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An Analysis of the Economic Pattern of Lao Farm Households

&

The Development of Simple Tools for Farm Economics

Report of a Practical Training, April - October 2004

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TERMS OF REFERENCE

Analysis of the Economic Pattern of Lao Farmers and Development of Simple Tools for Farm Economics

Practical Training April to October, 2004 (6 months)

Laos Extension for Agriculture Project - LEAP

Background

The Laos Extension for Agriculture Project (LEAP) is a project of the Lao/Swiss technical cooperation. It is implemented by Helvetas on behalf of the Swiss Agency for Development and Cooperation (SDC) together with NAFES, the National Agriculture and Forestry Extension Service of the Ministry of Agriculture and Forestry (MAF). LEAP is directly supporting the NAFES management and its Central Extension and Training Development Unit (CETDU).

The goal of LEAP is to support the development of a decentralized, participatory, pluralistic and sustainable agricultural extension system that reaches male and female farmers equally.

Phase 1 of the project is running from November 2001 until October 2004, a second 3years phase is likely to follow.

Introduction

There are a number of structural and strategic changes envisioned by the Lao Government to enhance the development of the country. The Ministry of Agriculture and Forestry (MAF) has planned particular programs for the future with a focus on food security, economic growth with equity and agricultural development bearing in mind the different socio-economic and agro-ecological conditions in low and upland areas (see "Strategic Vision for the Agricultural Sector").

Government Agricultural Development Plans

The MAF has initiated the decentralization of agricultural extension functions through an area-based rural development strategy. The responsibility for agricultural development planning and the implementation of activities will be assigned to appropriate provincial, district and village units. The final goal is to

reduce poverty in Lao PDR, i.e. to reduce those living in poverty to 10% of the population by 2010 and to leave the group of 25 least developed countries by the year 2020.

Finances and Farm Economics

The LEAP studies on “Financing Agricultural Extension in Lao” PDR (LEAP, June 2002) and “Village projects that work” (LEAP, June 2003) have provided basic insights on the extension needs of the farmers and their willingness to pay for the services, which they receive. In this context and also to improve the economic situation of the rural people it is important to assess the availability of money and the potential of different production systems to generate high and sustainable profits.

Training and Coaching

There is an extensive system of agricultural advisors from the central to the district level with the final task to provide information to the farmers. Until now there are no appropriate economic tools available to calculate the profitability of the various production systems. A basket of instruments needs to be known and mastered by extensionists as well as farmers in order to improve agricultural economics in Lao PDR

Objectives of the practical training

The objective of the practical training is to develop, document and introduce simple economic tools agricultural extensionists and for farmers that help to select and optimize agricultural production systems under Lao conditions.

Expected results

- A set of tested training modules on basic farm economics in Lao and English
- A team of selected master trainers is able to train Farming Systems Extension Workers in basic farm economics
- A brief report about the practical training including achievements and difficulties faced in English.

Tasks and Duties

- Analyse reference documents provided by LEAP
- Assess agricultural settings, identify problems and needs of the farmers
- Select most appropriate basic farm economy tools
- Adjust basic farm economy tools to the Lao context
- Develop new tools as far as no appropriate instruments are existing
- Generate simple versions of planning and economic tools like farm mapping, gross margin, cash flow, flow chart and profit ranking.
- Test the models on district (FSEW) and farmers level
- Design manuals and respective instructions
- Train on the job selected staff of CETDU in basic farm economy
- Conduct in collaboration with selected master trainers training courses on basic farm economy
- Adjust the basic farm economy tools according to the experiences in the training courses
- Always relate to market reality and price performance

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ACRONYMS

Lao PDR	Peoples Democratic Republic of Laos
MAF	Ministry of Agriculture and Forestry
NAFES	National Agriculture and Forestry Extension Services
CETDU	Central Extension, Training and Development Unit
LEAP	Laos Extension for Agriculture Project
SDC	Swiss Agency for Development and Cooperation
NTFP	Non Timber Forest Product
GoL	Government of Laos

EXECUTIVE SUMMARY

The policy of Lao PDR determines the goal to enhance agriculture production. In order to achieve this aim the Lao agriculture extension service needs improvement. The Laos Extension for Agriculture Project (LEAP) is a project under the national agriculture and forestry extension service, founded by the Swiss Agency for Development and Cooperation (SDC). The objective of LEAP is to support the development of the extension service.

The topic of the practical training of Stefan Schuermann was to analyse the economic pattern of Lao farm households and to develop economic tools for Lao farmers. This work was a contribution to the extension service working in the LEAP pilot area.

For the analysis of the economic pattern of Lao farm households, available literature was studied. By doing this it came out that there is a large lack of information about economics on farm level while documentation on macroeconomics is available in plentiful variations. On production level there is almost no information about profitability of different farming systems.

The development of economic tools for farm households is a first step to provide such information to farmers and extensionists. The finally provided tool set includes sheets for recording during the year and allows doing calculation and comparisons at the end of a production period. In addition there is a tool to evaluate the calculation and to facilitate the creation of an action plan. With these insights, decisions on production level should be easier to take. The provided tool set had been tested with a team of ten extensionists from central to district level. The calculations of farmer's production systems were already a first training for the extensionists. The advantage of this method is that extensionists have already an idea of the tool, which allows going more in depth in subsequent training.

The tool test and respective adjustments had been the main part of the practical training.

Right after the practical training the extensionist started to calculate systematic calculations in all production groups of the LEAP pilot area. Approximately 600 calculation forms for rice, chicken and pig production will be gathered. In the course of the diploma thesis of Stefan Schuermann the collected data will be statistically analysed and discussed. This work will provide the basis for a systematic evaluation of the production systems.

INTRODUCTION & BACKGROUND

In Lao PDR, subsistence farming is still widespread. Because of the low input use, such as few improved varieties, small amounts of fertilizers and almost no pesticides, the results are a low output in yields and limited farm incomes. This situation counts for almost 80% of the Lao population, which provide more 50% of the GDP. By modernizing the agricultural and forestry sector, the Lao Government intends to increase the development, while respecting the ethnic minorities and their traditions. To contribute to the goal of poverty alleviation, the government has designed clear development objectives for the sector to be reached by 2020.

The first most important goal is to ensure food security for all Lao people while maintaining a growth rate in agricultural output of 4-5% per year. By diversifying and modernising the sector, the goal is to stabilise shifting cultivation and eradicate opium cultivation. It is also part of the plan to conserve the natural environment and protect threatened species and habitats. As an integral part of the rural livelihood system, a healthy and productive forest cover has to be maintained to generate a sustainable stream of forest products. As a result, rural livelihoods have to be improved. (See the National Growth and Poverty Eradication Strategy – 2003).

To increase crop yields, horticulture produce and livestock production, available technologies and domestic research offer solutions. The Governments development plan for the Agriculture Sector includes the development of an integrated extension system to transfer agricultural production technologies to the poor people. For this the capacity of the National Agriculture and Forestry Extension Service (NAFES) is being upgraded, particularly for upland areas. To develop extension methods and to provide training and coaching for NAFES, the Central Extension Training and Development Unit (CETDU) was established. During the initial phase, NAFES and CETDU are directly supported by the Laos Extension for Agriculture Project (LEAP). The goal of LEAP is to support the development of a decentralized, participatory, pluralistic and sustainable agricultural extension system that reaches male and female farmers equally.

LEAP has done studies on „Financing Agricultural Extension in Lao PDR” (June 2002) and “Village projects that work” (June 2003), providing information on extension needs and the form of financing the extension service.

The following paper analyses the economic pattern of Lao farm households and introduces specific economic tools with the help of which the availability of money (cash balance) and the profitability of various production systems can be calculated.

These economic tools have to be simple but meaningful to farmers and extensionists. The goal is to provide farmers and extensionists with information about basic economics, as well as about the potential of production systems and their limits. The instruments help to assess the present economic performance of the farm and provide some kind of control over an improved household economy. It is important to assess strengths and weaknesses identify opportunities and threats for production improvements. It will be an important role of the extensionists, to make farmers aware of their situation and help to lead them to a more efficient production. Therefore, extensionists need training which will combine the development and the application of the tools.

