prior to and during the annual meeting. The country plans are then brought together by the FSP staff. Consideration could be given by the project to greater involvement of Country Coordinators in the final aspects of the overall Annual Plan preparation allowing for greater transparency in the preparation of project plans than currently is the case.

The proceedings of the Regional meetings at which implementation performance of the project is discussed is a valuable review document. The proceedings should accompany the Annual Plan to AusAID as an outcome of the project's annual planning. The monitoring of project progress during implementation is satisfactory.

Records are maintained as illustrated in Table 1, "Achievements to Date in Participating Countries" of the relationship between progress and planned targets. This monitoring relates to progress achieved in meeting activity and output targets in the plan such as number of training courses undertaken, numbers of regional seed trial sites, numbers of participatory research training courses undertaken etc. Summaries of the outcomes of the training courses and forage evaluation sites are not part of the project's reporting to AusAID although they are reported and discussed at annual meetings. The project may need to give consideration to identifying effective project performance indicators that address monitoring of this nature for the future. These indicators are at the "output" and "purpose" levels in the Logical Framework for the Project in the PID.

2.6.3 Reporting to AusAID

Reports on project achievements are of a high standard. The routine six monthly reporting meets the AusAID reporting requirement. In addition there are numerous reports compiled by project staff, Coordinators and Partners relating to the project, its process and its achievements including lessons that are of considerable importance. These reports bring out the technical, process and participation experiences of those involved in the project. These are published as working documents by CIAT or in scientific journals and proceedings. The challenge is to have these reports recorded in such a way that they can be used by development workers generally.

The experiences of the project to-date have relevance for development workers and planners at least in the agriculture sector but also more generally to practitioners in participatory development planning and implementation. AusAID should be encouraged to maintain a set of the project's reporting documents in its library. It may also be appropriate for the project to publicise its achievements and reports in the Australian "Development Studies Network"

2.6.4 Organisational Arrangements

The organisational arrangements for the project involve a number of levels. The project is being implemented by CIAT in cooperation with CSIRO. The project has two centers; one at IRRI in the Philippines and the other at the DLF in Vientiane in Lao PDR. In each of the participating countries there are Coordinators:

i) Indonesia – Directorate General of Livestock Services (DGLS), Department of Agriculture;

ii) Lao PDR – Department of Livestock and Fisheries (DLF), Ministry of Livestock and Forestry;

iii) Philippines – Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD);

iv) Vietnam – National Institute of Animal Husbandry (NIAH), Ministry of Agriculture and Rural Development;

v) China PR – Chinese Academy of Tropical Agricultural Science (CATAS);

vi) Malaysia – Malaysian Agricultural Research and Development Institute (MARDI); and

vii) Thailand – Department of Livestock Development (DLD), Ministry of Agriculture and Cooperatives.

Within each of the countries relating to the Coordinators there are partners. These partners are described in Attachment F to the Report.

The organisational arrangements work well. Their effective functioning depends very much on the individuals involved in the organisation at the various levels and how they relate to each other. This flexible approach is proving satisfactory with all participants at the various levels interacting in a most effective way.

The organisational arrangements for the project and the nature of the project itself creates an environment of expansion for project activities. Adaptive research on forage technology development is the thrust of the project. The project is working with partners from research and development organisations in Indonesia, Lao PDR, Philippines, Thailand and Vietnam and with research organizations in Malaysia and China. The nature of the adaptive research and the fact that most of the country Coordinators come from development oriented organisations push and pull project activities into expansion through development/ extension. This appears to be occurring in Indonesia, Philippines, Vietnam and Laos. There is the situation where project activities are expanding geographically through the extension of participatory technology development and before the research and development process is completed. Quick impact at the farmer level is the objective of some of the ministries of agriculture. The project's FPR approach is being seen by some ministries as a means of doing this. The project's organisational arrangements enable this to happen. The challenge for the project is for it to consolidate and focus to enable the project to complete its agreed research and development objective.

The project rightly does not argue against the extension and adoption of it's approach by partners and interested organisations. The extension of the FPR approach should be a spillover effect of the project. It should happen of its own accord and not be orchestrated by the project. The adoption of the approach by the responsible institutions in a country should be a considered policy decision and its implementation planned. This could be considered as a specific project as it would involve changes in the extension approach in most of the participating countries. This would necessitate a change in the attitude of extension staff to accommodate the FPR approach. The FSP should focus on concluding its agreed adaptive research activities rather than on further dissemination of the results.

There is considerable potential for country specific projects (bilateral projects) resulting from FSP activities. These projects could be aimed at extending the FPR approach of technology development or they could be aimed at influencing the relevant institutions in the countries through capacity building to include the FPR approach in appropriate projects in their planning and implementation stages.

2.7 ASSESSMENT OF THE APPROACH TO PROJECT IMPLEMENTATION

2.7.1 The Approach

Participation by farmers in adaptive research trials is an integral part of the overall concept of the project. Project Coordinators and partners are being introduced to the practice of FPR. The practice of FPR, in addition to appropriate forage technologies for smallholder farmers, is an approach being developed through the project.

Participatory approaches to development are not new. The concept is to involve stakeholders in the identification, design, implementation, and evaluation of an activity that concerns them. In this way those who have an interest (stakeholders) in the activity and its outcomes take the decisions that relate to the development of that activity. The decisions on whether to be involved in an activity, take place in the development of the activity and manage the implementation of the activity are taken by those involved and not by "outsiders". The "outsiders" provide technical input to the decision making process and facilitate the making of decision. The approach is a process and is demand driven in that it enables those involved in the process to take the decisions that affect them.

It is a learning experience for all involved in the project: staff, coordinators, partners and farmers. FSP staff have identified the need for an additional step in the process relating to data collection and evaluation so as to better describe the results of the FPR.

2.7.2 Understanding and Implications

Project staff and Coordinators display a good understanding of the participatory approach to adaptive research, which they are developing and implementing through the project. This understanding is translated into:

i) Training Modules for Farmer Participatory Research;
ii) A Training Manual -Developing Forages Technologies with Farmers - and
iii) numerous publications on the experiences of FPR.

The approach being developed and implemented through the project is a process and it is as important as the ultimate product; the adoption and use of forages by smallholder farmers. The approach is a continuous process. It is not a one off activity for the introduction of forages to smallholder farmers. There are forces that work against the implementation of the participatory process. These are evident in the project and are:

i) the emphasis given the product in the process which could work against the importance of understanding the process and using participatory techniques throughout the process. The process must have an outcome. These outcomes are identified in the PID. These outcomes must be achieved. It is important, however, that they are not achieved at the expense of the process;
ii) the management culture of directive and control within the institutions participating in the FSP. This culture is evident in the institutions of most of the

countries in which the project is working. Participatory approaches will be difficult to effectively use and sustain in such environments. There will always be an environment of directive and control within which the participatory approach operates. This environment will influence users of the approach and may, if care is not taken, compromise the participatory approach to such an extent that it becomes more a use of words than an effective approach in involving stakeholders in a development process.

Participatory approaches are currently seen in development circles and in development projects as the panacea for success. This may be the case but it is no simple matter of just implementing a participatory approach and success follows. The participatory approach must be reasoned and kept in context for the particular situation at hand. The approach and its process should be managed with realistic expectations. Participatory approaches vary depending on the circumstances of their use. The approaches (techniques) vary from circumstance to circumstance. Considerable participation by stakeholders is required if the objective is capacity and capability building. The extent of participation by stakeholders is considerably less if the objective is the collection of data to better understand a particular situation. What can be achieved through participatory approaches needs to be kept realistic and expectations realistically managed. What participatory approaches are to be used and for what purposes need to be carefully determined and articulated to maintain realistic expectations. The expectations of the participatory approach in FSP need to be carefully managed. In FSP it is being seen as the solution of past failures in farmers adopting forages. In Vietnam for example, the success of the project was characterised as "the project that brought the forages to the farmers".

There is the need to document the participatory approaches being used and their processes. The process is part of the research. Research into the technologies is being documented as part of the project. The approaches used in adapting the technologies and gaining farmer adoption should also be documented. A case study approach may be appropriate. For example, having a farmer like Mr Suharto document what he is doing, how he is doing it and what he has achieved in terms of technology adoption and income generation. The documentation of case studies of this nature could be undertaken using university students in the countries concerned. Volunteers from Australia may be another avenue for achieving this aim. The recognition that there is a need to document the participatory process as part of the research being undertaken by the project is the important first step.

Facilitating the participatory process is no easy task. It is a task that comes naturally to some people and with difficulty for others. There are some people who cannot accommodate participatory approaches. Training in using participatory approaches is important. The project is involved in providing such training. The training should be continuous with the monitoring of those trained in their application of the approaches. A program approach to providing training both formal and on-the-job could be considered by the project to facilitate continuous training.

Strong links should continue to be fostered with other relevant regional organizations or networks that emphasize participatory research and extension methodologies.

2.8 SUPPORT FROM MANAGING INSTITUTIONS

2.8.1 CIAT/CSIRO

Both, CIAT and CSIRO are renowned globally as leading institutions in tropical forage agronomy and have extensive germplasm collection. The strong commitment by the designated program supervisors Peter Kerridge (CIAT) and Bryan Hacker (CSIRO) further enhance the comparative advantage of these institutions in managing the project. CIAT has a global mandate both for developing and maintaining tropical forage germplasm resources and for developing participatory research methodologies.

2.8.2 Partners/Coordinators

The main national implementing agencies are listed in Attachment F. Some of the participating countries, especially Philippines have complicated Government structures that make it difficult to implement a program with both research and extension components. Careful choice of partners has however minimized some of the potential problems.

The partners and coordinators are generally highly motivated and dynamic professionals, often having post graduate degrees in forage agronomy. The commitment and enthusiasm for the FSP work is very apparent. The high motivation and enthusiasm is facilitated by the various opportunities offered by FSP for traveling abroad, allowances for in-country traveling and the involvement in networks. There is little doubt that participants in the FSP are getting considerable satisfaction from their involvement in the project and its achievements, which is a motivating factor.

2.9 A REGIONAL APPROACH

Many of the problems and opportunities associated with livestock production are similar through the region. A regional approach therefore should provide various advantages compared to national/bilateral projects. Expected benefits include:

i) enhance exchange of experience and information between the countries;
ii) minimize unnecessary duplication;
iii) optimize use of specific expertise/experience to solve specific problems (e.g. seed production studies in Thailand);
iv) optimize usage of training materials (training manuals) and experiences; and
v) added flexibility in the execution of the project

An additional, important benefit observed is the increased attention given by national officials due to its regional (cross-national activities) character. A workshop or a training event attended

by members of other countries receives much more attention compared to a venue attended by nationals only.

Constraints and problems that are more likely to arise due to the regional approach include:

i) extensive travelling required by the expatriate advisors;

ii) the regional approach can cause conflict between the participating countries as they want access to the limited resources provided (Vietnam and Laos are specific examples where they both believe that more of the resources of the project should be made available for their requirements); and

iii) needs and expectations as well as R&D systems are different in each country, thus making it necessary to have country specific programs and activities.

On balance, the regional character of the project has been highly effective in use of resources, and sharing of experience and information.

2.10 USE OF OTHER SOURCES OF SUPPORT

There is considerable interaction between FSP and projects, organisations and institutions with interests in forages research and development. Staff of other projects, organisations and institutions are attending the training activities conducted by the project. These participants are contributing their experiences in these learning activities.

There are instances where funding was made available to the FSP by "outside" organisations to undertake specific activities. ACIAR is an example with funding provided for specific publications and research. The Overseas Services Bureau is another in providing assistance, through the support of a Volunteer, to develop and publish "Field Experiments with Forages and Crops – Practical Tips for Getting it Right the First Time". The Oxford Forestry Institute has provided funds for evaluation of shrub legumes.

2.11 LESSONS LEARNED

There is a high degree of disappointment over limited impact of past R&D activities in forages in all participating countries. The introduction of a new approach (farmer participatory research) together with new and better adapted forage accessions is therefore perceived as a potential savior from the malaise. The most important lessons cited by the national programs were always related to technology development, transfer and access to the technologies:

i) participatory methodologies offer a better way to interact with farmers;

ii) we have made many mistakes in the past when interacting with farmers;

iii) through participatory methodologies we have finally found a way to bring forage technologies to the farmer; and

iv) participatory technologies are time consuming and require a lot of legwork.

A number of other observations and statements made by the review team and/or by some of the participating countries were:

i) the process so far has been confined to selection of forage species and offering these to farmers for on-farm evaluation. Limited activity has been devoted to developing ways to manage new forage systems or continuing technology development with farmers (though project staff recognize this as the next step in on-farm activities);

ii) the use of participatory methods is very important for the dialog with potential target groups (identification of target groups, identification of needs, problems and opportunities);

iii) the change from traditional research and extension systems to participatory systems does not come easily. Although the FSP is promoting the use of farmer participatory methods, it was observed that key persons in the field appeared to slip back into using traditional roles, e.g. field staff stating that they were "training or advising" farmers;

iv) bringing interested farmers to a regional nursery and encouraging them to select their own species is not much different from methodologies used in the past. It is important that participation proceeds beyond this initial step. Farmers and technicians must continue to work together in developing appropriate forage technologies;

v) the provision of new germplasm and the participatory selection process may have been the catalyst in introducing the participatory approach to technology development;

vi) Participatory Diagnosis (PD) may be possible with short inputs, Participatory Technology Development (PTD) requires continuous interaction which is not possible if the target group is 2 days journey away from the field technician;

vii) we should be cautious when assessing the progress, if a technology failed 15 years ago but is accepted today, it would be unrealistic to attribute the success to the participatory approach only;

viii) forages may be too narrow to suit needs of some of the national R&D systems. A broader approach including other feed resources, especially crop residues, may be more useful; and

ix) continuous efforts have to be made to avoid participatory methods becoming an aim in themselves.