Because of the low education level, mainly in rural areas, the instruments have to be structured and presented in a simple way, so that farmers can understand both calculation and interpretation.

After creating a first version of tools for calculations on main production systems, validation in the field is important to ensure that the tools are tested and adapted to the Lao reality. Only after an intensive phase of test and adaptation the quality of the tools will be insured. Finally, to facilitate implementation, a manual for extensionists is needed.

For developing a market demand driven agriculture it should be known which production system is profitable and which should not be promoted. The goal is to run economically sustainable income generating activities.

Side Information:

Effect of Unexploded Ordonance in Lao PDR (UXO)

UXO contamination has a significant effect on the development of Lao PDR. Major infrastructure development and business projects are delayed or the project costs increased by at least 10%. The clearance of UXO must be undertaken before any project activities can begin. For poor and vulnerable subsistence farming communities, contaminated land prevents the community from becoming self-sufficient.

1 AN ANALYSIS OF THE ECONOMIC PATTERN OF LAO FARM HOUSEHOLDS



1.1 Literature Review

1.1.1 Lack of Literature

To run a farm as a profitable business, it is important to have information about the farm economy. It was part of the objective for the practical training to analyse the literature about the economic pattern of Lao farm households.

Only a very little amount of appropriate data about the specific economic situation of Lao farm households and respective production systems is available. (Libraries/projects consulted: LEAP, NAFES, NAFRI, IRRI, FAO, UNDP, GTZ, Profile Project, German Livestock Project and internet research)

NAFES has done one study in the field of household economics. This study is on rainfed lowland rice in Laos¹ which covers only a small proportion of the relevant production systems. Another study on “Economic sustainability of alternative income generating activities” provides detailed information about incomes in place of opium production. But there was no further appropriate literature identified.

¹ “Rainfed Lowland Rice in Laos”, a socio-economic benchmark study, was conducted in 1998 by the International Rice Research Institute (IRRI). It was prepared for the Novartis Foundation for Sustainable Development, Basel, Switzerland.

1.1.2 Available Documents

There are numerous reports and statistics about the macro economic situation of Lao Agriculture. Information about changes in crop and livestock production such as area, total production and yield, number of livestock and some market information are detailed and continuously documented in plentiful variations (e.g. Agricultural Statistics year book, MAF 2003). The use of production factors, such as fertilizers, pesticides or machines and many other subjects are also documented in similar forms. In District Agriculture and Forestry Offices (DAFO) a large quantity of data has been collected for years, but they are neither systematically collected nor analysed and for the required purpose not complete. There are, in addition, several impact assessments of various projects dealing with the improvement of livelihood and income on farm level; they investigate the technical knowledge and equipment, but they do not focus on profitability or labour intensity of different production systems (crops, livestock, horticulture, handicrafts, ...).

The Lao Government's strategic vision (1999) is an important document to gain insight into the Lao agriculture sector and related fields, such as government policies and the market situation, as well as the general background of Lao agriculture.

From the study "Financing agricultural extension in Lao PDR" (LEAP 2002), the descriptions of farming systems (Provinces Luang Prabang, Saravanh, Champassak) were taken as a first information about the LEAP pilot areas.

The study "Village projects that work" (LEAP 2003), introduces models for the assessment of extension projects at village level in the Lao PDR, within the frame of the LEAP Project. The models consist of a brief analysis of the project objective, and technical issues, followed by a cash flow analysis. The cash flow analysis is seen as the main instrument to analyse and compare the present situation of a production system vs. an improved situation.

The following list of documents has been consulted as “background literature”:

- Economic sustainability of alternative income generating activities (UN Nonghet Alternative Development Project, Xieng Khuang Provinc, Lao PDR), Jenny Ikelberg, 2002, UNDCP.
- Livestock development by the Shifting Cultivation Research Project in Luang Prabang Province Lao PDR. (Technical Report Nr.8 LP)
- Agricultural Marketing in Lao PDR, Ministry of Agriculture and Forestry 2002
- Enhancing Employment and income generation in rural areas, Urs Heierli and Thomas Gass 2001 (general concept)
- Niche Products and the environment, Lao-German Technical Cooperation
- Agricultural research for resource-poor farmers, R. Chambers 1985
- Highland rice paddies and their effects on farmers livelihoods in mountainous regions of northern Lao PDR, Karin Trösch 2003
- National Growth and Poverty Eradication Strategy – 2003
- The Lao Agriculture CENSUS, 1998

For a literature study on the economic pattern of Lao farm households there is not enough appropriate information and documentation available. With the use of the developed economic tools on a broad scale, information on farm household economics will become increasingly available. In place of a detailed analysis, a more general description is presented in the following chapters.

1.2 Overview of Major Farming Systems

Farming Systems	Characteristics	Livelihood problems
Lowland rainfed farming system	Single cropping of 2-4 varieties of traditional glutinous rice. Yield 1.1t/ha (Lao-IRRI survey 1989-90) to 2.5-3 t/ha (official estimates). Buffalo and cattle for draught power, cash income and occasional meat, free ranging during the dry season, limited in the rainy season. Pigs, poultry, fish and NTFPs important for food and cash income.	Rice shortage; local production meets 1-4 month needs, low household income.
Lowland irrigated farming system	Double cropping of traditional photoperiod sensitive rice varieties, use of improved varieties, fertilizer, etc. for the 2 nd crop. Wet season crop yields 1-3 t/ha and dry season 2-4 t/ha of rice. Dry season vegetables grown in areas near urban centres. Relatively few livestock due to shortage of grazing land, buffalo use for ploughing, small stock for meat and cash income.	Better off than unirrigated farms, but lack cash, especially for investment.
Upland rainfed farming system	Shifting cultivation of rice intercropped with cucumber, chilli, taro, sesame on sloping land with fallow period of 2-10 years, rice yields of 1.4-1.5 t/ha. Maize for livestock is 2 nd most important crop. Job's tear, sweet potato, ginger, cassava, groundnut, soybean, cotton and sugarcane, papaya, coconut, mango, tamarind, banana and citrus (more fruit tree species at lower altitudes) also grown. Pigs, cattle and poultry are the principle livestock. High dependence on NTFPs for income to purchase rice, etc. Adoption of paddy cultivation is progressing rapidly.	Rice shortage, low income, poor health, high infant mortality, low life expectancy, lack of access to roads, communication, education and social services.
Highland farming system	Similar to upland rainfed farming system, but with high altitude crops such as opium, sometimes intercropped with lettuce and mustard, and temperate fruit trees such as plum, peach and local apple.	As above.
Plateau farming system	Coffee, tea and cardamom have largely replaced shifting cultivation, supplemented by fruit trees and vegetables in home gardens. Poor cash crop quality and yields due to poor management, use of poor varieties, no fertiliser, lack of shade, weed problems and poor harvesting and drying technique. Cattle important as saving accounts, pigs and poultry also kept.	Households have adapted a commercial strategy and have no problems with food security, but household income still only moderate.

Adapted source: GoL (1998)

1.3 Characteristics of the Lao Farm Household

1.3.1 General Information

The total area of Lao PDR is 236'800 sq km. A main part is covered by forest and woodland (54%). Only 4% is arable land; 0.17 ha per habitant (5.7mio) which explains the difficulty to reach self-sufficiency in the low input agriculture of Lao PDR. 80% of the households are directly involved in or dependent on agricultural production. 73% of the country's farm households have less than 2 ha. The average size of a Lao farm household is 1.62 ha. This includes uncultivated land and non-agricultural land. Subsistence farming is still widespread, there are just 35% farm households selling a part of their production, mainly if they have access to border areas, main roads or if they live near towns. Most Provinces should be able to produce sufficient food to cover the needs of their population. 97% of the land is in private possession. 5% of farm households are renting land. (See appendix A2).

1.3.2 Crops

97% of the farm households grow crops. 8% of the land are permanent crops, 73% is temporary cropped (manly rice) while 11% is uncultivated and 5% are forests. About 5% of the arable land is double cropped.

Rice is the most important crop in Lao PDR. 77% of the farm households grow rice. 65% of the total rice production is wet season lowland rice (rainfed), 8% dry season lowland rice (irrigated) and 27% upland rice. Dry season rice growing has been increased in the last years following heavy investment in irrigation facilities. 58% of the farm households grow only lowland rice, 30% grows only upland rice and 12% grow in both systems. Over 90% of rice grown in Lao PDR is of the glutinous type, only 10% is the regular. 30% of total rice grown are improved varieties.

For most farmers, other temporary crops are only of minor importance, often grown as a secondary crop in small plots or intercropped. Maize is the most common and is grown around the country. Vegetable crops are also common. The most commonly grown vegetables around the country are chilli, cabbage, cucumber, onion and eggplant. A number of other grown vegetables. Of the other temporary crops, sugar cane, groundnut, and tobacco are grown around the country.

Coffee is the most important permanent crop, mainly grown on the Bolaven Plateau. Fruit trees are common but mostly not grown in plantations.

1.3.3 Livestock

Buffaloes are commonly kept for use as draught animals, especially in the south. Buffalo numbers may be declining because of increasing farm mechanization. 48% of farm households keep buffaloes. On average there are about 3 buffaloes per farm household.

Although there are nearly as many cattle as buffaloes, cattle raising is less common. Only 31% of households in Lao PDR have cattle.

Pig raising is most prevalent in the north. Over 60% of those raising pigs keep only one or two pigs, just 5% have 10 or more pigs. Even though in most farm households there are only a small number of pigs held, pig raising is a market oriented production.

Many households raise some kind of poultry. About 73% of farm households raise chicken and 29% keep ducks.

A third of those raising cattle vaccinated their animals in 1998/99, compared with half of the buffalo owners. The vaccination rate for pigs is very low: only 8% of farm households raising pigs vaccinate them. In the Lao Agricultural Census, chicken vaccination is not even mentioned. Pig and chicken vaccination is one of the activities in the trainings provided from LEAP.

1.3.4 Fishing and Forestry

Fishing is an important secondary activity for many farm households as a source of extra income or to supplement the family's food supply. Over 70% of farm households in Lao PDR engage in fishing or aquaculture. Forestry is not yet an important activity on agricultural holdings. Only 8% of farm households have some forested land. Collecting NTFPs is an important activity for household consumption and cash income.

1.3.5 Inputs

Mineral fertilizers are not widely used in Lao PDR. They are often used in combination with organic fertilizers. Mineral fertilizers are used by 28% of farm households and organic fertilizer by 33%. 57% of farm households use no fertilizer at all. For rice, mineral fertilizer is often used in combination with improved seeds. Only 11% of farm households use pesticides. Farms in Lao PDR are generally not highly mechanized: only 29% used farm machinery.

1.3.6 Labour

Most farm labour is provided by household members. Only 26% of farm households use hired labour. In the north, most farmers employ farm labourers on a labour exchange basis rather than for payment in cash. In the field visits it appeared that in the south payment in cash is more common than in the north.

The demand for outside labour is highest at the time of planting and harvesting the main rice crop: June-August and November-December. In upland areas, labour is needed in March-May to help with land preparation. In areas with dry season rice, there is a demand for labour in January and February.

Both men and woman work on the family farm. Agricultural work is seasonal and does not usually provide “full-time” work. Caring for livestock usually requires only a few time each day.

Example: Labour exchange in Luang Prabang

The work in the rice field does not require the same labour force. During the year, farmers are normally able to provide the labour needed with family members. Both planting and harvesting are different from other activities in rice growing. They have to be done in a short term and both are labour intensive.

As there is not much money used in the villages, labour exchange instead of hired labour is a common practice. The tradition determines a specific way for dealing with labour exchange. If a farmer goes to plant or harvest his rice, it is not respectful, to ask people in the village to work in the field. If one would be asked, one could never say no, because of politeness. That is the reason why farmers do not ask each other for labour exchange. They would go there to work, even, if they really had no time to do so.

But how do they solve the problem? The time before a farmer goes to plant or harvest his rice, he will prepare his tools, and people in the village will tell each other about his plan. Next morning 20 to 50 people are ready to work for this farmer.

Next time, it will be someone else, and the respective farmer will be there for anybody, to pay back the labour he “hired”.



1.3.7 Income Generation

According to the 1997/98 Lao Expenditure and Consumption Survey, livestock rearing, not rice production generates the most cash revenue throughout the country. In Lao PDR, 33.5% of all agricultural revenue comes from livestock. Rice production generates about 12.8% of all revenue, and poultry/eggs 6.5%. All in all fruit and vegetables accounted for 13.8% of the cash income, and fish for 8.2%. NTFPs are often underestimated, but they are a key component of rural household economics.

Activity	Average hours per day (adults)	Percent of work hours
Work as employed	0.8	12
Own business work	0.9	13
Agriculture work	3.1	47
Collecting firewood/fetching water	0.4	6
Hunting/Fishing	0.9	13
Construction	0.1	2
Handicraft	0.5	7
Total: Income generating activities	ø0.8	Σ100

Table 1: Adult on income generating activities in Lao PDR

The table indicates that a household in Lao PDR spends in average almost half of its working time on income generating activities within agriculture. The time used for hunting and fishing is the same as the time spent on business activities and work as an employee. Agriculture, hunting and fishing use 60% of the total number of hours worked.

Farmers near the Mekong corridor and other accessible areas of the country are very open to new opportunities. New crops have been introduced in recent years and have developed fast. Often the result was an over-supply and a dramatic price drop. This happened with promotion of Job's tear (often mentioned in the field visit in Luang Prabang) and ginger. Too many crops are purely cash crops like coffee, cotton and sugarcane.

1.3.8 Credits and Savings

Informal and semi-formal credit markets are more important than formal financial institutions in rural areas of Lao PDR². Village revolving funds and household-to-household loans are meeting most credit needs. Credit delivery in the subsistence agricultural economy, mainly in the uplands, is mostly in kind because of the non-monetized nature of the rural economic activity. In the more market-oriented Mekong corridor, cash credit delivery mechanisms are beginning to take place.

1.4 Livelihood

The main objective of a farmer is to produce enough rice for the family consumption in the following year. Rice is the main measurement for the welfare of a farmer family. Apart from rice sufficiency, the most important production is livestock, which operates as a saving mechanism to compensate for times with lack of rice supply. The sale of one buffalo can buy enough rice to feed a family of four or five for one year. The share of major food groups in a rural household are: cereals 70%, roots, tubers, bananas and plantains 5.8%, pulses, beans and soybeans 3.8%, fruits and vegetables 2.5%, animal products 10.5%, alcohol and beverages 2%, fats and oils 2%, total sweeteners 1%, nuts and oilseeds 0.8% and others 0.9%.

Food self sufficiency is based on production of rice to meet family needs and stocks. A family's well-being depends on the cash income, but first of all also on the access to lowland cultivation³. An average farming family counts about six members living and eating in a household. Supposed that the average rice consumption is about 400 kg per capita and year, a family needs at least 2400 kg rice per year to ensure self-sufficiency during 12 months. Only farmers with a large lowland area reach this amount and produce surplus. The generation of surpluses in rice production and high value products such as cash crops or livestock are the main cash sources to farm families.

After great progress in rice production, Laos is now mostly self-sufficient, depending on weather conditions, drought and flooding.

Large quantities of Thai rice are imported for the Vientiane market, while at the same time, different types of Lao glutinous rice are exported to Vietnam, China and Thailand. Inside Laos, there is an important rice surplus in the major plains of Champassak, Savannakhet and Khammouan Provinces. Due to the dense population, the high rice supply of Vientiane Province is not enough and

² The Lao Governments strategic vision (1999)

³ Rice cultivation in the mountainous region of northern Laos, Karin Troesch 2003

therefore, additional supplies come in from Khammouan and Savannakhet. In recent years, the north, where there used to be a rice deficit in several provinces, self-sufficiency has been achieved.