The most important issues to consider therefore are:

- FPR is a continuing process which requires follow-up training and support of extensionists/researchers who are implementing the activities at the individual sites;
- limit the number of sites to manageable number with good access.
- use common sense and be realistic in assessing the possibilities for benefits from participatory methodologies

3. EXPECTED IMPACT OF THE PROJECT

3.1. VISIBLE IMPACT AT THE TIME OF THE REVIEW

The impact of the FSP can be assessed at the regional, national, test site and participating farmers level (Tables 7 and 8). Although it is too early to expect significant impacts on the forage availability or on livestock production except for a few of the more advanced participating farmers, the project has made substantial impact on the availability of suitable germplasm and the technology delivery process (Table 7). The same story was repeated across countries: FSP has helped us to bring forages to the farmers!

Table 7: Impact of FSP at the national level[1)]

	Vietnam	Laos	Philippines	Indonesia	Thailand	Malaysia	Hainan
Importance given to forage research and development	**[b)]	**	-	*	-	-	-
Resources allotted for fodder research and development	*	***	-	-	-	-	-
Germplasm available	**	***	***	**	**	***	***
Change in attitude towards interaction with farmers	***	***	**	*	*	*	-
Overall research activities with forages	**	***	-	-	-	-	-
Methodology used for germplasm selection/release	**	***	*	-	-	-	-
Methodology used for technology transfer	**	**	*	*	-	**	-
Forage production	-	-	*	-	-	-	*
Livestock production	-	-	-	-	-	-	-

a) Assessment based on discussion with national teams, supplemented through impressions from individual sites visited and presentations made during the regional workshop at Samarinda

b) Impact of FSP activities - No effect, * some impact, ** significant impact, *** strong impact.

The relative impact of FSP activities on the forage research and delivery systems at the national level appeared to be especially strong for Vietnam and Laos. Both countries did not have strong formal research system for forages. For Laos, the FSP has a direct influence on all forage research and development activities under the Department of Livestock and Fisheries.

The impact was obviously much stronger at the individual sites and at the participating farmers level (Table 8). Local officials and farmers in Indonesia and Philippines displayed an impressive awareness for/knowledge of forage species and had a good understanding of participatory methodologies. Similarly the number of participating farmers was high in these two countries. On-farm activities in Laos and Vietnam started later than in Indonesia and Philippines because they were not part of the earlier Forage Seeds Project. Consequently the impact at the individual sites and individual farmers level is comparatively less advanced in these two countries.

Table 8: Impact of FSP at the test site and farmers level[1)]

	Vietnam	Laos	Philippines	Indonesia
At the test site				
Awareness of local authorities for the need/potential of forages	**	*	*	**
Change in attitude towards interaction with farmers	***	**	***	***
Change in the delivery system used by research and extension personal	**	**	***	**
Increased interaction and collaboration between research and extension	***	*	**	***
Forage species/varieties available	***	***	***	***
Selected individual households				
Knowledge of selected fodder species and their potential	**	*	***	***
Interest for growing forages	***	**	***	***
Expectations from forages	***	**	***	***
Fodder quantity available	*	*	*	**
Quality of fodder	*	*	*	***
Animal production	*	-	*	**
Reduction in labour required to feed livestock	-	-	***	**
Effects on soil fertility and/or week populations (crops, horticulture)	*	-	-	*

a) Assessment based on discussion with national teams, supplemented through impressions from individual sites visited and presentations made during the regional workshop at Samarinda

b) Impact of FSP activities - No effect, * some impact, ** significant impact, *** strong impact.

In several areas where high impact was expected in the PID, farmers as of yet have shown little interest, namely, use of forage germplasm for fallow improvement, forestry and agroforestry systems.

3.2. RELEVANCE TO COUNTRIES CONCERNED

Ruminant livestock production is an important component of most small holder farming systems in Southeast Asia, especially in upland environments. Livestock (chickens, pigs, goats, sheep and cattle) provide an important source of cash flow and wealth security. Forages are not only expected to enhance livestock production but also to provide other benefits such as: weed suppression, soil/water conservation, and increased fertility for plantation or field crops. The activities may bring social benefits such as reduced labour in cut and carry systems, increased relevance of social groups and better control of grazing animals. The anticipated forage systems with perennial plant species are expected to be more stable than the systems they are replacing (annuals and tillage).

At the same time there is a rapidly increasing demand in livestock products thanks to rising income levels. With the exception of Laos, where livestock is an important export commodity, the growing demand is covered by increasing imports of livestock products. Increasing livestock production is therefore given high priority in most Southeast Asian countries. Furthermore, livestock production is often perceived as a promising means to raise the cash income of smallholder farmers.

In many situations livestock production is possible at a low level through the use of freely available or presently untapped resources such as grazing wasteland, fallow land and crop by-products. Vietnam, Laos, Philippines and Indonesia all have substantial areas of upland with potential for forages and livestock production. These uplands are presently covered with grassland vegetation often dominated by unproductive *Imperata cylindrica* or used for shifting cultivation and plantations.

Seasonal fluctuation in forage availability and quality is often considered the most important factor limiting livestock production. Depending on the production system and the availability of land, forages may contribute to increased livestock production. It is, however, important to realize that:

i) smallholders will have limited land resources;

ii) livestock is generally only a minor component of the farming system; and

iii) smallholders are likely to give priority to food crops or cash crops when allocating land.

Intensive forage technologies are relevant in increasing the income of smallholder farmers and in making efficient use of limited land and labour resources.

3.3. COLLABORATION AND COORDINATION

3.3.1 At National Level

In most countries, government activities related to forage R&D are executed under one Ministry (Ministry of Agriculture), thus coordination should be relatively easy. It was, however, observed that there is often inadequate interaction between the various departments (extension, education, research). Furthermore, collaboration between government officials (trainers, researchers, development workers) and other parties interested in forages is usually dependant on efforts by individuals or individual institutions, depending on the interest and motive. As a result of this, the interaction and collaboration is sporadic and partial only. It may, however, be unrealistic to expect individual countries to build up national networks for forage only. More likely networks will be broader and include all or several aspects of feed resources for livestock.

3.3.2 At the Regional Level

The FSP and SEAFRAD have made substantial impact on regional collaboration and coordination. Frequent interactions between the country coordinators during workshops and training events resulted in strong personal bonding. Extensive visits in the region provided opportunities to become familiar with activities across the region.

The process of regional coordination and collaboration can, however, only be seen as a modest beginning. Prolonged further external inputs will be necessary to achieve lasting collaboration and coordination. Attention needs to be given to:

i) a stronger commitment by the participating countries to networking;

ii) although SEAFRAD is supposed to be the regional network, it is largely driven by FSP (finances, human resources). Efforts should be made to make it more independent and/or make FSP an activity of SEAFRAD;

iii) presently the coordination is strongly based on individual persons rather than institutions. SEAFRAD coordinators from individual countries should represent the institution chosen to lead/coordinate forage R&D in their respective country. This should result in stronger support from national institutions; and

iv) CIAT in collaboration with other institutions such as ILRI, FAO and CSIRO should not hesitate to make a long-term commitment in supporting a regional forage or feed and forage network.

The experiences of SEAFRAD were reviewed recently by Wong and Horne, 1998. This review made the following recommendations to ensure an active continuation of the network:

i) clarify the objectives of the network;
ii) seek donor support;
iii) share responsibilities and benefits of networking;
iv) encourage continuous input of new people and ideas;
v) select coordinators who are able to actively facilitate network activities;

vi) meet face to face; and
vii) encourage communication of local information through the newsletter.

3.4 NEED OF SMALL HOLDERS

The test sites were selected based on the perceived need by farmers for forage as identified through diagnostic surveys. Although the needs of small holders may vary across the sites the need for cash income, reliable saving systems, and optimizing production from limited land resource is common for all. Livestock production systems have the potential to contribute towards these needs. Forages and livestock production have to be seen in the context of the entire farming system at a particular site. In the ideal situation the forage component will contribute towards long term economic benefits for the smallholder family.

The integration of forages in mixed farming systems provides opportunities to improve soil fertility levels and reduce weed problems. Increased fertility and/or manure may increase crop yield and provide opportunities for planting cash crops (especially fruit trees) in marginal areas. Furthermore by combining forages with timber plantations farmers can realize returns much earlier than from timber alone. This may help resource poor farmers to make long term investments in potentially very lucrative timber plantations.

In some situations the forage R&D activities may raise unrealistic expectations by the smallholders and policy makers. Thus it is important that forage development activities are considered in a systems context and given the appropriate emphasis along with other needs of the system. The project has been careful to date to ensure that forage technology development only is carried out where farmers expressed a need for improved forages and where they gave it high priority.

3.5 SOCIAL BENEFITS

It would be too early to expect visible social benefits from the project at a time when the technologies are still in the initial development phase. Yet, some trends are becoming visible and others are expected by the participating farmers:

i) reduction in labor required to feed animals in cut and carry systems was mentioned from different sites where forages are presently collected by cutting from common lands;
ii) increased activity and significance of social groups who participate in the project (woman's group, farmers groups); and
iii) better control of animals by enclosing them in areas with forages.

This latter benefit was mentioned as the main motive for planting forages by farmers in Laos.

3.6. ENVIRONMENTAL IMPACT

Most of the species promoted by the project are herbaceous or woody perennials which will provide prolonged soil cover. A shift from systems largely depending on annual crops combined with soil tillage, to systems with perennials or mixed systems generally results in increased stability of the system. Beside this advantage a number of other positive effects can be expected from the use of forages.

Positive impacts observed/anticipated:

i) increased diversity in the production system;

ii) increased carbon sequestration when crop land is converted to systems with perennial forage cover. This will only occur in systems that results in carbon accumulation in the soil;

iii) soil/water conservation by increasing soil cover, strips with grass or legumes, reduced tillage;

iv) compared to timber and plantation crops (oil palm, rubber, teak) the return from forage based livestock production is available much earlier. Combining forage based livestock production with timber and/or plantation crop systems may make it possible for resource poor farmers to endeavor in these potentially rewarding production systems; and

v) use of forages in timber and plantation crops will result in a reduction in herbicide use.

The relative importance of the advantages listed above will vary with location and farming systems. In upland production systems soil and water conservation, soil improvement and weed suppression are likely to be the most important.

Conceivable negative impacts:

i) increased numbers of ruminant animals will increase methane production. This maybe offset by faster animal growth rates, thanks to better forage quality;

ii) cut and carry systems may contribute to a decline in soil fertility;

iii) grazing steep slopes may result in increased erosion problems at some sites; and

iv) forages may compete with other perennial species (fruit trees and timber).

The positive effects heavily outweigh potential negative impacts.

3.7 GENDER IMPLICATIONS

There is considerable gender balance in the project. Men and women are represented at the Coordinator level in the project's organisational arrangements. The Coordinators in Indonesia and Thailand are women and until recently a woman was the Coordinator in the Philippines. Coordinators in all other countries are men.

There are a few women among the partners within countries at FSP sites.

The potential impact of the project at the farmer level is on both males and females. In all countries at the household level forage activities appear to be undertaken by both men and women. There is not a clear division of labour at this level but more a cooperative approach at the farm household level in undertaking the work that has to be done. This cooperative approach uses all the labour units in the household; men, women and the young.

Coordinators and partners in the project are conscious of the needs of women as they relate to project activities. There is no conscious affirmative action based on gender at any of the levels of the project.

The project could give consideration when developing its performance indicators to collect and analyse data on a gender related basis. This would give the project a more clear understanding of the impact of project activities on gender and especially on women. There is however no reason to believe that project activities are having a negative impact on women in the farm household. Anecdotal evidence suggests that in some instances time savings brought about through the introduction of forages may be impacting positively on women.

Women farmers dominated project activities in the Philippines and were obvious in Project activities in Indonesia. In Indonesia this was certainly the case in Pulau Gambar where the project's partner was a Women's Organisation. There was also an obvious presence of women participating in project activities in Vietnam. In Lao PDR the participation of women in project activities was not so obvious. Where women were actively participating in project activities their visions and what they wanted to achieve through the project were articulated by them. The extent of their understanding of the project and how they could use activities of the project to achieve their objectives was impressive, especially in the Philippines and Vietnam.

3.8 MONITORING AND EVALUATION

3.8.1 Project Monitoring

The project is monitoring its implementation performance and achievements. The outcome of the project's monitoring arrangements are illustrated in Table 1. The project implementation monitoring arrangements are simple and effective.

Country Coordinators and partners have more detailed monitoring information that relates to specific project sites in their respective countries. Outcomes from these monitoring arrangements are illustrated in the presentations made by Coordinators and partners at the annual regional meetings of the project. These monitoring arrangements are not specified by the project but are developed individually by Coordinators and partners in each of the participating countries. They serve the needs of the Coordinators and partners. This arrangement is working well.

3.8.2 Effectiveness Monitoring and Impact Evaluation

Effectiveness monitoring relates to the effectiveness of the outputs in their achievement of the project's purposes or in achieving intermediate outcomes as described in the project's logical framework. Project monitoring at this level needs further development. For example, information is needed on subjects such as:

i) the effectiveness of the training of trainers approach. How are those trained in FPR training others in their respective countries in the use of the FPR approach? How effective are the training modules in FPR and how are they used by those trained as trainers?

ii) the effect of the forages made available to farm households in the various farming systems and ecozones. What effect is this having on the farming system at the household level. What is the effect on the use of labour and gender? What effect is it having on household income? Is there a time savings and if so how is the time saved used by the household?

iii) the effect of the seed production activities of the project in terms of the production and distribution of seed; and

iv) the effect of the R and D information network supported by the project. What information is it conveying and to whom? Is the network providing a service over and above other similar networks that may be available?