To get a first understanding of the circumstances in Lao farm households, a visit in Pak Ou District of Luang Prabang was organised. Twelve households in the villages Had Kham and Had Kohre were interviewed. They were chosen by consideration of the welfare of the families (better off, sufficient, poor), as well as by the cultivation system used (upland – lowland rice). The village community was interviewed about the inhabitants, village history and local land use. During the village walks and the work in the rice field, insights were gained directly at the relevant places. The duration of one village visit was 4 days.

2 THE DEVELOPMENT OF TOOLS FOR ECONOMIC ANALYSIS



2.1 Conclusion for the Tool Development

The study of the economic situation of Lao farm households in chapter 1 offers insights about the needs for the tools. As mentioned, there is not much relevant information available. Nevertheless, by studying the situation of Lao farm households, essential factors for the development of the tools had been recognized.

In subsistence agriculture as in Laos, money plays a minor role. For that reason, calculation can not only focus on profit in cash terms. Many farmers in Laos do not sell any of the produce. They should still have information about the success in their production. A calculation should distinguish between values in kind and values in cash. The cash flow can then be a part of the whole calculation.

2.2 Literature Review

The study “Village Projects that Work” served as basis for the tool development. The following reports were used as background information for the development of tools for economic analysis (See annex A3).

- Village Projects that Work, LEAP 2003
- Basic Farm Economics: Reference Book for Agricultural Extensionists in Kyrgyzstan, Kyrgyz-Swiss Agricultural Project (KSAP) 2001
- Training Manual for Household Economics, GTZ SFDP
- Basic Extension Concepts and Processes, Technical Paper 2, Department of Agriculture Pilot Extension Project
- Farm Data Handbooks, Martin Upton, Reading University UK, 2001
- Farm Management for Asia: a Systems Approach, FAO

2.3 Material & Methods

As discussed in chapter 1, the first step for tool development was an analysis of the economic pattern of Lao farm households. This activity helped to get insight in to the overall agricultural situation in Lao PDR. For more specific insights, a first field visit in Luang Prabang was conducted.⁴ Twelve households in the villages Had Kham and Had Koh were interviewed. They were chosen in consideration of the welfare of the families (better off, sufficient, poor), as well as by the cultivation system used (upland – lowland rice). During the village walks and the work in the rice field, insights were collected directly at relevant places. In a next step, tools from the literature, which could be relevant for the Lao agriculture were collected. As presented in the following chapter 2.3, there are a large number of useful tools.

The production groups in the LEAP pilot areas have defined rice, chicken and pig production as the main topics where training is needed. To support the existing trainings provided from district staff, the development of economic tools was adapted to those activities. In dialogue with LEAP, the tool development was set for the so-called “Cash Flow Tools”. These tools were presented in the report “Village Projects that Work”. The main aim was to use the knowledge provided in this report to create adequate tools which are simple but meaningful to farmers and extensionists. To focus on this relatively small selection of tools was a decision made during the operational process. A first outline of the calculation tools was drawn on posters to test and adjust in the field.

The following priorities were defined during the planning phase for the tool tests. In agreement with LEAP, the following priorities were defined:

- 1st priority: Tool testing and extensionist training
- 2nd priority: Data collection with local staff
- 3rd priority: Diploma work for “first data” analysis

The first priority, “Tool testing”, was related to the objective of the practical training. In addition it was expected to gain lots of valuable data during the tool tests. The tools were tested and adapted in the three LEAP pilot provinces (Luang Prabang, Salavane and Champassak). In Table 2, the plan for testing the tools and collecting data is shown.

⁴ Mr. Phoutasine, a Lao Student prepared his diploma thesis in cooperation with LEAP at the same time as Stefan Schuermann. The topic of his diploma thesis was “Analysis of the economic pattern of Lao farm households”. Therefore, the two students worked closely together and made use of the so called “win-win” effect. In addition, Mr. Phoutasine did translation during the field work.

Staff from the central, provincial and district levels conducted the tests of the tools. At the same time, this was a first training for the local staff to get used to the new tools. After each field test the tools were discussed with the extensionist. Finally, a manual was written to explain the use of the adapted tools.

Tentative plan for field visits						
Location	# of villages	Timing	General information¹⁾	Production group		
				Chicken	Pigs	Rice
Luang Prabang		1 day	120 – (150) farmers	40 – (50)	40 – (50)	40 – (50)
Nambak	12	-	0	0	0	0
PakOu	10	3 days	3 villages ²⁾	30	30	30
PakSaeng	12	3 days	3 villages ²⁾	10 – (20)	10 – (20)	10 – (20)
Champassak		1 day	80 – (110) farmers	40 – (50)	10 – (20)	30 – (40)
Soukhouma	10	-	0	0	0	0
Phontong	10	3 days	3 villages ²⁾	30	0	20
Khong	10	3 days	3 villages ²⁾	10 – (20)	10 – (20)	10 – (20)
Salavanh		1 day	90 – (140) farmers	40 – (50)	20 – (40)	30 – (50)
Khongsedone	11	-	0	0	0	0
Nakhumpheng	13	3 days	3 villages ²⁾	30	10	20 – (30)
Toumlan	10	3 days	3 villages ²⁾	10 – (20)	10 – (20)	10 – (20)
TOTAL		21 days	290 – (400) farmers	120 – (150)	70 – (110)	100 – (140)

1 general information about the farm (area, family structure, labour, livestock, etc.). This information is similar for all three production groups

2 If there is not enough time, only 2 villages may be selected instead of 3

TABLE 2: TENTATIVE PLAN FOR FIELD VISITS

A further objective for the field visit was the collection of data. The primary goal was to test the tools with 6-10 members of a production group. After the field visit, it was expected to have 300 to 400 calculations (filled in forms) for further analysing the pattern of Lao farm households. During the first field test it became evident that the planned data collection was not feasible. To calculate and discuss on farmer's production 1-2 hours were needed for each farmer. It would have been inadequate to conduct calculations without discussing the result in detail. The interpretation was done by the extensionists which was an additional training for them. By gaining insights about the example production, farmers could estimate better the potential of the tools. Therefore, it was not possible to do the calculation with all members of the production groups in the available time. It was decided that the data collection should take place after the practical training.⁵ This will be a first use of the tools by the district extensionists.

The implementation of the tools is discussed in chapter 4 by comparing calculations of two farmer's production systems.

⁵ The data from all production groups of Somsemong district in Salavane had been received before the end of the practical training of Stefan Schuermann, which shows that the tools are already in use.

2.4 Tool Suggestion

There are plenty of interesting, useful or necessary economic tools to facilitate the management of a farm household. It is not difficult to provide numerous tools in a nice handbook. The challenge was to provide useful tools which are adapted to the Lao context and to the existing extension practice. Out of the large number of economic tools the most promising were chosen. The considered tools are described briefly below:

Farm mapping

The farmer knows where his fields are, what he plants and what he plans to plant in the next year. This tool should help to provide an overview of the farm activities. It facilitates the work of the extensionists. At the same time, the farmer is more aware of factor use (land, labour, and farm inputs).

Agricultural Calendar

This calendar provides help to plan the agricultural activities during the year. The distribution of rainfall is compared with the crops grown and labour intensive periods can be determined.

SWOT Analysis

SWOT is an abbreviation for Strengths, Weaknesses, Opportunities and Threats. The analysis with those four aspects is a helpful tool for evaluation. It follows a natural human line of thought and can therefore be easily understood.

Household history

Some farmers are poor, some are better off. With the household history tool a family can assess what happened in the past. It answers the question why a family is in the present situation and what should be changed in the future.

Crop choice & allocation plan

When choosing crops many factors have to be considered. This tool helps to classify factors like yield, price per unit, difficulty to transport the merchandise. Finally, the choice is facilitated by ranking the aspects for decision making.

Family structure

A family provides labor sources and also has consumption requirements such as food, fuel wood as well as goods and services which require cash. The less active family members work for a high number of inactive family members, (children, elders, disabled people) the harder it is to meet the needs of the family. This tool helps to assess those circumstances.

Gross margin

Gross margin calculation is complex. It gives complete information about production systems. Gross margin calculations are internationally standardized and a must for calculation on production systems.

Cash Flow (one production system)

This Tool was used in a basic structure for the study on village projects that work. The tool focused on the cash flows and flows in kind. It was used for different production systems to assess the present situation and compare with a budget, which was calculated in view of the improvement planned in the production groups.

Record book

With the help of the record book, calculation can be made more precise. A record book has to be adapted to the needs for the respective calculation. The expected figures have to be noted continuously by the farmer.

Cash Flow (over time)

This is an important tool to assess the money availability. In this form, expenses and income are listed and arranged in a monthly view. The monthly cash flow is shown as well as the situation in cash accumulation.

NTFP (not a tool but a help for NTFPs consumption assessment)

Forest products play an important role in Lao consumption. Therefore, it would be interesting to include this category into the calculation. With the help of this assessment information about the dependency of NTFPs could be gained.

Inventory

The inventory gives an overview of the machinery and tools related to a farm household. The inventory helps to plan the production regarding technical aspects and helps to include the cost of equipment in respective calculations.

Partial budget

This is a tool where changes in production systems and technique can be planned easily. The tool describes the planned changes in monetary terms and is also a help for decision making.

Basic Farm economic instruments

Farmers and extensionists need basic knowledge in farm economics. A set of tools provides simple instruments to get into the mechanism of farm economy.

2.5 Tool Preselection

Table 4 shows the different tools considered most important regarding the needs of Lao farmers. After first insights through the study of general information on the situation in Lao agriculture and after visiting two villages in Luang Prabang Province, a preselection was done. Hereby, the importance for the use of the tools in the Lao context and the difficulties for using the tools by farmers and extensionists were considered. Out of 14 suggested tools 9 were preselected.

TABLE 3: PRESELECTION OF ECONOMIC AND GENERAL TOOLS

Tool / Objective	Importance	Difficulty	Remarks	Selection
Farm mapping Land allocation, distance to field and market, production, general information	XXXX	X	For the farmer's own awareness of the factor use.	<input checked="" type="checkbox"/>
Agricultural Calendar Rainfall, Time of cropping Labor need	XXXXX	XX	Lao year, intern. Year, crop ranking	<input checked="" type="checkbox"/>
SWOT Analysis Strengths / Weaknesses Opportunities / Threats	XXX	XXXX	Evaluations have to be facilitated by extensionists	<input checked="" type="checkbox"/>
Household history Important happenings	X	XXX	Define, why we do well / why not.	
Crop choice & allocation plan Help for decision making	X	XXXX	Too complex	
Family structure Classification of labour and consumption in a household	XXX	XX	labour / consumption ratio labour / land ratio	<input checked="" type="checkbox"/>
Gross margin (GM) Comparison of production systems Information in different units (ha, labour h)	XXXXX	XXXXX	Too complex; Farmers can not follow the instructions, can not interpret	

Tool / Objective	Importance	Difficulty	Remarks	Selection
"Cash flow" for one production system Comparison of production systems Information in different units (ha, labor h, GVE)	XXXXX	XXX	More simple to fill out a GM but less information. Adapted for low market integration	<input checked="" type="checkbox"/>
Record book Money flow assessment (in and out)	XXXX	XX	Not easy to do a daily data collection for farmers.	<input checked="" type="checkbox"/>
Cash flow over time (yearly) When lack of money (borrow), when surplus accumulation of money?	XXXX	XXX	Form groups of income and expenses out of Record Book.	<input checked="" type="checkbox"/>
NTFP How high is the profit generated from the forest?	XXX	XX	Dependence on NTFP? (difficult to monetarise)	<input checked="" type="checkbox"/>
Inventory Value of equipment, machines and buildings	X	XX	Not yet relevant in Laos (Not a lot of equipment owned)	
Partial budget Calculate the difference of costs and outputs	X	XXXX	Investments does not play an important role yet.	
Basic farm economics Basic economic information for extensionists and farmers	XXXX	XXX	Farm as a system, basic knowledge in economics, etc.	<input checked="" type="checkbox"/>

TABLE 4: PRESELECTION OF ECONOMIC TOOLS

The X indicates the importance of the tool for the Lao agriculture context while the next category describes the difficulty of the introduction of the respective tool.

Indicator	Importance	Difficulty
X	not important	easy
XXX	important	difficult
XXXXX	very important	very difficult



2.6 Definitive Tool Selection

The question: “Which are the most appropriate tools for farmers?” is fundamental. The key factors for the utilization of the tools are mentioned below:

- The tools will be used for calculation on production systems in farm households. The farmers involved are members of production groups which already get trainings on selected topics. Later on, the spreading of the tools will continue with the expansion of the LEAP project area.
- Farmers are lacking information about the profitability of traditional and modern production. This information is essential for strategic changes and improvements of the production.
- The tools provide information to farmers and extension as well as to LEAP.
- The usage of the tools is implemented and facilitated by district extension staff.

These given key factors significantly influenced the choice of the tools. Out of the 9 preselected tools only 4 were taken for tests and adaption. This does not imply that the other suggested tools are not important. After introducing this small selection, further economic tools may be needed in future. The selected and created tools where:

- Record Book
- Success Calculation Tools (Rice, chicken and pig)
- Summary Sheet
- SWOT Interpretation & Action Plan

The sustainable introduction of a complete economic tool set needs to be done step by step. First, only a small number were chosen which allowed intensive testing and adapting. The “Cash-Flow Tools” were provided in the report “Village Projects that Work”. The goal was to test and adapt these tools.

Villagers of the LEAP pilot area identified their training needs. The three most chosen topics were selected for the development of success calculation tools. These three production systems are rice, chicken and pig production. In addition, tools for fish, mushroom and orange production were developed though only marginally tested and not explained in detail. Nevertheless, they are based on the same calculation method. There are also existing production groups for these three production systems.

The table below shows the organization of the success calculation tools:

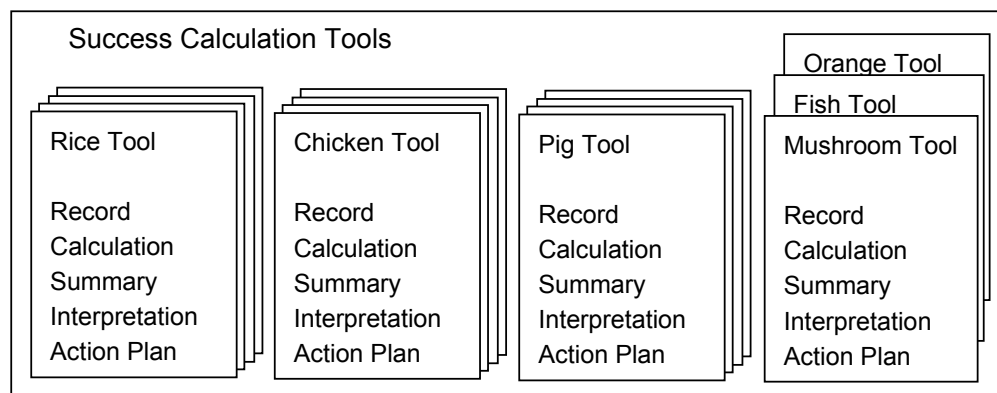


TABLE 5: ORGANIZATION OF THE TOOLS

Each tool has a structure resembling the Rice Tool.

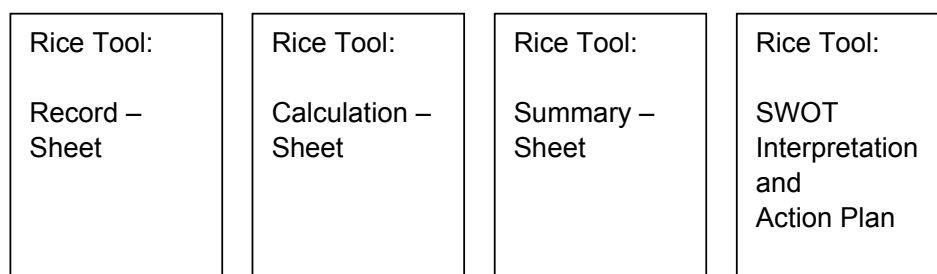


TABLE 6: STRUCTURE OF THE RICE TOOL

The sheets for the different production tools follow the same structure. If an extensionist knows how to use the record sheet for rice production, he/she will also be able to use it for chicken production and so on. This also counts for the record sheet, summary sheet and the analysis sheet. On the next pages, the selected tools are described.