Information of this nature is needed to ascertain the effectiveness of the project.

Project impact is measured at the goal level in the project's logical framework. Are project outcomes contributing to an increase in agricultural productivity and soil sustainability on smallholder farms in Southeast Asia? At this stage there is little quantitative evidence that the project is not making a contribution to an increase in the agricultural productivity and soil sustainability. However, the project should consider collecting data that indicates to what extent it is contributing to intermediate outcomes that will in turn contribute to the achievement of the overall goal.

The Project is aware of the need to address the monitoring of project effectiveness and impact. "Towards Improving Trials and Assessing Impacts" was the outcome of a study in March 1997 by CIAT addressing the issue of effectiveness and impact monitoring. In addition, at the Samarinda Regional Meeting it was concluded that an additional step be included in the FPR process during which baseline data would be collected to enable the conduct of ex-post evaluation to determine effectiveness and impact at the farm household level. It is important that the project accelerate this activity during its remaining years. It is also important that this effectiveness and impact evaluation approach be kept simple with only the minimum data needed to assess the intermediate outcomes the project is addressing being collected.

3.8.3 Process Monitoring

The process of FPR is an important aspect of the research being undertaken through the project. The process of FPR as it evolves in each of the countries and for each specific circumstance needs to be documented. How FPR is being undertaken and what it is achieving as a result of the way its is being undertaken is an important contribution to development. It needs to be publicised so that the approach and lessons are made available to development workers. This can only be achieved if the process is documented. It is the practice and its outcome that is important to document. The project could give consideration to documenting the process using specific case studies that relate to particular circumstances. These circumstances could be farming systems, agroecological zones, countries, farmers linked through organisations (the alyon in the Philippines) etc. The case studies could be prepared by country Coordinators and partners and could serve as training material in the development of additional training programs.

4. RETURN ON INVESTMENT

The return on investment of approximately AUD5 million comprising contributions from the Governments of Australia, Indonesia, Lao, Malaysia, Philippines, China Thailand and Vietnam is considerable. The levels of investment vary across the seven participating countries. In addition to the Government investments in the Project there are investments being made by the managing organisations (CIAT and CSIRO) that are outside the formal commitments described in the PID.

The management of project finances by the project and the individual countries is exceptional. For small expenditures of funds considerable achievements are made. This is most evident in the low cost of the annual regional meetings, training activities and publications.

The return on the two specialist project staff is also considerable. Their contribution to project achievements is the result of a considerable amount of travel between and within the participating countries facilitating at workshops and providing technical support. It could be argued that this contribution could be greater if project activities were geographically consolidated and reduced in number requiring a lesser amount of travel.

A financial and economic analysis has not been undertaken for the project neither at its preparation stage nor at the mid-term review stage. In the absence of such analyses, however, there is reason to believe from anecdotal information and from observation that if such analyses were undertaken the result would be robust.

5. SUSTAINABILITY ISSUES

5.1 GENERAL

Introducing participatory methodologies and developing and transferring forage technologies is a long term process. Considering the type of activities being implemented through FSP it is far too early to expect the process to be sustainable. At this stage neither the process of "developing forage technologies" nor the "participatory methodologies for research and technology transfer" would stand much chance of continuation without further additional external inputs. This situation may change as the project achievements become more obvious in the participating countries thereby influencing the relevant agencies to modify policy and provide additional internal resources.

5.2 SUSTAINABILITY OF THE TECHNOLOGY DEVELOPMENT TRANSFER PROCESS

The most we can expect by the end of 1999 is a situation where the researchers, technicians and extensionists involved in the process will have achieved basic competence in farmer participatory research. They will, however, require continuing support and guidance to consolidate skills and preserve the new participatory approach. Similarly, over the same time period, forage technology development will be limited to introduction, selection and adoption or use of species by farmers at the target sites. Refinement of the forage technologies being developed will take a longer period as problems may arise after an initial stage of adoption by farmers.

The first step "Selection of Forages" takes a minimum of 3 years if each step:

i) forage introduction;
ii) regional evaluation; and
iii) on-farm evaluation,

is limited to one year only. These activities are undertaken concurrently by the project. The real challenge in technology development will start in the next phase once new forage technologies become more widely adopted by farmers (See 6.1.).

5.3 SUSTAINABILITY OF FORAGE PRODUCTION AT THE FARMERS LEVEL

By the end of the present project (1999) there will be a situation where forages have been adopted by participating farmers at the target sites. In many cases, these will be retained by them even without further external support. Under ideal conditions we can also expect that some of these forages will spread further through the influence of farmer to farmer transfer or the existing extension structures.

6. FUTURE DIRECTIONS FOR FSP

6.1. GENERAL

The FSP has built up an excellent base for fruitful forage research and development activities in all of the participating countries. To get the benefit from the capacity, the trust and the expectations which has been build up across the various sites it is imperative that the project be expanded beyond 1999.

Unless specifically mentioned, no differentiation is made in the following discussion between the remaining period and the anticipated additional phase of the project.

6.2. REVISING OBJECTIVES

The objectives need to be adapted to the evolving realities (which may be only possible for a new phase), especially:

i) the focus should emphasize participatory technology development. The project should avoid a situation were it will be directly involved in extension activities. Extension activities in forages may be supported by providing information, training materials and other inputs;

ii) consolidating technology development at representative sites of the various production systems and ensuring that there is a core group of well trained development workers in farmer participatory forage technology development.

iii) the focus could be broadened to include all feed resources, specifically as improved forages are used primarily to supplement existing feed resources.

6.3. ISSUES RELATING TO THE IMPLEMENTATION/MANAGEMENT OF THE PROJECT

6.3.1 The Process

Farmer participatory research must be seen by the project as a process and not as a one-off exercise to enable the introduction of forages to smallholders. National partners must be aware of the process and equipped with the techniques that enable participatory adaptive research to take place. The smallholder farmers must be in a situation, aware and empowered, to participate in the participatory adaptive research process. Thus forages are introduced to smallholders and then management of forage resources is also developed in a participatory way. Problem solving would take place in a participatory way as problems arise. It is the process of empowering farmers and providing researchers with participatory techniques that is important. In this way what is being developed through the project becomes sustainable.

6.3.2 Institutions Involved in the Project

The FSP has interacted closely with other development organizations at all sites where it operates. The actual activity of forage technology development has been integrated with other projects at several sites, e.g. the GTZ project in Xieng Khouang, Lao PDR and the Vietnam-Sweden Mountain Region Development Project in north Vietnam. Though there has been close contact and information sharing with other international institutions such as IRRI, ILRI and FAO, no collaborative work has been carried out at the FSP sites.

In a new phase, advantage could be taken to further develop SEAFRAD as a platform for improved coordination of activities in forage and feed resource development by national and international R and D institutions (e.g. CIAT, CSIRO, ILRI, FAO, ICRAF) and donor agencies. These institutions could be part of a supervisory board that would also include some representatives of the participating countries and the major donors. The executive power could be entrusted to a regional coordinator.

6.3.3 Concentration

In the initial phase of FSP, efforts were made to cover a wide range of conditions resulting in many on-farm sites. For logistic reasons but also to have access to a sufficient large pool of farmers who have adopted forages it will be necessary to reduce the number of sites with major technology development activities. Sites with substantial number of farmers who have adopted forages (critical mass) should be selected to represent all major upland systems particularly sedentary upland cropping, shifting cultivation, plantations and permanent grassland systems. Potential sites include:

i) Philippines: Cagayan de Oro, Matalom, and Malitbog;
ii) Laos: Luang Prabang and Xieng Khouang;
iii) Vietnam: Daklak and Tuyen Quang; and
iv) Indonesia: Sepaku, Makroman and north Sumatra.

Consideration should be given by the project to concentrating and consolidating its activities. The project should focus its investment on research for development activities whilst providing morale support for extension. The project should concentrate its resources in specific geographic areas, limiting the need for excessive travel. The number of sites should not be expanded by the project though "spillover" activities should be allowed to take place naturally. The outcome at some sites may provide a lead for future bilateral development projects.

6.3.4 Expatriate Support

It is recommended that expatriate support should be retained at the same level. Continuous efforts need to be made to reduce the traveling requirement. Possible ways of reducing the traveling include: reducing the number of the main sites, devolving more responsibilities to the country coordinators and limiting participation in international workshops to the minimum required.

The present locations of the expatriate scientists, Los Banos and Vientiane remain the best choice taking into consideration the advantage of the interaction with IRRI and the specific requirement by Laos. This situation needs to be reviewed for any future project. Short term inputs of specialists, especially in the fields of training, socio-economy, participatory research and extension technology need to be made available.

Depending on the policies of the host countries selected students/volunteers with specific skills should be given the opportunity to work on clearly defined aspects of the project and provide support to national programs.

6.3.5 Documentation/Monitoring

The technology development and transfer process needs to be documented in detail. It is recommended that individual files should be maintained for each site. One copy each of these files should be kept with the responsible party at the site and in the national coordination office. This file should include the results from the diagnostic studies, site characterization, socio-economic baseline information for participating and selected non-participating households and regular updates on the evolving process.

Consideration should be given by the project to developing a system to monitor progress and facilitate assessment of impact of forage technology innovations on farm productivity, family well-being and the environment. The system should be kept simple with minimal data collection and analysis.

6.4 TRAINING

The training activities undertaken through the project are important for the successful achievement of project outcomes. Consideration needs to be given by the project to greater focus on the training of key individuals by providing continuous training to those individuals. This approach would limit the number of people trained but it would provide selected individuals with a greater depth of understanding of the FPR process. In this way the potential for sustainability of the FPR approach being developed through the project would be improved.

The project could give consideration to planning and implementing a programmed approach to training. This would involve identifying those to be trained, assessing their training needs and providing the training needed, employing informal and formal approaches. Such a programmed approach may enable a greater impact of the training for the small investment being made available through the project.

6.5 ISSUES RELATED TO THE DEVELOPMENT/TRANSFER OF TECHNOLOGIES

The participatory approach should remain the main method used to develop, adapt and transfer new technologies to other sites. At the same time it is important to emphasize that this approach is not required for all research, development and extension activities.

Continuous efforts are required in training of participating staff in the FPR methodologies. It should be remembered that not everyone is able to cope with FPR. Training is able to influence the thinking of some but not others. Those that cannot be influenced or who are not willing or unable to accommodate the FPR approach may need to be excluded from interventions that are mainly participatory in nature.

There is the need to train FPR specialists in socio-economy, extension methodology, and agronomy.

6.6 EXAMPLES OF ISSUES TO BE ADDRESSED THROUGH RESEARCH ACTIVITIES

Future research activities need to be based on the needs identified by the farmers. Some issues are already emerging. During a discussion at the Regional meeting in Samarinda, research needs were listed in the following areas: seed supply, establishment problems, management problems and concerns related to soil fertility and nutrient cycling. Examples of issues that may require research in some situations are listed below.

Selection of Germplasm:

i) Site specific and/or production system specific leguminous species;

ii) Species that can accumulate 6-8 months dry matter production and retain acceptable quality for use during extensive drought periods (fodder banks?);

iii) Species for non-ruminant animals (pigs, chicken, fish).

Seed Related Problems:

i) Identify accessions which make seed production possible;

ii) Provide support to local seed industries

Establishment

i) Review work with *Imperata cylindrica* and initiate studies with the new species/varieties including establishment, N application, grazing pressure

ii) Develop methods for establishment in upland rice and other major upland production systems by seed and cuttings

Soil Fertility/Conservation

i) Nutrient dynamics of forage/crop rotation systems

ii) Effects of cut and carry and/or export of manure on forage production, nutrient balance of the entire farm operation

iii) Technologies to maintain or improve soil fertility

Management

i) Develop technologies to optimize forage yield, quality and/or availability during extended period of drought.

6.7 THE POTENTIAL BENEFITS OF A "FOLLOW ON" PROJECT

The FSP is promising considerable success. There are shortcomings but they will be addressed during the remaining life of the project. The FPR approach of the project receives accolades from Coordinators and Partner organisations. The approach and the project is seen as being successful as it is bringing forages to farmers. There is considerable demand for extending the geographic focus and the mass of target farmers to varying degrees in the four principal participating countries of Indonesia, Philippines, Vietnam and Laos. This expansion is taking place naturally due to the success of the project. It is taking place also through other projects with a component/activity involved in forage research and development/extension. These projects are using the "manuals" and publications of the project to implement the approach and technologies developed by the FSP.

The scope of the natural expansion of the project due to its success varies from country to country. There is a correlation between the scope of expansion and the partner institution involved with FSP. Where the partner for FSP comes from an institution that is responsible for forage development and extension, the scope of the natural expansion is greatest. This is the case in Indonesia where the institution is DGLS and in Laos the DLF. In Vietnam and the Philippines the Coordinators are from institutions responsible for research; the NIAH and PCARRD, respectively.

There are two issues that need to be addressed:

i) the time needed to ensure that the FPR approach to technology development is sustained by staff of the national partner organizations and that the new forage technologies are sustainable in the longer term.

ii) formal expansion of the approach and technologies through capacity building in the institutions responsible for farmer extension activities in the countries concerned.

Issue (i). It is important to remember that participative approaches take time. With the FSP it is important to remember that the FPR approach is a process of learning. It is farmers and staff of the project learning together but more to the point it is the staff of the partner agency/institution/organisation adopting the new approach. It is this learning and the resultant understanding that enables the FPR approach of the project to become sustainable. For this to happen a number of iterations during the process need to be undertaken by the project.

The first iteration has been to use the FPR approach to identify specific sites and to attract farmers to participate in the project for the purposes of introducing forages. Farmers are conducting trials and making selections of the various forages and planting out these forage selections on their farms.