The use of the Success Calculation Tools is described in the manual.

Recording

In the course of one year, many activities happen within a specific production system. While testing the tools, it was found that remembering exact figures of the respective production was the main difficulty for the farmers. They therefore calculated on the basis of assumptions, which then lead to unreliable results. For this reason, it would be better that each farmer takes notes on every activity done. A record sheet is helpful to facilitate the documentation. Analphabetic farmers should get help from a family member, production group member or district extensionist.

Production cycles in crop production are determined by wet and dry seasons. Thus calculation periods are already given. Livestock raising has no such defined production cycles but is an ongoing process. To measure this ongoing process the definition of a timeframe is needed. During this defined timeframe farmers gather information on the production system. The farmer should take notes for each activity concerning the calculation. This includes all categories needed for the calculation sheet. After filling in the record sheet during the production period all the information needed to calculate will be available precisely. If extensionists visit farmers during a production period, they should check the record sheet in order to ensure a valuable calculation base.

	Dry season	Wet season
Rice (rainfed)	←→	
Rice (irrigated)		←→
Poultry	←→	←→
Pig	←→	←→

TABLE 7: PRODUCTION CYCLES

Success Calculation Tools

One of the main reasons for the introduction of economic tools is to provide information on the profitability of different production systems primary for farmers but also for the extension service. For the analysis of the profitability of a production it is not important whether a household produces for the market or not. Even if a farmer does not sell any produce he still generates food supply which is seen as profit for the family's own consumption. This situation is very common in subsistence agriculture and, therefore, success calculations can not only focus on monetary profit. The success calculation tools should provide information for improving the production in order to enhance both food security for the family needs and cash availability. Based on the interpretation of the results, plans for inputs of labour and inputs in kind can be made more easily. The comparison of

the calculations with other farmer's production methods and comparing between own completed production periods allow the farmers to gain details of production successes and failure.

The challenge for the farmer is to improve the production where it has most impact. This does not simply mean to promote e.g. the use of fertilizers or pesticides. Better marketing of the products can also be a significant improvement of the economic success for a farm household. Organic farming is an opportunity to sell the products in attractive markets. One objective of applying the economic tools can be to find solutions for a market oriented production. In a first step, an assessment of the present situation will help to plan for future production. Furthermore, the tools can be used for setting up a budget scheme.

Summary Sheet

The summary sheet is a form in which relevant figures of the calculations can be compared. This counts for calculations within the same farm or among different households. If farmers do not compare the calculations with others, the interpretation of their own production will provide the basis information for further comparison. To estimate the success of a production, farmers need to have reference calculations. This can be their own production in different years or other farm households with comparable production systems. Furthermore, it is possible to assess different production systems such as a comparison between rice and job's tear.

The summary sheet helps extensionists to provide insights about the production to the farmers. Calculations are needed after each production cycle. Extensionists are facilitating calculations not only for one particular farmer. After a production cycle they visit a whole production group to facilitate the calculation process and, thus, a summary sheet is needed to bring together the figures from the calculations of all production group members.

To be able to compare productions among different farm households, the respective figures have to be transformed to an equal unit (per hectare or per animal).

SWOT Interpretation & Action Plan

After a calculation is completed it needs to be interpreted and discussed with the farmer. A completed calculation sheet without reflecting on is without meaning. After the interpretation of the calculation farmers should be aware of the situation in their own production. Extensionists should give feedback to the farmer with very clear statements of possible improvements for the next production cycle. To insure the beginning of a positive development it is important to select at least one specific element for improvement.

Many factors influence the complex process of a production. The SWOT technique (Table 7 SWOT Interpretation) helps to structure the interpretation. SWOT is an acronym standing for Strengths, Weaknesses, Opportunities and Threats. Strengths and Weaknesses are assessed from a past production period. Opportunities and Threats are formulated for future production. While Strengths and Opportunities are the positive part of a production process, Weaknesses and Threats are the negative side. After interpretation of the production and calculation the action plan helps to make sure that the potential will be transformed into successful results.

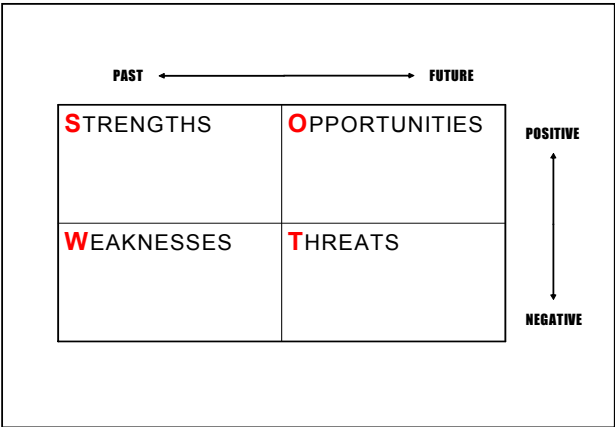


TABLE 7: SWOT INTERPRETATION

2.7 Tool Adjustments and Training

A team of 10 extensionists from CETDU and province/district staff participated in the field tests. The calculation sheets were drawn on posters for the tests. In the villages, the extension team met one production group. After an introduction about the background and goal of the tool development, the example was often calculated with the real production situation of the head of the production group. Then, the district extension team conducted the example by asking the farmer about the required information during the last production cycle. After the completion of the calculation the district staff tried to interpret the main figures of the assessed production. An extensionist from the province level or from the CETDU team added comments to the calculation done. To discuss the calculations in detail was seen as more important than to try to do many examples. Discussing one example takes 1-2 hours. In one production group 2-3 examples were conducted. At the end of each day, the extension team came together to discuss about the quality of the tools. The tools were then adapted for the next test. More basic changes were made in Vientiane in order to prepare the update of the tools for the next test phase. This process conducted by extensionists was tool testing and training at the same time. An advantage was that extensionists not only got used to the new tools but could influence the adjustment of the tools. This ensured the development of the most useful tools. The most important findings during the tests are presented on pages 33 – 35.

Timeframe

The timeframe in which the calculation takes place was not always clearly understood. Livestock production is not structured in periods but is an ongoing process. Depending on the ethnic groups different calendars are in use, which differ from the international year. The suggested timeframe takes the international year as the reference calculation period. It is important to introduce a commonly accepted timeframe to be able to compare results from village level up to national level. As shown in the figure below, a defined calculation period can not grant valuable data, if the production period differs completely. This is a given circumstance which can not be changed. By interpreting a calculation, it has to be taken into account.

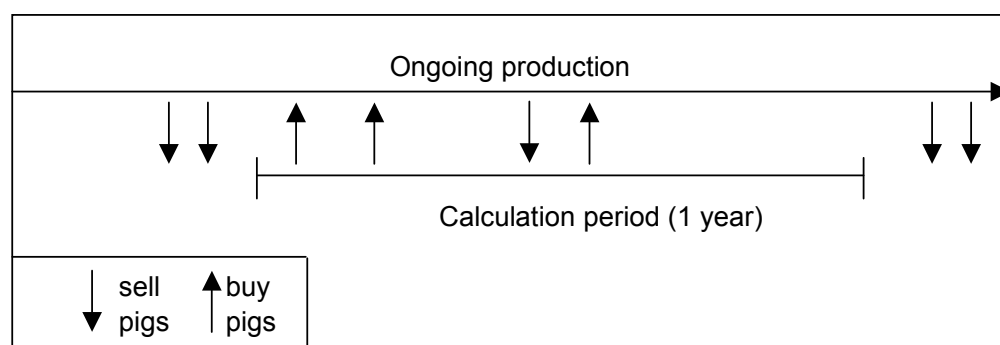


Table 8: Difference between production and calculation period

Table 8 shows that the main selling can be directly before and after the calculation period. The calculation gives a wrong picture of the real output because it does not involve these activities even the stocks are considered. The differences appear mainly in the profit of one calculation period. Therefore, one has to compare several years to see the average profit.

Introduction of categories cash and non-cash

In subsistence agriculture non cash revenues play a major role. One can not only focus on cash flow. To take the non cash revenue into the calculation, we need a comparable unit. Because subsistence farmers are aware of the monetary value of their products, the test team decided to add the monetary value for products from the non-monetary flow.

Fix Capital Consumption

Fix capital consumption (FCC) describes annual costs for machinery and equipment. During the test a farmer asked why the fix capital consumption was not included in the calculation. For an exact calculation it is true that the FCC is essential. To be able to calculate the FCC an inventory is needed. In Lao agriculture not much machinery and equipment is used. It was too complicated and considered not appropriate to introduce an inventory and the explanation on how to calculate the FCC out of it. For that reason, it was decided to leave out the FCC.

How to estimate the costs for soil preparation?

Costs for soil preparation cannot be left out. The estimation of the costs have been introduced and described in the manual.

Soil preparation includes dam-maintenance, ploughing and levelling. How can farmers estimate the costs of a hand-tractor or the costs of buffaloes per ha or per season?

Even if farmers prepare the soil with own buffaloes or hand-tractors, they are asked to use the following method to estimate the costs for soil preparation:

(Part of the manual)

The costs for soil preparation are the amount you would have had to spend if your neighbour prepares your field with his buffalo or hand-tractor. Or, the costs for soil preparation are the amount you would get if you prepared a field for your neighbour in the same conditions as yours. To get the right amount, do not include any payment for labour, because this is the estimation for the buffalo or hand-tractor costs. The costs for labour are estimated in further steps.

Depreciation

During the tool tests, there was a discussion about the depreciation of chickens/pigs parents. The question “How to estimate the costs for parental animals?” occurred. Mother chickens/pigs produce for more than one production period. If we calculate the full costs for these animals for each production cycle, we calculate too much input costs and the profit will be lower than in reality. For that reason, only the yearly costs of the respective parent animals should be taken into calculation.

Livestock production is an ongoing process. This makes an estimation of yearly costs for certain animals complex. Such a detailed calculation is difficult to conduct and not suitable for the Lao circumstances.

To solve the problem, we decided to take the full value of the parent animals for each calculation period. This does lead to higher input cost. Because the value in kind is estimated as well, the same too “high input costs” appear as equivalent value in the output. This leads to a higher level of input-output but the profit is still correct.

The estimate of the annual costs for housing poses a similar problem. These costs are considered as not significant because farmers build the houses for small livestock with wood from the forest. It was decided to leave out those costs. The introduction of the calculation of those costs would be too difficult considering the minor importance within production costs.

Labour

Labour is a special category. There are two different purposes for calculations on labour:

- (1) –The cash value spent for hired labour
- (2) – The total labour (own and hired) needed per ha.

The first information (1) goes directly into the calculation.

Attention!!! Do not add costs for family labour used!

The category family labour is only to estimate the total labour input. Estimation of the costs for family labour is not needed. In part 3 of the form sheet the profit is calculated. With this figure information about the profit for the family labour spent is provided.

The second information (2) allows for comparisons between different production systems. For this, the total amount of person day used (family and hired labour) is needed. The category labour was often discussed in the field test. It is one of the most difficult parts for farmers and extensionists. But it was seen as important and feasible to introduce into the calculation.

2.8 Coherence of Tools as a Set

The above described tools provide an ensemble as a set. The arrangement of the provided tools follows the structure of order by using the tools. The record sheet provides all data needed to do valuable calculations. The summary sheet helps to compare the calculations. With the use of the SWOT sheet, the interpretation of the results is facilitated. The logical order of the tool use is clearly described in the manual. The use of the tools in the cycle of a production period is described below. (Compare the tool set and the manual)

The use of the tools in the cycle of a production period:

1. Recording
2. Calculation
3. Summary
4. Interpretation
5. Action

Recording takes place during one production period. At the end of a period the calculation can be done. The Summary sheet can be used after the calculations are completed. The Interpretation is the link between recording, calculation, summary and action. No changes without action! When a new production period starts, a new cycle for the use of the tool can start with the same structure as described above.

A manual is available for agricultural extensionists in Lao PDR. It supports them in the introduction of economic tools for Lao farm households.



3 IMPLEMENTATION OF THE TOOLS



In this chapter, rice, chicken and pig production are compared along two farm households (Siang and Nudam) which are located in Pak Ou, Luang Prabang and Nakhonepheng, Saravanh Province. The calculations are summarized below in Table 8: comparison of rice production and in Table 9 comparison of chicken / pig production.

Siang does have the better profitability in all of the three compared production systems. The three calculated systems do not explain the whole farm economy but show the differences among individual productions. The goal of the comparisons is on one side to give an idea of the potential of the tools and on the other side, to give insights in the production systems. (See the calculations and further background information in Appendix).

3.1 Economics of rice production

While both of them cultivate wet season rice, only Siang grows a second rice crop in the dry season. Farmer Siang's field measures 1.4 ha but only 1 ha is cultivated for a second cropping in the dry season (Siang plants total 2.4 ha rice). Nudam has a field of 3.7 ha but cultivates only in the wet season, he has no access to irrigation.

Even though Nudam cultivates 1.3 ha more rice, in total he produces 700 kg less rice than Siang. This high difference grounds in the rice yield per ha. While farmer Nudam yields only 1'840 kg/ha wet season rice, farmer Siang yields 1'000 kg more per ha wet season rice. Additionally, the yield per ha of Siang's dry season rice is over 600 kg/ha higher than of his wet season rice.

It is interesting to see that both farmers use around the same labour force (almost 470 labour days per year) for rice production. Farmer Siang cultivates 1.3 ha less rice but uses the same total labour. That is the reason why the labour intensity per ha is 70 days higher in Siang's field compared with Nudam. This could be one reason for the better yield in Siang's cultivation.

In the calculation a distinction is made between cash inputs and the value of non-cash input. The total cash inputs is about the same in both rice productions what leads to a higher cash input per ha of Siang's field. Siang spend less cash input per ha wet season rice (no chemical fertilizer) than Nudam but focuses more on dry season rice. Nudam spends almost 200'000 kip less per ha cultivated rice area but uses more goods, which he does not spend any money for. Compared per ha Nudam utilizes less inputs than Siang.

The total output consists of the categories output in cash and value of non-cash output. In the output there are the highest differences of the compared productions. Both farmers use the produce of the wet season rice for the families' own consumption. Nudam does not sell any rice, while Siang sells the whole produce of the dry season rice. With the money earned, Siang is able to cover the costs of both rice cropping seasons while Nudam has to cover the costs with money external to the production-system.

The total profit of Siang's rice cultivation (8.8 mio kip on 2.4 ha) is 2'600'000 kip higher than the total profit of Nudam's rice cultivation (6.2 mio kip on 3.7 ha). The profit per ha of Siang's production is 3.7 mio, which kip is more than double profit per ha of Nudam's production, which is 1.7 mio kip. Nudam has got a relatively low profitability per ha wet season rice compared to Siang, which produces additionally dry season rice with an even higher productivity per ha compared to dry season rice of both farmers.

Both farmers do not sell any rice out of the wet season production. Therefore, the cash input costs of wet season rice production have to be covered from another source. In Siang's case the costs are covered from the sale of the whole dry season rice production. Nudam has to find another solution since he does not cultivate a second rice crop for market purpose.

The sale of Siang's whole dry season rice production covers the cash inputs of 540'000 kip for wet season rice and 715'000 kip for dry season rice. At the end Siang has almost 4 mio kip in cash available, which is the monetary part of the total profit. This is a fundamental difference comparing to the cash balance of Nudam's rice production. Nudam puts over 1.2 mio kip into the rice production, which does not return from rice sales nor does he generate cash for other household requirements from rice production.