Farmers will now want to improve on what they have achieved. This will involve the management of forages in their development and in their use in animal production. This second iteration is only now commencing. There is a danger that staff involved with farmers during this second iteration will adopt the traditional directive approach of working with farmers. It is important that this does not happen and the staff are guided to continue to follow the participative approach during this second iteration. This means discussing with farmers the options available to them. Facilitating farmers in their selection of the appropriate options for their farming enterprise.

A third iteration in the process will be farmers bringing issues for discussion to staff and staff participating in discussion with these farmers. This iteration would indicate a real achievement in the empowerment of farmers and in the development of the capability of research/extension staff to interact with as opposed to directing farmers.

It is this target that the project should aim to achieve. This will take time and will require an extension of the current duration of the project to ensure that all three stages are completed. This situation should be reviewed as the project nears its current completion period with a decision taken at that time regarding an extension of the project's duration.

Issue (ii). This issue relates to formally taking the achievements of the project into extension activities of the countries concerned. This should be undertaken on a country and not a regional basis. It requires capacity and capability development/strengthening in the institution concerned responsible for agricultural/livestock extension activities. This would require staff development and training, including follow-up, in the FPR approach. This would be a formidable exercise in all the countries participating in FSP. It is beyond doubt that without follow-up training in the FPR approach, FPR will be used with only minimal success by the agriculture/livestock extension institutions. In a country where there is such a potential for livestock sector development this would be an opportunity missed. There is scope for country specific programs in:

i) Lao – where due to the size of the country and the institutions concerned the program could be nationwide based on capacity building for the DLF at national, provincial and district levels. The program would be one of capacity building for the purposes of implementing the approach and disseminating technologies developed by the FSP;

ii) Vietnam – where the approach would be targeted at provincial levels with ties to the national level;

iii) Philippines and Indonesia – where the approach may be to target the responsible central agriculture/livestock institution and the institutions responsible for the training of extension staff.

This training in FPR and dissemination of technologies developed through FPR would best be achieved by linkage to development projects. FPR is not an end in itself but a tool for developing, adapting and disseminating technology.

The project is preparing for a final workshop on the project in late 1999. This workshop is to be used as a means for disseminating the experiences and achievements of the project. The workshop should be seen as an international affair and used to influence the thinking of international organisations involved in forages research and development. The approach being used by FSP appears at this stage of the project to be successful. By the end of the project in 1999 the success of the project and its approach will be most obvious. This successful research project needs to be articulated in such a way that it influences those who design forage/livestock interventions so that the successes of the FSP are incorporated into these investments. The final workshop of the project is a means for achieving this. This workshop should attempt to access funding from institutions that could benefit from FSP experiences and successes and for taking FSP approaches into formal agricultural extension programs.

Attachment A

REVIEW TERMS OF REFERENCE

OVERVIEW

The regional Forages for Smallholders Project (FSP) commenced in January, 1995.

The overall objectives are:

i) to increase the availability of adapted forages and the capacity to deliver them to different farming systems, in particular, upland farming systems in Indonesia, Lao PDR, Philippines and Vietnam; and

ii) to develop close linkages in forage development activities between these countries and Malaysia, Thailand and tropical areas of the Peoples Republic of China.

The specific objectives of the FSP are:

i) to increase the availability of forages for different ecoregions and farming systems within the Southeast Asia region;

ii) to facilitate the integration of forages into smallholder farming systems;

iii) to increase the capability of local staff in forage agronomy and technology transfer;

iv) to facilitate and create effective information exchange systems on forage research and development; and

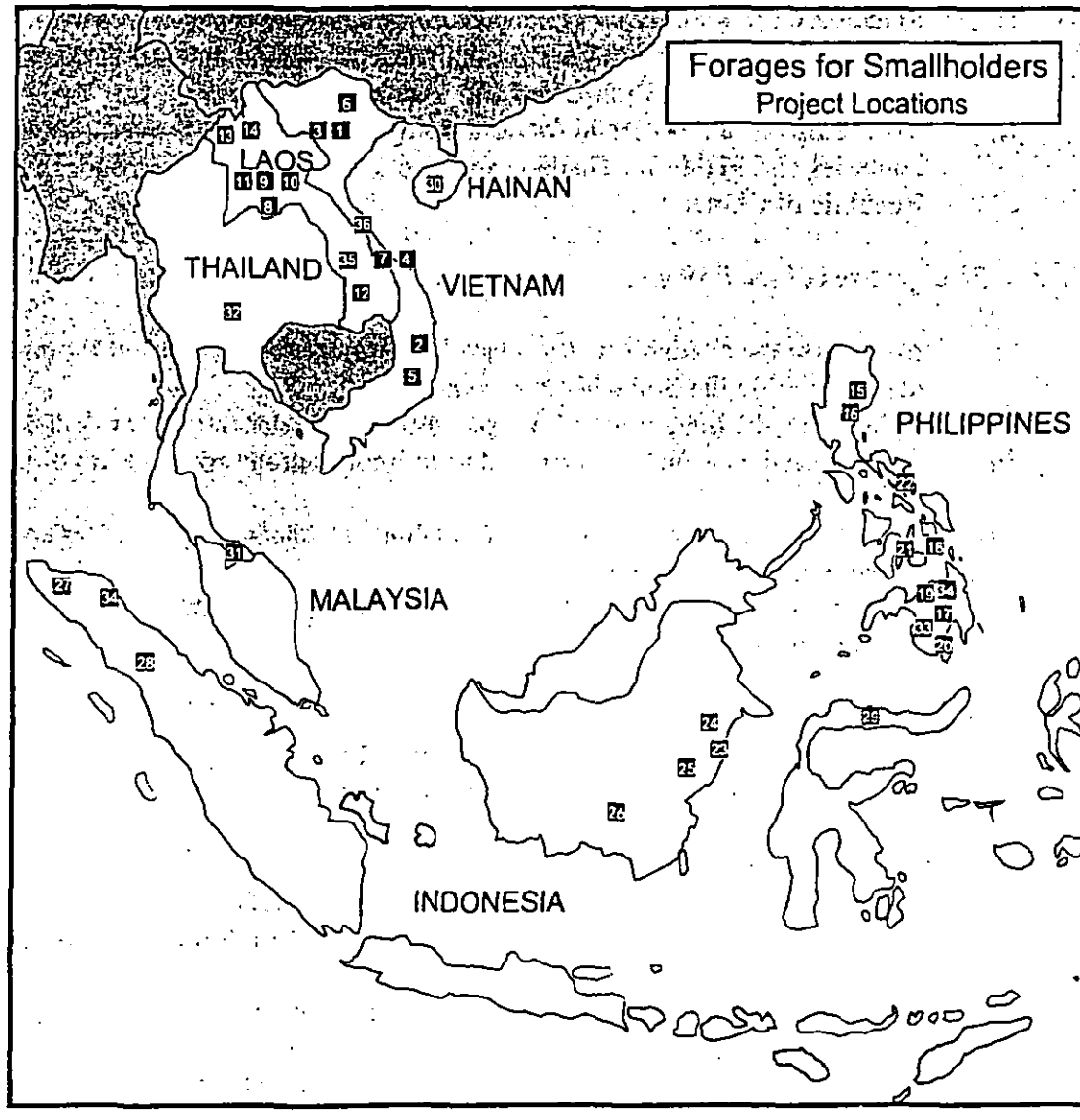
v) to ensure that the above objectives are met through efficient project management.

Implementing agencies of the FSP are:

CIAT	Centro Internacional de Agricultura Tropical, CGIAR;
CSIRO	CSIRO Tropical Agriculture, Australia.

Partner country agencies of the FSP are:

Indonesia	Directorate General of Livestock Services (DGLS);
Lao PDR	Department of Livestock and Fisheries (DLF), Ministry of Agriculture and Forestry;
Philippines	Philippine Council for Agriculture, Forestry and Natural Resources and Development (PCARRD);
Vietnam	National Institute of Animal Husbandry (NIAH), Ministry of Agriculture and Rural Development;
China PR	Chinese Academy of Tropical Agricultural Science (CATAS), Hainan;
Malaysia	Malaysian Agricultural Research and development Institute (MARDI); and
Thailand	Department of Livestock Development (DLD), Ministry of Agriculture and Cooperatives.


Forages for Smallholders
Project Locations
LAOS
HAINAN
THAILAND
VIETNAM
PHILIPPINES
MALAYSIA
INDONESIA

Country	Map identifier	Site description		Established			
		Location	Farming System	94/95	95/96	96/97	97/98
China	30	Hainan	E-UP[1]			R[2]	
Indonesia	23	Loa Janan, Samarinda	E-UP, GR	R			
	24	Makroman, Samarinda	R-LO, I-UP		R,F		
	25	Sepaku II, Pasir	E-UP, GR		R,F		
	26	Kanamit, K. Kapuas	R-LO	R			
	27	Saree, Aceh	GR			R,F	
	28	Marenu, South Tapanuli	I-UP			F	R
	29	Gorontalo, North Sulawesi	PL, E-UP			R,F	
	34	Pulau Gambar, North Sumatra	PL, I-UP			F	
Lao PDR	8	Nam Suang, Viang Chan	R-LO	I			
	9	Houay Khot, L. Phabang	E-UP, S-SB	I	R	F	
	10	Xiang Khouang	S-SB, GR		I/R	F	
	11	Houay Pay, L. Phabang	S-SB		R		
	12	Champassak	I-UP, GR		I		
	34	Savannakhet	R-LO				F
	13	Luang Namtha	L-SB		R		
	14	Oudomxay	L-SB		R/I		
Philippines	15	Gamu, Isabela	GR, E-UP	R			
	16	Aglipay, Quirino	GR, E-UP	R			
	17	CMU, Bukidnon	I-UP	R			
	18	Matalom, Leyte	I-UP, E-UP	R	F		
	19	Cagayan de Oro	E-UP		R,F		
	34	Malitbog, Bukidnon	E-UP			F	
	20	PCA, Davao	PL			R,F	
	21	MFI, Cebu	I-UP		R,F		
	22	Bicol	PL	R			
	33	USM, Mindanao	R-LO, E-UP			R,F	
Thailand	31	Narathiwa, S. Thailand	PL	R			
	32	Pakchong, NE Thailand	E-UP		R		
Vietnam	1	Ba Vi, Hanoi	I-UP	I			
	2	M'Drak, Daklak	GR	I		F	
	3	King's Pond, Vinh Phu	I-UP		R		
	4	Xuan Loc, Hue	I-UP, S-SB		I		F
	5	Kado, Lam Dong	I-UP,S-SB		I		
	6	Vietnam-Swedish project	I-UP			R,F	
	7	Daklak	I-UP			R	
	36	Gia Lai	I-UP, E-UP			R	

[1] Dominant farming system: I-UP = intensive sedentary upland agriculture, E-UP = extensive sedentary upland agriculture, S-SB = short rotation slash and burn, L-SB = long rotation slash and burn, GR = Grasslands, PL = plantations, R-LO = rain-fed lowland agriculture;

2 Codes: I = forage introduction sites. R = regional evaluation sites, F = on-farm sites.

Annotation of Sites

SCOPE OF WORK

The Consultants will assess the Project according to the following scheme.

A. **Outputs of the Project**

A 1. **What progress has been made towards meeting the expected Outputs?**

Full details are available in the Project Implementation Document (PID). These expected outputs are:

Forages available for different ecoregions and farming systems.
Ecoregions are defined as humid tropics to the seasonally dry tropics and from very acid infertile to moderately fertile soils.
Farming systems include agroforestry areas, upland sedentary and "slash and burn", natural/induced grasslands, plantations and rainfed lowland rice.

Forages integrated into different farming systems.
By the end of the Project at least 40 farmers in 18 target areas will be benefiting from the introduction of improved forages.

Local staff trained in forage development and technology transfer.
Courses in Farmer Participatory Research, Forage Agronomy and Seed Production to Trainers and in-country courses to individuals involved in the on-farm participatory technologies development (PTD) plus individual training.

Information systems on forage research and development established.
A regional forage network and newsletter and project publications.

Efficient Project management and monitoring set.

A 2. **Assess the general approach used in the implementation of the Project.**

A 3. **To what extent has the Project benefited from support of the institutions managing the Project?**

A 4. **What use has been made of other sources of support and information?**

A 5. **What lessons have been learned from the Project?**

Expected Impact of the Project

B 1. Assess the relevance of the Project to the countries concerned.

B 2. Assess the degree of collaboration and cooperation developed during the Project between countries, institutions, other development projects and individuals.

B 3. Assess the benefits and costs of the "regional character" of the Project as compared to a bilateral approach.

B 4. To what extent are the needs of smallholders being met as expressed through the participatory diagnosis that are carried out at on-farm sites?

B 5. Is there evidence of social benefits (e.g. in relation to reduced labour inputs)?

B 6. Are there any positive or negative environmental impacts that have resulted or are expected to result from the Project?

B 7. Are there any differential impacts on men, women or children in communities where the Project is working that have resulted or are expected to result from the Project?

B 8. Does it appear that the outputs (or benefits) of the Project will represent a reasonable return on the investment?

B 9. Are the guidelines as set out in the PID adequate to measure impact and to what extent should these be modified taking into account the available resources?

At the time of writing the project these included:

i) discussions with government agencies, farmers, ODA officers;
ii) inspection of test sites;
iii) reports and publications.

The Need for and Potential Benefit of a Follow-On Project.

C 1. Advise how "spillover" benefits of the present Project might be maximised.

C 2. What, if any, follow up activities and support are necessary to ensure long-term benefits from the Project (by country).

C 3. If you see the need for the development of a follow-up project:
What might be the objectives?

- Which countries and national agencies might be involved?
- What might be a possible location?
- What funding agencies might be interested in such a project?

Supporting Material

All relevant documentation will be made available. Copies of the PID and six monthly reports will be made available beforehand. Other reports will be provided at the regional meeting.

Program for the Review

Ron Staples will be briefed by Peter Kerridge in the Philippines during a field visit to Cagayan de Oro and Bukidnon in Mindanao.
Walter Roder will be briefed on arrival in Samarinda, Kalimantan.

Regional Meeting

The Review Team will attend the Annual Regional Meeting to be held in Samarinda, Kalimantan, Indonesia from 23 to 26 March. This will give them the opportunity to meet the country representatives and have individual discussions with them and also to meet Indonesian government officials. They are also being asked to participate in the program with presentations:

- Roder - Forage research and development in the Kingdom of Bhutan;
- Staples - Participatory approaches to development and dissemination of new technologies.

Field Visits

Staples to visit sites in Mindanao (Roder not available for this visit);
Travel to and visit Marenu and Pulau sites in North Sumatra, Indonesia;
Travel to and visit M'Drak site in Vietnam;
Visit Luang Phabang in Laos.

Report Preparation

Vientiane, Laos for the preparation of the draft Report. Peter Horne and Werner Stur (FSP staff) available for discussions.

Additional Notes

Site visits will generally be made with local officers and not FSP staff.
A final meeting will be held between Staples and Peter Kerridge and Bryan Hacker, Project managers, in Canberra at the end of April.

CURRICULA VITAE

DR WALTER RODER

Walter Roder, born in 1950 grew up on a typical dairy farm in Switzerland. He has a BSc. Degree from the Swiss Technical College of Agriculture (Zollikofen) and MSc. (Range Management) and Ph.D. (Agronomy) degrees from the University of Lincoln, Nebraska (USA). He has long-standing research and development experience in forage and smallholder farming systems from the USA, Bhutan, New Zealand and Laos. He has published on a wide range of forage related topics. He has worked in Asia since 1973. His assignments included long-term research positions with Helvetas/SDC in Bhutan and IRRI in Laos and the Philippines. He is currently working as Team Leader/Agronomist for the Swiss Association for Development and Cooperation (Helvetas) attached to the Renewable Natural Resources Research Center, Jakar with the main responsibility to provide leadership for a national research program on livestock with emphasis on fodder resource development.

RON STAPLES

Ron Staples is a Project/Program design, monitoring and evaluation specialist with experience in participatory development approaches. He has 33 years international project development experience, including 15 years continuous PNG experience, eight years in AusAID's Appraisal and Evaluation Section and a further 10 years as an independent contractor on international development projects. He was responsible for preparing AusAID's Country Programs Operations Guidelines (CPOG) and for training AusAID staff in project/program identification, design, management, monitoring and evaluation.

Ron Staples uses participatory approaches and techniques in development project planning and implementation activities. Staples' development planning and management experience includes employment by government authorities in Australia and overseas, two years as the Development Programs Director for CARE Australia and numerous short term assignments with development cooperation and lending agencies in Australia, Sweden, World Bank, and IFAD.

Staples has considerable experience as a trainer with qualifications in methods of instruction. He was a Lecturer/Training Officer at the Papua New Guinea Local

Government Staff College from 1971 to 1973, a Tutor for the University of Queensland in Port Moresby for external students in Macro and Micro Economics in 1974 and 1975 and a Lecturer in Maco Economics at the Riverina College of Advanced Education in 1978. Staples was involved in the training of AusAID staff in project/program identification, design, management, monitoring and evaluation from 1978 to 1986 and conducted training activities for consultants to AusAID in project management approaches and techniques. Staples was instrumental in introducing the logical framework planning technique to AusAID and AusAID projects.

Staples has a B Econ from the University of Queensland and a MA in Development Economics from the University of East Anglia . He has work experience in development projects in Papua New Guinea, Australia, Philippines, China, Ethiopia, Indonesia, Thailand, Burma, Zambia, Zimbabwe, Kenya, Tanzania, Uganda, Seychelles and Nepal.

Staples is currently employed on a part-time basis as:

i) the Technical Director for the Economic Expansion in Outlying Areas Project in Zambia. This is a project tasked to facilitate the development of emerging entrepreneurs in agricultural production, processing and marketing in six districts of two provinces in the Republic of Zambia. The project is supported with funding from Swedish Sida;

ii) Project Director for the Agricultural Technology Education Project in the Philippines. The project is supported with funds from AusAID and is involved in developing the capacity and capability of 14 agricultural colleges to provide graduates that meet the needs of the agriculture sector in the Philippines. The project involves the development of curricula that meets provincial needs, training instructors in experiential; learning approaches and developing the capacities of the colleges to manage their staff, curricula and students;

iii) Monitoring and evaluation support for the Smallholder Dry Areas Resource Management Project in Zimbabwe supported with AusAID/IFAD funding. The task is to design and train staff of the Ministry of Agriculture to operate and manage a program monitoring and evaluation system.

Attachment C

REVIEW TEAM'S ITINERARY

19 and 20 March	Staples with Dr Peter Kerridge visits Pagalungan barangay in Cagayan de Oro City and St Luis barangay in Malitbog, Bukidnon.
21 March	Staples and Kerridge visit FSP on-station activities at IRRI Los Banos and discussions with Director Faylon of PCARRD.
23 to 26 March	Regional Meeting in Samarinda, East Kalimantan, Indonesia. This included visit to FSP sites at Sepaku and Makroman.
27 to 30 March	Staples and Roder visit FSP sites in Marenu and Pulau Garnbar in North Sumatra and research station in Sg. Putih.
31 March	Staples and Roder discussions in Ho Chi Minh City with Mr. An of the College of Agriculture and Forestry.
1 and 2 April	Staples and Roder visit Cattle Development Company and sites in M'Drak in Vietnam. Discussions in Nha Trang with Vietnamese partners.
3 to 6 April	Discussions with partner in Lao PDR and visit FSP sites in Luang Phabang; Namok Hoo, Houay Hai and Kieuw Talun.
7 and 8 April	Staples and Roder report writing in Vientiane.
9 April	Staples and Roder travel to Thailand; Staples to Australia and Roder to Bhutan

Attachment D

DESCRIPTION OF SITES VISITED

Site	Characterization	Opportunities	Constraints/potential problems[a)]
Indonesia			
Sepaku	• Old transmigration area (early 70's) • Infertile soils, dominated by *Imperata cylindrica* • Sloping land • Rainfall 2200 mm, long dry season • Farm size 2 ha • Field crop and horticulture production insignificant • Serious wild boar problems	◊ Selected forage species show good performance inspite of the marginal environment ◊ Increased soil fertility through livestock production may make the cultivation of other food crops, spices (pepper) or other cash crops possible	⇒ Land holdings may be too small to allow for the development of economic viable livestock production systems ⇒ Cut and carry systems may lead to further decline in soil fertility ⇒ The strong influence of Transindo (Department of migration) may not allow for fruitful participatory technology generation and transfer
Makroman	• Old transmigration area (1974) • Moderately fertile soils • Substantial areas of paddy land • Mixed farming with food crops (cassava, maize), trees and forages • Rainfall 2200 mm, long dry season • Typical farm size 2 ha • 2-3 cattle and some goat • Participants belong to farmers group	◊ Forages complement the existing farming system, ◊ Farmers are testing a variety of systems integrating forages with tree and food crops ◊ Farmers have recognized the value of *Centrosema pubescens* for soil fertility improvement and suppression of *I. cylindrica*	⇒ Small land holdings ⇒ Net loss of nutrients as manure is lost ⇒ Influence of traditional R&D approach is evident in the adaptive trial on King grass
Marenu'	• New transmigration area • Moderately fertile soils previously used as grazing land • Flat • Rainfall 2200 mm, long dry season • Farm size 1 ha • Sheep 30-60 per house hold • Oil palm as cash crop • Participants belong to farmers group	◊ Livestock production complements oil palm plantation in the initial years ◊ Fast return on investment by sheep	⇒ Land holdings are too small to allow for the evolving of economic viable farming systems ⇒ Forage development may delay plantation of perennials (oil palms) ⇒ The strong influence of Transindo may not allow for fruitful participatory technology generation and transfer

Site	Characterization	Opportunities	Constraints/potential problems
Indonesia			
Pulau Gambar	• Traditional food crop growing area • Intensive land use with rice-pulse rotation systems • Most collaborating farmers working on rented land • Sheep production a new and very minor component of the system with potential short term cash benefit • Participants are members of a woman's organization	◊ Production based on previously not used resources ◊ Substantial cash income possible ◊ Potential to incorporate with food crop production system by utilizing crop residues	⇒ Net loss of nutrients as manure is sold ⇒ Forages are planted on small plots in the vicinity of houses which were previously used to grow vegetables for home consumption ⇒ Stealing of goats and the need for security
Philippines			
Pagalungan	• Cagayn de Oro city municipality • Sloping land with vast areas of *I. cylindrica* • Tribal group (Higaonon) • Small plot of land near the home for garden • Large cropping area further away • Main crop is maize, others include coconut, banana and root crops • Farmers keep cattle, buffalo, horses, goat, pigs and chicken • Participants member of an association • Cattle dispersal program of city administration	◊ Selected forages on river flat and hilly areas ◊ Grazing by tethering animals and cut and carry ◊ Strong participation by woman farmers both in association and researching forages ◊ Good access and supporting city administration Building on experiences in participation with PRAEP ◊ Ability of development worker to facilitate the research process in a participatory way	⇒Scarcity of land

Site	Characterization	Opportunities	Constraints/potential problems.
Philippines			
Malitbog	• St Luis Barangay in Malitbog municipality • Major crops maize, coconut, banana, coffee and rice • Livestock include cattle, buffalo, pigs, goat and chicken • Land title range from leasehold, stewardship to tenant • Elevation 700m, relatively fertile • Annual rainfall 1'830 mm • Participants member of a cooperative and smaller association • Part of a cattle dispersal program of cooperative and municipal government	◊ Selected forages integrated within the farming system with opportunities for animal fattening using cut and carry ◊ Livestock production is complementing other farming and income generating activities ◊ Crop residues used as feed resource ◊ Participation by both men and woman and a good understanding of what they want and how they plan to achieve it ◊ Good access and support by municipal government ◊ Building on participatory experiences of PRAEP ◊ Buying mechanism for livestock through middlemen	⇒Land area limited ⇒Loss of nutrients through cut and carry system
Vietnam			
M'Drak	• Moderately fertile soils, dominated by *I. cylindrica* • Rainfall 2000 mm but long dry season (6 month) • Landholdings 1-90 ha • Cattle 1-100 heads per family	◊ Large land holdings with possibilities to expand ◊ Excellent market for manure ◊ Livestock is the main source of income	⇒ Cut and carry management may lead to a decline in soil fertility ⇒ Forages seen as supplementary fodder source only ⇒ Present systems depend largely on fodder resources from common lands which may not be available in the foreseeable future ⇒ Dealing with farmers who are commercially minded

Site	Characterization	Opportunities	Constraints/potential problems.
Laos			
NamokHoo	• Moderately fertile soils, interspersed with limestone outcroppings • Moderate slope gradients • Present land use 3 years rice followed by 5 year fallow • Fallow vegetation dominated by *I. cylindrica* • Land holding 5 ha/ house hold • Most families have 2-10 cattle • Lao Sung ethnic group	◊ Livestock is a traditional source of cash income ◊ Livestock production is seen as the best option under the given condition (distance from market, market, topography)	⇒ The land resources are located about 1 hour walking distance from the village. This may impair optimal management of forages and livestock ⇒ Concentration on livestock production may reduce investments into other systems with high potential especially fruit trees
Houay Hai	• Moderately fertile soils • Steep to moderately steep • Present land use 1-2 year of rice followed by 3 year fallow • Fallow vegetation dominated by Chromolaena odorata • Only 30% of the families own cattle • Lao Theung ethnic group	◊ Cattle may contribute towards increased fertility in the existing cropping system ◊ Livestock may help resource poor farmer to make investments in fruit tree and/or timber plantations	⇒ Farmers need credit rather than forages ⇒ Interest for forages may be driven by the pressure from local authorities ⇒ Concentration on livestock production may reduce investments into other systems with high potential especially fruit trees
Kieuw Talun	• Moderately fertile soil • Steep (>60%) • Present land use 3 years rice followed by 5 year fallow • Keeping cattle and sheep • Lao Sung ethnic group	◊ Livestock is a traditional source of cash income ◊ Livestock production is seen as the best option under the given condition (distance from market, market, topography) ◊ Farmers who know what they want and how to achieve it	⇒ The land resources are located about 30 minutes walking distance from the village. This may impair optimal management of forages and livestock ⇒ Concentration on livestock production may reduce investments into other systems with high potential especially fruit trees ⇒ Extreme slope gradient

[a)]Except for the Phillipines the limited abilities of development worker to facilitate the research process in a participatory way is seen as a major constraint at all sites

PROJECT TRAINING ACTIVITIES

Regional training course - training of trainers: Farmer Participatory Research

Date: 10 July - 5 August 1995

Venue: IRRI, Los Bañios and ViSCA, Leyte, PHILIPPINES

Resource people:

Ms. Teresa Gracia, IPRA- Participatory Research Project, CIAT
Ms. Annie Frio, Training Center, IRRI
Ms. Tet Lopez, FPR project, ICLARM
Ms. Gina Zarsadias, Training Center, IRRI

Participants - active/y involved in the FSP as of April 1998:

1. Mr. Liu Guodao, Forage Research Division, CATAS, P.R. China
2. Ms. Maimunah Tuhulele, Forage Development, DGLS, Indonesia
3. Dr. Tatang Ibrahim, BPTP, North Sumatra, Indonesia
4. Mr. Vanthong Phengvichith, Livestock Development Division, DLF, Lao PDR
5. Mr. Phonepaseuth Phengsavanh, Livestock Development Division, DLF, Lao PDR (seconded to FSP)
6. Dr. Wong Choi Chee, Livestock Research Center, MARDI, Malaysia
7. Ms. Aminah Abdullah, MARDI Research Station, Kota Bharu, MARDI, Malaysia
8. Ms. Elaine Lanting, Livestock Research Division, PCARRD, Philippines (later replaced by Ed Magboo)
9. Ms. Ganda Nakamanee, Animal Nutrition Research Center, Pakchong, DLD, Thailand
10. Mr. Le Hoa Binh, Forage R&D, NIAH, Vietnam
11. Mr. Francisco Gabunada, FARMI, ViSCA, Philippines (seconded to FSP)
12. Dr. Peter Horne, FSP, Lao PDR
13. Dr. Werner Stur, FSP, Philippines

Participants - not active/y involved in the FSP:

14. Mr. Noe Velasco, Dairy Training Center, UPLB, Philippines
15. Mr. Kiatisak Klum-em, Forage Development, DLD, Thailand
16. Ms. Wei Jiashao, Forage Research, CATAS, P.R. China

In-country training course:
Farmer Participatory Research

Date: 8 – 21 October 1995

Venue: Isabela State University, Isabela, Philippines

*Resource people:*Ms. Elaine Lanting (PCARRD, Los Baños)
Mr. Francisco Gabunada (ViSCA, Leyte – seconded to FSP)
Mr. Noe Velasco (Dairy Training Center, UPLB, Los Baños)
Dr. Werner Stür (FSP)

FSP participants - actively working with farmers:

1. Mr. Rolando N. Arevalo (Provincial Veterinary Services, Legazpi City)
2. Mr. Edwin A. Balbarino (FARMI, ViSCA, Leyte)
3. Mr. Fidel Bartolome (Technician, Cagayan Valley Integrated Agricultural Research Center - Livestock Experiment Station, DA, Isabela)
4. Mr. Art Bugayong (Researcher, Central Mindanao University, Bukidnon)
5. Mr. Ricardo Casauay (Forage Research Coordinator, Cagayan State University, Cagayan)
6. Mr. Sergio Darang (Agriculturist, Cagayan Valley Integrated Agricultural Research Center - Livestock Experiment Station, DA, Isabela)
7. Mr. Junaldo A. Mantiquilla (Researcher, Philippine Coconut Authority - Davao Research Center, Davao City)
8. Mr. Jeffrey A. Rabanal (Researcher, Philippine Carabao Center at University of Southern Mindanao, Cotabato)
9. Ms. Emily E. Victorio (Researcher, Bureau of Animal Industry, Manila)

FSP participants - not directly working with farmers:

10. Mr. Charles R. Babas (Research Assistant, Isabela State University)
11. Mr. Camilo G. Banguilan (Researcher, Isabela State University, Isabela)
12. Ms. Alicia O. Cosep (Agriculturist, Southern Cebu Farming Systems Research and Development Station, Argao, Cebu)
13. Mr. Raul B. Palaje (Professor, Isabela State University, Cabagan, Isabela)
14. Mr. Samson Salamat (Assistant Professor, Camarines Sur State Agriculture College, Camarines Sur)
15. Mr. Cornelio P. Subsuban (Center Director, Philippine Carabao Center, University of Southern Mindanao, Cotabato)

Participants sponsored by other organisations involved in upland development:

16. Mr. Eric P. Palacpac (Researcher, Livestock Research Division, PCARRD, Los Baños)
17. Mr. Ben Hur R. Viloria (Southern Mindanao Agricultural Programme, Davao City)

In-country training course:
Farmer Participatory Research

Date: 11 - 23 December 1995

Venue: Xieng Ngeun Training Centre, Luang Phabang, Lao PDR

Resource people:

Mr. Vanthong Phengvichith (DLF, Vientiane)
Mr. Phonepaseuth Phengsavanh (DLF, Vientiane)
Dr. Outhaki (Ministry of Education, Vientiane)
Ms. Ny (PRA Consultant, Lao PDR)
Dr. Peter Horne (FSP)

FSP participants - actively working with farmers:

1. Mr. Viengsavanh Phimphchanhvongsod (LDD, DLF, Vientiane)
2. Mr. Sengpasith Thongsavanh (Luang Phabang Provincial Livestock Office)
3. Ms. Thongbai Siesomphone (Luang Phabang District Livestock Office)
4. Mr. Chanhphone Keoboualapeth (Luang Phabang Provincial Livestock Office)
5. Mr. Bounsu Duangfasit (Oudomxay Provincial Livestock Office)
6. Mr. Simeuang Lakkanakhoun (Oudomxay Provincial Livestock Office)
7. Mr. Soulivanh Novaha (Xieng Khouang Provincial Agriculture Office)
8. Mr. Bounthavy Meksavanh (Savannakhet Provincial Livestock Office)
9. Mr. Thonglay Vannivong (Savannakhet Provincial Livestock Office)
10. Mr. Siesomvang Keodouangdi (Champasak Provincial Livestock Office)
11. Mr. Paivan Chomchanta (Champasak Provincial Livestock Office)
12. Mr. Boualy Phommachanh (Bokeo Provincial Livestock Office)
13. Mr. Khampeng Chanhpaseuth (Bokeo Provincial Livestock Office)
14. Mr. Viengthongxay Intha, (CONSORTIUM, Vientiane)

FSP participants - not directly working with farmers:

15. Mr. Somchanh Khamphavong (LDD, DLF, Vientiane)
16. Mr. Viengxay Photakoune (LDD, DLF, Vientiane)
17. Mr. Boualy Sengdala (LDD, DLF, Vientiane)
18. Mr. Khambai Lattanasim (Pak Souang Agriculture School, Luang Phabang)
19. Mr. Khampheng Panavanh (Luang Namtha Provincial Livestock Office)
20. Mr. Khameung Sipaseth (Luang Namtha Provincial Livestock Office)
21. Mr. Phengpilaa Kordnavong (Xieng Khouang Provincial Agriculture Office)

Participants sponsored by other organisations involved in upland development:

22. Mr. Kaysone Phandanouvong (World Education, Vientiane)

23. Mr. Bounthavy Phanthouvong (Forestry Department, Vientiane)
24. Mr. Sompit Phethmeuangneua (Sayabouri Provincial Forestry Department)
25. Mr Senthong Keonaly (Phongsali Provincial Forestry Department)
26. Mr. Somphachanh Vongphasouvanh (Lao-Swedish Forestry, Luang Phabang)
27. Mr. Bounmeuang Chansagha (Lao-Swedish Forestry, Luang Phabang)
28. Mr. Phrasit Vongsonepheth (Lao-Swedish Forestry, Luang Phabang)
29. Mr. Outhai Sisavath (Lao-Swedish Forestry, Luang Phabang)
30. Mr. Somay Khonesavanh (Lao-Swedish Forestry, Luang Phabang)
31. Mr. Khamdock Songylkhangsutho (Lao-IRRI Project, Luang Phabang)
32. Mr. Boonchanh Chantapadith (Lao-IRRI Project, Luang Phabang)
33. Mr. Bounxay Bounthip (Lao-IRRI Project, Luang Namtha)
34. Ms. Lanfeuang Phimmavong (Lao-IRRI Project, Luang Namtha)
35. Mr. Phouthone Chanhthavong (ZOA, Xieng Khouang)
36. Mr. Singpeng Senyakon (CONCERN, Bokeo)

In-country training course:
Farmer Participatory Research

Date: 19 - 29 February 1996

Venue: Animal Nutrition Center, Pakchong, DLD, THAILAND

Resource people:

Ms Ganda Nakamanee, Animal Nutrition Center, DLD, Thailand
Mr. Kiatisak Klum-em, Animal Nutrition Division, DLD, Thailand
Ms. Chaisang Phaikaew, Forage R&D, DLD, Thailand
Dr. Werner Stür, FSP (first week only)

Participants:

1. Mr. Viengsavanh Phimphachanhvongsod, LDD, DLF, Lao PDR
2. Mr. Krailad Keowthong, Animal Nutrition Research Center, Khon Kaen
3. Mr. Saney Kulna, Animal Nutrition Research Center, Chainat
4. Mr. Outhai Sangkaphan, Animal Nutrition Research Center, Narathiwat
5. Ms. Jarlya Ketama, Division of Animal Nutrition, DLD, Bangkok
6. Ms. Sasithon Tinnakorn, Animal Nutrition Research, Pakchong
7. Ms. Weerapon Phunphiphat, Animal Nutrition Research Center, Chainat
8. Mr. Taweesak Chuenpreecha, Animal Nutrition Research Center, Khon Kaen
9. Ms. Vanya Angthong, Division of Animal Nutrition, DLD, Bangkok
10. Ms. Phaewphan Susuay, Animal Nutrition Research Center, Chainat
11. Ms. Rumphai Chaithiang, Animal Nutrition Research Center, Khon Kaen
12. Mr. Weerasak Chinosaeng, Animal Nutrition Research Center, Lampang
13. Mr. Vithaya Sumamak, Animal Nutrition Research Center, Khon Kaen
14. Mr. Nathawut Purintrapiban, Animal Nutrition Research Center, Nakhornsrithammarat
15. Mr. Somsak Paothong, Animal Nutrition Research Center, Phetchabun
16. Mr. Somphon Waipanya, Animal Nutrition Research Center, Nakornsrithammarat
17. Ms. Saranya Vittayanuphapnyuenyong, Animal Nutrition Research Center, Pakchong
18. Mr. Phuminh Dokmanee, Animal Nutrition Research Center, Pakchong
19. Ms. Ponpen Phadungsak, Animal Nutrition Research Center, Pakchong

In-country training course:
Farmer Participatory Research

Date: 1 - 14 March 1996

Venue: Provincial Livestock Service, Samarinda, INDONESIA

Resource people:

Ms..Maimunah Tuhulele, DGLS, Indonesia
Dr. Tatang Ibrahim, BPTP, Indonesia
Dr. Peter Horne, FSP

FSP participants - actively working with farmers:

1. Ir. Ibrahim, Forage development, Provincial Livestock Service, East Kalimantan
2. Drh. M. Tauhq, Veterinarian, District Livestock Service, Kapuas, Central Kalimantan
3. Ir. Arief Heriadi, Livestock officer, District Livestock Service, Kapuas, Central Kalimantan
4. Mr. Said Hasyim, Paramedic, District Livestock Service, Kapuas, Central Kalimantan
5. Ir. Ismail, AI officer, District Livestock Service, Pasir, East Kalimantan
6. Mr. Tugiman, Extension officer, Municipal Livestock Service, Samarinda, East Kalimantan
7. Mr. Herlyanto, Extension officer, District Livestock Service, Pasir, East Kalimantan
8. Ir. Susilan, Forage development, District Livestock Service, Gorontalo, North Sulwesi

FSP participants - not directly working with farmers:

9. Ir. Mansyur, Animal nutrition section, District Livestock Service, Aceh Besar
10. Ir. Hamiah, Animal nutrition section, Provincial Livestock Service, East Kalimantan
11. Ir. Ngurah Suryawan, Extension service, Provincial Livestock Service, East Kalimantan
12. Drh. Alfian Pane, Head, District Livestock Service, South Tapanuli, North Sumatra
13. Drh. Rafzunella, Forage Section, DGLS, Jakarta
14. Drh. Wartlaningsih, Researcher, Assessment Institute for agricultural Technology, Samarinda, East Kalimantan

In-country training course: Farmer Participatory Research

Date: 22 July - 2 August 1996

Venue: Sungei Putih, North Sumatra, INDONESIA

Resource people:
Dr. Tatang Ibrahim, BPTP, Indonesia
Ms. Maimunah Tuhulele, DGLS, Indonesia
Dr. Peter Horne, FSP (first week only)

FSP participants - actively working with farmers:

1. Mr. T.M. Yunus (Veterinary worker, District Livestock Service, Aceh Besar)
2. Mr. M. Ali (A.I. service, District Livestock Service, Aceh Besar)
3. Mr. Ghozali Zainal (Animal husbandry highschool, District Livestock Service, Aceh Besar)
4. Drs. Marlan (Head, Marenu settlement, South Tapanuli, North Sumatra, Department of Transmigration)
5. Mr. Julius Sitepu (Technician at Marenu, Assessment Institute for Agricultural Technology, North Sumatra)
6. Mr. Rijanto Hutasoit (Technician at Marenu, Assessment Institute for Agricultural Technology, North Sumatra)
7. Ir. Trikingkin W. (Technician at Marenu, Assessment Institute for Agricultural Technology, North Sumatra)
8. Mr. Asri (Technician at Marenu, Assessment Institute for Agricultural Technology, North Sumatra)
9. Mr. Zulkifli Tanjung (Extension worker, District Livestock Service, South Tapanuli, North Sumatra)
10. Mr. Radianto (Extension worker, District Livestock Service, Deli Serdang, North Sumatra)
11. Mr. Misro Aliandi (Technician at Sungei Putih, Assessment Institute for Agricultural Technology, North Sumatra)
12. Mr. Idrus Labantu (Extension worker, District Livestock Service, Gorontalo, North Sulawesi)

FSP participants - not directly working with farmers:

13. Ir. Bustari (Animal nutrition section, Provincial Livestock Service, Aceh)
14. Ir. Tati Setiawati (Forage section, DGLS, Jakarta)
15. Dr. Nurhayati (Head. Forage research, Animal Husbandry Research Institute, Ciawi)
16. Ir. Paras Harahap (Production section, District Livestock Service, South Tapanuli, North Sumatra)

In-country training course:
Farmer Participation Research

Date: 7 - 14 October 1996

Venue: Ba Vi, Son Tay, VIETNAM

Resource people:

Dr. Peter Horne, FSP
Mr. Le Hoa Binh, NIAH, Vietnam
Mr. Toai, Vietnam-Sweden Mountain Region Development Program, Hanoi

FSP participants- actively working with fanners:

1. Mr. Truong Tan Khanh (Tay Nguyen University, Buon Ma Thuot)
2. Mr. Le Van An (College of Agriculture and Forestry, Hue)
3. Mr. Le Hoa Binh (National Institute of Animal Husbandry, Hanoi)
4. Mr. Ngo Van Man (College of Agriculture and Forestry, Ho Chi Minh City)
5. Mr. Tran Ngoc My (Tay Nguyen University, Buon Ma Thuot)
6. Mr. Dinh Van Binh (Goat and Rabbit Research Centre, Ba Vi)
7. Mr. Nguyen Van Loi (Forestry Research Centre, Vinh Phu
8. Mr. Nguyen Tien Dzung (Goat and Rabbit Research Centre, Ba Vi)
9. Mr. Nguyen Van Hao (College of Agriculture and Forestry, Ho Chi Minh City)

Participants - not directly working with farmers:

10. Mr. Dinh Xuan Tung (NIAH, Hanoi)
11. Mr. Ha Duy Son (Livestock R&D Centre, Quy Nhon, Binh Dinh)
12. Mr. Ho Van Nung (National Institute of Animal Husbandry, Hanoi)
13. Ms. Phan Thi Phan (National Institute of Animal Husbandry, Hanoi)
14. Mr. Nguyen Man Khai (National Institute of Animal Husbandry, Hanoi)
15. Mrs. Nguyen Thi Mui (National Institute of Animal Husbandry, Hanoi)
16. Mr. Nguyen Van Tien (Buffalo and Horse Research Centre, Ba Van)
17. Mrs. Hoang Thi Lang (Buffalo and Horse Research Centre, Ba Van)
18. Nguyen Quang Suc (Goat and Rabbit Research Centre, Ba Vi)
19. Mr. Nguyen Van Quang (Agricultural University, Bac Thai)
20. Mrs. Nguyen Thi Tuyet (Agricultural University, Bac Thai)

Jointly-conducted training courses on Farmer Participatory Research

Date: 4 - 13 September 1997

Jointly-conducted with: CIAT Cassava Project

Venue: Pakchong, THAILAND

Resource people:

Mr. Francisco Gabunada (FSP)
Mr. Hans Dieter Bechstedt - IBSRAM, Bangkok
Dr. Suchint Simaraks - Dept. of Animal Science, Khon Kaen University,
Dr. Sam Fujisaka (CIAT, Colombia)
Dr. Reinhardt Howeler (CIAT, Thailand)

Participants involved in the FSP:

1. Ganda Nakamanee (Forage research, Animal Nutrition Research Center, Pakchong, DLD, Thailand)
2. Viengsavanh Phimphachanhvongsod (Livestock Development Division, DLF, Lao PDR
3. Hongthong Phimmasan (NAWACOP Project, Vientiane, Lao PDR)

Jointly-conducted training courses on Farmer Participatory Research

Date: 17 - 26 September 1997

Jointly-conducted with: CIAT Cassava Project

Venue: Thai Nguyen University, Bac Thai, VIETNAM

Resource people:

Dr. Nguyen Van Dinh (Hanoi University, Vietnam)
Dr. Peter Horne (FSP, Laos)
Dr. Sam Fujisaka (CIAT, Colombia)
Dr. Guy Henry (CIRAD, France)
Dr. Reinhardt Howeler (CIAT, Thailand)

Participants involved in the FSP:

1. Mr. Bui Xuan An (University of Agriculture and Forestry, Ho Chi Minh City)
2. Ms. Nguyen Thi Mai (University of Agriculture and Forestry, Ho Chi Minh City)
3. Ms. Nguyen Thi Hoa Ly (College of Agriculture and Forestry, Hue University, Hue)
4. Mr. Ho Trung Thong (College of Agriculture and Forestry, Hue University, Hue)
5. Dr. Peter Kerridge (CIAT, Colombia)

Regional training course - training of trainers: "Forage seed production and supply"

Date: 21 - 29 October 1996

Venue: Animal Nutrition Center, Tha Pra, Khon Kaen, THAILAND

Resource people:

Dr. John Hopkinson, Department of Primary Industries, Queensland, Australia
Dr. John Ferguson, CIAT, Colombia
Dr. Michael Hare, University of Ubon Ratchathani, Thailand
Dr. Bryan Hacker, CSIRO, Australia
Dr Peter Kerridge, CIAT, Colombia
Ms. Chaisang Phaikaew, DLD, Thailand
Dr. Peter Horne, FSP, Lao PDR
Dr. Werner Stür, FSP, Philippines

Participants - actively involved in the FSP as of Apnl 1998:

1. Mr. Liu Guodao, CATAS, P.R. China
2. Ms. Maimunah Tuhulele, DGLS, Indonesia
3. Dr. Tatang Ibrahim, BPTP, Indonesia
4. Prof. I.K. Rika, Udayana University, Indonesia
5. Ms. Kaysone Utachak, DLF, Lao PDR
6. Mr. Phonepaseuth Phengsavanh, DLF, Lao PDR
7. Mr. Viengsavanh Phimphachanhvongsod, DLF, Lao PDR
8. Dr. Wong Choi Chee, MARDI, Malaysia
9. Mr. Eduedo Magboo, PCARRD , Philippines
10. Mr. Alex Castillo, Bureau of Animal Industries, Philippines
11. Mr. Francisco Gabunada, ViSCA-FSP, Philippines
12. Ms. Ganda Nakamanee, DLD, Thailand
13. Mr. Chaisang Phaikaew, DLD, Thailand
14. Mr. Le Hoa Binh, NIAH, Vietnam
15. Mr. Truong Tan Khanh, Tay Nguyen University, Buon Ma Thouat, Vietnam

Participants - not actively involved in the FSP:

16. Mr. Viengxay Photakoun, DLF, Lao PDR
17. Mr. Thamrongsak Ponbamroong, DLD, Thailand
18. Ms. Pimpaporn Pholsen, DLD, Thailand
19. Mr. Somsak Paotong, DLD, Thailand
20. Mr. Somphon Waipanya, DLD, Thailand
21. Mr. Sangay Dorji, National Fodder Seed Production Center, Bhutan
22. Mr. Ho Van Nung, NIAH, Vietnam

Regional training course - training of trainers: "Developing forage technologies with farmers"

Date: 4-13 November 1996

Venue: Animal Nutrition Center, Pakchong, THAILAND

Resource people:

Mr. Ian Partridge, Department of Primary Industries, Queensland, Australia
Dr. Peter Kerridge, CIAT, Colombia
Dr. Bryan Hacker, CSIRO, Australia
Dr. Peter Horne, FSP
Dr. Werner Stür, FSP

Participants - actively involved in the FSP as of Apal 1998:

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4. Prof. I.K. Rika, Udayana University, Indonesia
5. Ms. Kaysone Utachak, DLF, Lao PDR
6. Mr. Phonepaseuth Phengsavanh, DLF, Lao PDR
7. Mr. Viengsavanh Phimphachanhvongsod, DLF, Lao PDR
8. Dr. Wong Choi Chee, MARDI, Malaysia
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10. Mr. Alex Castillo, Bureau of Animal Industries, Philippines
11. Mr. Francisco Gabunada, ViSCA-FSP, Philippines
12. Ms. Ganda Nakamanee, DLD, Thailand
13. Mr. Chaisang Phaikaew, DLD, Thailand
14. Mr. Le Hoa Binh, NIAH, Vietnam
15. Mr. Truong Tan Khanh, Tay Nguyen University, Buon Ma Thouat, Vietnam

Participants - not actively involved in the FSP:

16. Mr. Viengxay Photakoun, DLF, Lao PDR
17. Mr. Ho Van Nung, NIAH, Vietnam
18. Mr. Sangay Dorji, National Fodder Seed Production Center, Bhutan
19. Mr. Thamrongsak Ponbamroong, DLD, Thailand
20. Ms. Pimpaporn Pholsen, DLD, Thailand
21. Mr. Somsak Paotong, DLD, Thailand
22. Mr. Somphon Waipanya, DLD, Thailand

In-country training course: "Developing forage technologies with farmers"

Date: *4- 15* August 1997

Venue: IRRI, Los Baños, PHILIPPINES

Resource people:

Mr. Eduedo Magboo, PCARRD
Mr. Alex Castillo, Bureau of Animal Industries, Philippines
Mr. Francisco Gabunada, ViSCA-FSP, Philippines
Dr. Werner Stür, FSP
Dr. Peter Horne, FSP

Participants- actively working with farmers:

1. Dr. Perla Asis, City Veterinary Office, Cagayan de Oro City
2. Ms. Eveslyn Payla, City Veterinary Offce, Cagayan de Oro City
3. Mr. Willie Nacalaban, Office of the Municipal Agricultural Officer, Malitbog, Bukidnon
4. Mr. Timoteo A. Llena, Maguugmad Foundation Inc., Guba, Cebu
5. Mr. Sergio Darang, Livestock Experiment Station, Cagayan Valley Integrated Agricultural Research Station, Isabela
6. Mr. Andres Obusa, FARMI, ViSCA, Baybay, Leyte
7. Mr. Junaldo Mantiquilla, Davao Research Center, Philippine Coconut Authority, Davao City
8. Mr. Oscar Organas, Philippine Carabao Center, University of Southern Mindanao, North Cotabato
9. Mr. Cleto Q. Albacite, Provincial Coconut Development Office, PCA, Davao City
10. Ms. Nida Ellorino, Department of Agriculture, Region 11, Davao City

Participants - not directly working with farmers:

11. Ms. Anabelle F. Marbella, Bureau of Animal Industry, Quezon City, Metro Manila
12. Mr. Renato Pascua, Cagayan Valley-Upland Research Outreach Site, Aglipay, Quirino
13. Mr. Maximo B. Wandagan, Philippine Carabao Center, Cagayan State University, Isabela
14. Ms. Rosalina M. Lapitan, Philippine Carabao Center, UPLB, Los Baffos
15. Mr. Roy Aquino, Cagayan Valley Integrated Agricultural Research, Department of Agriculture, Isabela

In-country training course:
"Evaluating forage technologies with farmers"

Date: 26-28 January 1998

Venue: Luang Phabang Provincial Livestock Office, LAO PDR

Resource people:

Mr. Viengsavanh Phimphachanhvongsod, DLF, Lao PDR
Mr. Phonepaseuth Phengsavanh, DLF, Lao PDR
Dr. Peter Horne, FSP

FSP participants- actively working with farmers:

1. Mr. Thongwan (Chomphet District, Luang Phabang)
2. Mr. Sukan (Chomphet District, Luang Phabang)
3. Ms. Thongbay (Luang Phabang District, Luang Phabang)
4. Mr. Bounheua (Nambak District Livestock Office, Luang Phabang)
5. Mr. Somwan (Nan District Livestock Office, Luang Phabang)
6. Mr. Chanphone Keoboualaphet (Luang Phabang Provincial Livestock Office)
7. Mr. Hong Tong (GtZ NAWACOP Project, Xieng Khouang)
8. Mr. Siteuk (GtZ NAWACOP Project, Xieng Khouang)
9. Mr. Khamone (Lat Sen Northern Cattle Station, Xieng Khouang)
10. Mr. Khongpeng (Lat Sen Northern Cattle Station, Xieng Khouang)
11. Mr. Pheng (Luang Phabang Provincial Livestock Office)

Participants sponsored by other organisations involved in upland development:

12. Mr. Hideo Orihashi (Japanese Volunteer Service, Xieng Khouang)
13. Mr. Phutai (Lao-Swedish Forestry Project, Luang Phabang)

In-country training course: "Developing forage technologies with farmers"

Date: 16 - 22 February 1998

Venue: College of Agriculture and Forestry, University of Hue, VIETNAM

Resource people:

Mr. Bui Xuan An, CAF, Ho Chi Minh City, Vietnam
Mr. Le Hoa Binh, NIAH, Vietnam
Dr. Peter Horne, FSP

FSP participants - actively working with farmers:

1. Mr. Le Duc Ngoan (CAF, Hue)
2. Mr. Le Van An (CAF, Hue)
3. Mr. Truong Tan Khanh (Tay Nguyen University, Buon Ma Thuot)
4. Mrs. Nguyen Thi Hoa Ly (CAF, Hue)
5. Mr. Ho Trung Thong (CAF, Hue)
6. Mr. Huynh Hong The (Binh Thuan Provincial Agriculture Office)
7. Mr. Bui The Hung (MRDP, Hanoi)
8. Mr. Nguyen Hai Nam (MRDP, Hanoi)
9. Mr. Nguyen Ba Dong (Daklak Animal Production Co., Buon Ma Thuot)
10. Mr. Vu Thi Hai Yen, (Tuyen Quang Provincial Agriculture Office)
11. Mr. Nguyen Thi Thanh Thuy (World Neighbours, Hanoi)
12. Mr. Nguyen Quang Tien (Ha Giang Provincial Agriculture Office)
13. Mr. Ha Duy Son, (Livestock R&D Centre, Quy Nhon, Binh Dinh)

FSP participants - not directly working with farmers

14. Mr. Nguyen Quang Thieu (CAF, Ho Chi Minh City)
15. Mr. Nguyen Van Quang (Buffalo and Horse Centre, Thai Nguyen)
16. Mr. Nguyen Huu Van (CAF, Hue)
17. Mr. Ngo Huu Toan (CAF, Hue)
18. Mrs. Phan Thi Phan (NIAH, Hanoi)

In-country training course: "Developing forage technologies with farmers"

Date: 6 - 13 April 1998

Venue: DLF, Nam Suang, Vientiane, LAO PDR

Resource people:

Mr. Viengsavanh Phimphachanhvongsod, DLF, Lao PDR
Mr. Phonepaseuth Phengsavanh, DLF, Lao PDR
Dr. Peter Horne, FSP

FSP participants - actively working with farmers:

1. Mr. Thongwan (Chomphet District, Luang Phabang)
2. Mr. Sukan (Chomphet District, Luang Phabang)
3. Ms. Thongbay (Luang Phabang District, Luang Phabang)
4. Mr. Boualy Vongsenna (Pakseng District, Luang Phabang)
5. Mr. Thongxay (Pak Ou District, Luang Phabang)
6. Mr. Vongsid Phanchakkan (Phonexay District, Luang Phabang)
7. Mr. Khamone (Lat Sen Northern Cattle Station, Xieng Khouang)
8. Mr. Hong Tong (GtZ NAWACOP Project, Xieng Khouang)
9. Mr. Siteuk (GtZ NAWACOP Project, Xieng Khouang)
10. Mr. Simeuang (Oudomxay Provincial Livestock Offce)
11. Mr. Bounsu (Xay District Livestock Offce, Oudomxay)
12. Mr. Thonglay (Savannakhet Provincial Livestock Offce)
13. Mr. Saysavanh (Khantabouly District, Savannakhet)
14. Mr. Siesomvang (Champasak Provinical Livestock Offce)
15. Mr. Bouathong (Paksong Livestock Station, Champasak)
16. Ms. Khampian (Borikhamsay Provincial Livestock Offce)

FSP participants - not directly working with farmers:

17. Mr. Daosadet (Nam Souang Livestock Centre, Vientiane)
18. Mr. Bounthong (Nam Souang Livestock Centre, Vientiane)
19. Mr. Bounthavon (Nam Souang Livestock Centre, Vientiane)

Participants sponsored by other organisations involved in upland development:

20. Mr. Hideo Orihashi (Japanese Volunteer Service, Xieng Khouang)
21. Mr. Chantalangsi (AusAID Houay Son Project, Naxaythong District, Vientiane)

On-site Training

Date	Name	Location and activities
28 Feb to 16 March 96	Mr Le Hoa Binh NIAH, Vietnam	• working with Mr Francisco Gabunada (FSP staff) and FSP site collaborators at Bicol, Cebu and Matalom (Leyte) in the Philippines • assisted with participatory diagnosis and farmer training at these FSP sites • hands-on training in forage multiplication at Loas Baños
19 Feb to 07 March 96	Mr Viengsavanh Phimphachanh-vongsod, DLF, Laos	• working with Ms Ganda Nakanamee at the Animal Nutrition Centre in Pakchong and staff at the Animal Nutrition Centre in Tha Pra on seed production, seed quality assessment and storage in Thailand • participated in FPR training course in Pakchong, Thailand
31 March to 18 April 97	Mr Ibrahim, Livestock Service of East Kalimantan	• working with Mr Francisco Gabunada (FSP staff) and FSP site collaborators at Lipa, USM (North Cotabatu) and PCA (Davao) in the Philippines, and with Werner Stür at Gorontalo (North Sulawesi), Indonesia • assisted with participatory diagnosis and farmer training at these FSP sites • hands-on training in forage multiplication at Los Baños
4 - 13 Sep 1997	Mr Viengsavanh Phimphachanh-vongsod, DLF, Laos	• participated in hands-on technology development training in Nakornratchasima, Thailand
22 March to 8 April 98	Mr Willie Nacalaban, Extension worker, Malitgob, Philippines	• attached to FSP sites in East Kalimantan (Ir. Ibrahim) and North Sumatra (Tatang Ibrahim), Indonesia • assist with participatory diagnoses, planning and evaluation, and working with farmers at these sites • participate in the third regional meeting of the FSP in East Kilimantan
22 March to 8 April 1998	Mr Soulivanh Novaha, District Agric. Office, Xieng Khouang, Laso	• attached to FSP sites in East Kalimantan (Ir. Ibrahim) and North Sumatra (Tatang Ibrahim), Indonesia • assist with participatory diagnoses, planning and evaluation, and working with farmers at these sites

		• particpate in the third regional meeting of the FSP in East Kalimantan
22 March to 8 April 1998	Mr Ghozali Aainal, District Livestock Service, Aceh Besar, Indonesia	• attached to FSP sites in East Kalimantan (Ir. Ibrahim) and North Sumatra (Tatang Ibrahim), Indonesia • assist with participatory diagnoses, planning and evaluation, and working with farmers at these sites • participate in the third regional meeting of the FSP in East Kalimantan

English Training

Date and Location	Name
Jan 23 - Feb 23 96 Nam Souang Livestock Research Centre, Vientiane Loa PDR	Mr Chanhphone (Luang Phabang Provincial Livestock Office) Ms Thongbay (Luang Phabang Provincial Livestock Office) Mr Sengpasith (Luang Phabang Provincial Livestock Office) Mr Khampeng (Luang Phabang Provincial Livestock Office) Mr Khamsy (Luang Phabang Provincial Livestock Office) Mr Bouathong (km 49 Research Station, Champasak) Mr Khambounnath (Nam Souang Cattle Research Centre) Mr Khamchanch (Nam Souang Cattle Research Centre) Mrs Kaysone (Nam Souang Cattle Research Centre) Mr Thonglay (Savannakhet Provincial Livestock Office) Mr Siesomvang (Champasak Provincial Livestock Office)
March/April 1995 (6 weeks) Basic English National Agricultural Research Centre, Na Phok, Vientiane Lao PDR	Mr Phonepaseuth Phengsavanh (DLF, Vientiane) Mr Phengpilaa Kordnavong (Xieng Khouang Provincial Ag. Office) Mr Soulivanh Novaha (Xieng Kkouang Provincial Ag. Office) Mr Viengxay Photakoune (DLF, Vientiane)
Sept/Oct 1995 (6 weeks) Agricultural English 1 National Agricultural Research Centre, Na Phok, Vientiane Loa PDR	Mr Phengpilaa Kordnavong (Xieng Khouang Provincial Ag. Office) Mr Soulivanh Novaha (Xieng Kkouang Provincial Ag. Office)

Cross visits and hands-on training of collaborators

Date and location	Subject	Name
29 Aug - 2 Sep 95 Los Baños, Philippines	Hands-on training in forage seed production	• Mr Sergio Darang (Cagayan Valley Livestock Experiment Station, Gamu, Isabela, Philippines)
25-29 Sep. 95 Los Baños, Philippines	Hands-on training in forage agronomy, multiplication and seed production	• Ms Perla Asis (City Veterinary Office, Cagayan de Oro, Philippines) • Mr Celestino Estrada (Municipal Dept. of Agriculture, Opol, Misamis Oriental, Philippines) • Mr Fernando Mariano (Municipal Dept. Of Agriculture, Magsaysay, Misamis Oriental, Philippines) • Mr Rodrigo Cabaccan (Cagayan Valley - Upland Research Outreach Station, Aglipay, Quirino, Philippines) • Mr Juanto Sacasac (Cagayan Valley Livestock Experiment Station, Gamu, Isabela, Philippines)
6 - 8 Dec 1995 Los Baños, Philippines	Hands-on training in forage seed production	• Mr Rodrigo Cabaccan (Cagayan Valley - Upland Research Outreach Station, Aglipay, Quirino, Philippines)
2 - 5 June 1996 Los Baños, Philippines	Hands-on training in forage agronomy and multiplication	• Mr Timoteo Llena (Mag-uugmad Foundation Inc., Cebu City) • Mr Dominador Alcantara (Mag-uugmad Foundation Inc., Cebu City) • Mr Leonardo Moneva (Mag-uugmad Foundation Inc., Cebu City)
9 July 1997 Ubon Ratchathani University, Thailand	Cross visit to forage experimental area of Michael Hare	• Mr Viengsavanh Phimphachanhvongsod, DLF, Lao PDR • Mr Phonepaseuth Phengsavanh, DLF, Lao PDR
9-12 July 1997 Bolovens Plateau, Champasak, Lao PDR	Cross visit to forage seed production experiments	• Ms Ganda Nakamanee, Animal Nutrition Research Centre, Pakchong, Thailand • Ms Chaisang Phaikaew, Forage R&D, DLD, Bangkok, Thailand • Mr Somchit Indraamanee, Animal Nutrition Research Centre, Pakchong, Thailand
15 - 23 Feb 1998 College of Agriculture and Forestry, Hue. Vietnam	Cross visit to FSP sites in Vietnam	• Mr Viengsavanh Phimphachanhvongsod, DLF, Lao PDR • Mr Phonepaseuth Phengsavanh, DLF, Lao PDR

PROJECT COORDINATORS AND PARTNERS

PROJECT COORDINATORS

Indonesia	Directorate General of Livestock Services (DGLS)
Lao PDR	Department of Livestock and Fisheries (DLF), Ministry of Agriculture and Forestry
Philippines	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD)
Vietnam	National Institute of Animal Husbandry (NIAH), Ministry of Agriculture and Rural Development
China PR	Chinese Academy of Tropical Agricultural Science (CATAS), Hainan
Malaysia	Malaysian Agricultural Research and Development Institute (MARDI)
Thailand	Department of Livestock Development (DLD), Ministry of Agriculture and Cooperatives

PROJECT PARTNERS

Indonesia	Provincial Livestock Service of East Kalimantan, Samarinda, East Kalimantan Province District Livestock Service, Samarinda, East Kalimantan Province District Livestock Service, Pasir, East Kalimantan Province District Livestock Service, Gorontalo, North Sulawesi Province Provincial Livestock Service of Aceh, Banda Aceh, Aceh Province District Livestock Service, Aceh Besar, Aceh Province Assessment Center for Agricultural Technologies of North Sumatra, Medan, North Sumatra Province
Lao PDR	Provincial Livestock Department, Luang Phabang; Provincial Livestock Department, Oudomxay; Provincial Livestock Department, Savannakhet; Provincial Livestock Department, Champassak; Provincial Agriculture and Forestry Office, Xieng Khouang; GtZ NAWACOP Project, Xieng Khouang
Philippines	Municipal Government, Malitbog, Bukidnon Province; City Government, Cagayon de Oro City, Misamis Oriental Province Farm and Resource Management Institute, Visayas State College of Agriculture, Leyte Maguug-mad Foundation, Guba, Cebu Philippine Carabao Center, University of Southern Mindanao, North Cotabatu Province

QUOTES NOTED DURING THE REVIEW

Relating to Technology Development

The FSP is not doing research! I would call it participatory diagnosis, followed by participatory technology development (Coordinator Indonesia).

We drink tea and talk with each farmer, we walk up and down the hills, and we observe what farmers are actually doing (Werner Stur).

Participatory methods may be too expensive for participating farmers (Coordinator Indonesia).

Participatory methodologies are about using common sense (Ron Staples).

Relating to Technology Transfer

FSP has taught us how to appreciate and work with poor farmers.

A participatory approach should also be used in the planning phase of FSP (Coordinator Malaysia).

Farmers often do not trust researchers and extensionists (Prof. Ly).

Prior to FSP we had piles of paper on research results but no possibility to deliver any of the findings to the farmer (Coordinator, Philippines).

I have more than 100 reports on forage research, but I cannot bring them to the farmer.

A lot of missions came and asked a lot of questions, the farmers are tired of this disturbance (Statement in Vietnam).

Relating to other issues

Even the geese like it (Filipino farmer talking about Arachis pintoi).

I am not a Doctor, I am just a mother (Coordinator, Indonesia).

We want tangible results and are not interested in the number of planting slips distributed or seed distributed (Director General Livestock Department, Indonesia).

The regional approach can cause conflict between the participating countries as they want access to the limited resources provided.

He will be a rich man when oil palms come into production (answer to the question what farmers will do when the forage production on their limited land area will decline due to oil palm plantation).

We like the FSP approach, but what about our boss?

FSP comes and will go again soon, what will matter is the extension services (Horaze).

I can not go to the field as regularly as I would like to because of all the workshops and meetings (in-country and abroad) which I have to attend.

There are many good woman farmers but almost no good men farmers (woman in M'Drak)

	Philippine Coconut Authority, Davao Research Center and Provincial Extension Service, Davao City Bureau of Animal Industry, Research Division, Manila Cagayan Valley Integrated Agricultural Research Center - Livestock Experiment Station, Department of Agriculture Region 2, Isabela Province Cagayan Valley - Upland Research Outreach Station, Department of Agriculture Region 2, Aglipay, Quirino Province
Vietnam	Tay Nguyen University, Buon Ma Thuot; College of Agriculture and Forestry, University of Hue; College of Agriculture and Forestry, University of Ho Chi Minh City; Vietnam-Swedish Mountain Rural Development Project; World Neighbors, Ha Giang;

SPECIFIC REQUESTS/RECOMMENDATIONS RAISED IN INDIVIDUAL COUNTRIES

Laos

FSP should be more flexible in responding to specific needs of the individual countries.

Training, workshop attendance has been concentrated on a few selected people. This personalizing of FSP activities may hamper sustainability.

FSP should help in the preparation of local specific information materials.

English training is very important to help district level staff to have access to information. This training should, however, be more continuous.

More efforts need to be given to seed production.

Vietnam

FSP should be broader and include other fodder resources, especially crop residues.

There is a need to help farmers getting access to credit.

More efforts need to be given to seed production.

More studies are necessary to identify to place of forages in a particular farming system.

If limited funds are available maintaining the network should be given priority.

The expatriate advisors should be stationed in a country/location with good communications, especially air links.