Siang spends 70 labour days more per ha than Nudam. Nevertheless, according to the high total profit, Siang gets more profit per labour day than Nudam. Siang's wet season rice field requires 284 labour days per ha while his dry season rice field needs only 158 labour days. Therefore, Siang profits less per labour day spent for dry season rice production than for wet season rice production. Comparing the wet season rice production of Siang and Nudam, the difference is remarkable. Nudam profits over 30% less per day spent in wet season rice production.

Farmer	Siang	Nudam	Siang	Nudam	Siang	Nudam
Production type	Wet season Lowland Rice		Dry season Lowland Rice		Total Rice Production	
Total Area (ha)	1.40	3.70	1.00	0	2.40	3.70
Total yield (kg)	4'000	6'800	3'500		7'500	6'800
Average yield (per ha)	2'857	1'838	3'500		3'125	1'838
Total Labor days	221	468	248		469	468
Total Labor days (per ha)	158	126	248		195	126
Total Input in cash	540'000	1'212'500	715'000		1'255'000	1'212'500
Total Input in cash (per ha)	385'714	327'703	715'000		522'917	327'703
Value of Non-Cash Input	195'000	786'000	156'000		351'000	786'000
Value of Non-Cash Input (per ha)	139'286	212'432	156'000		146'250	212'432
Total Input	735'000	1'998'500	871'000		1'606'000	1'998'500
Total Input (per ha)	525'000	540'135	871'000		669'167	540'135
Total Output in cash	0	0	5'250'000		5'250'000	0
Total Output in cash (per ha)	0	0	5'250'000		2'187'500	0
Value of Non-Cash Output	5'135'000	8'160'000	0		5'135'000	8'160'000
Value of Non-Cash Output (per ha)	3'667'857	2'205'405	0		2'139'583	2'205'405
Total Output	5'135'000	8'160'000	5'250'000		10'385'000	8'160'000
Total Output (per ha)	3'667'857	2'205'405	5'250'000		4'327'083	2'205'405
Total Profit	4'400'000	6'161'500	4'379'000		8'779'000	6'161'500
Total Profit / ha	3'142'857	1'665'270	4'379'000		3'760'929	1'665'270
Cash Balance	-540'000	-1'212'500	4'535'000		3'995'000	-1'212'500
Cash Balance (per ha)	-385'714	-327'703	4'535'000		1'664'583	-327'703
Total Profit / labour day	19'910	13'166	17'657		18'719	13'166

TABLE 8: COMPARAISON OF RICE PRODUCTION (IN KIP)

3.2 Economics of chicken production

In the following, the chicken productions (2003) of farmers Siang and Nudam are compared.

While Siang holds 412 chicken Nudam raises only 125. Per one chicken Nudam spends 8'600 kip for the production while Siang spends a monetary value of 3'200 kip per chicken. The proportion of cash input to value of non-cash input is in the case of Siang "fifty-fifty" where as Nudam spends 30% as cash input and 70% as non-cash input. Siang spend 16% of the used cash for vaccination while Nudam does not vaccinate his chickens. This is a major difference of the two compared productions.

Siang spends 5'000 kip less input per chicken but generates over 1'000 kip more output per chicken. Siang's cash output is higher than Nudam's as well as the value of non –cash output.

The input – output distribution as described above leads to totally different profits for the two farmers. Nudam has high inputs and generates low outputs. Therefore his profit is negative. For the 125 chicken Nudam raises he has a loss of -368'000 kip which is -2'900 per one chicken. Siang has less input and generates more output per chicken. This leads to a relatively high profit of 1'598'000 kip for the 412 chicken he raises. Per one chicken he has a profit of 3'900 kip which is a big difference to the loss of Nudam's production. In money terms Nudam loses 1'700 kip for each chicken he raises while Siang generates 700 kip per each chicken.

In both comparisons (profit per head and cash balance per head) Siang has the better situation. This makes a big difference for the chicken production of the two farmers. While Siang got profit in cash as well as in non cash value, Nudam has to cover the costs for the production from another cash source.

One interpretation of the high differences could be that Nudam does not spend any money for vaccinating his chickens while Siang spends 16% of the cash used for vaccination. Nudam loses almost 50% of his chickens during the production while Siang loses almost 40%. In both cases there is a high potential to decrease the mortality rate.

The cash balance is not a definitive value because both farmers have chickens left at the end of the calculation period. These chickens are calculated in the total profit but not yet identified whether they will be sold or used for the family's own consumption.

3.3 Economics of pig production

Both farmers start the production cycle with 1 mother pig. Farmer Siang's mother pig produces 20 piglets while farmer Nudam's mother pig produces only 10 piglets until the end of the calculation period (one year). Nudam in addition bought two small pigs, which explains the higher cash expenses. Nudam spends 3 times more cash for his pig production but he does not spend any money for vaccines. The value of non-cash input used in Nudam's production is almost twice as much as in Siang's production.

Both farmers sold around 50% of their production, consumed one pig in the own household and have around 45% of the pigs remaining. Nudam generates an output of 49'600 kip per head and Siang produce an output of 137'200 kip per pig. The highest difference is in the cash output where Siang generates almost three times more than Nudam.

Nudam's profit from the pig production is four times less than Siang's. While Siang earns 143'100 kip Nudam receives 71'000 kip per pig. Nudam has to cover the net costs of 27'100 kip per pig from another cash source while Siang generates 107'400 kip per pig.

Farmer	Siang	Nudam	Siang	Nudam
Production type	Chicken		Pig	
Total Chicken	412	125		
Total Pigs			21	11
Total Input in cash	615'000	365'000	494'000	799'000
Total Input in cash (per head)	1'500	2'900	23'500	72'600
Value of Non-Cash Input	686'400	710'000	1'170'000	1'120'000
Value of Non-Cash Input (per head)	1'700	5'700	55'700	101'800
Total Input	1'301'400	1'075'000	1'664'000	1'919'000
Total Input (per head)	3'200	8'600	79'200	174'400
Total Output in cash	900'000	150'000	2'750'000	500'000
Total Output in cash (per head)	2'200	1'200	131'000	45'500
Value of Non-Cash Output	2'000'000	557'000	1'920'000	2'200'000
Value of Non-Cash Output (per head)	4'900	4'500	6'200	4'100
Total Output	2'900'000	707'000	4'670'000	2'700'000
Total Output (per head)	7'100	5'700	137'200	49'600
Total Profit	1'598'600	-368'000	3'006'000	781'000
Total Profit / head	3'900	-2'900	58'000	-124'800
Cash Balance	285'000	-215'000	2'256'000	-299'000
Cash Balance (per head)	700	-1'700	107'500	-27'100

TABLE 9: COMPARISON OF CHICKEN / PIG PRODUCTION

4 DISCUSSION



4.1 Conclusion

4.1.1 Extensionist: Calculation and an Interpretation

Following three examples happened during the tool test:

Example 1: A farmer was asked about the lowland rice area he's cultivating. Instead of giving the correct area (1.5 ha) he mentioned only 0.18 ha. Only during the calculation we found out that this 0.18 ha never can not be correct. No one from the extension team did recognise the error. After clarifying the problem, the farmer explained that he only know the correct figure for that small piece of land but not for the entire area. Because he wanted to mention only what he is sure, the calculation was completely wrong. This can only be avoided if the extensionists ask very clear questions and assess the plausibility of the answers.

This example shows that the collected data are not necessarily correct. Extensionists should learn to be critical. While testing the tools it came out that the interpretation of the calculation is one of the main difficulties for the extensionists. Instead of finding the main strengths and weaknesses they often only repeated the figures of the calculation.

Example 2: A family of 7 adults cultivates 5.63 ha of rainfed lowland rice. This is a wide area which requires labour input. The reported yield per ha was 2'000 kg. This is about 50% of the average yield for lowland rice production in Lao PDR. In fact this farmer family cultivate a lot of rice but they have a lack of rice shortage during some months per year.

Even though the calculation was correct none of the extensionists noticed the very special situation. The first indicator would have been the low rice yield and

the second the lack of rice for the family needs. Extensionists should find such extreme cases by interpreting the calculation. This was not the case.

Example 3: Some farmers cultivate both rainfed and irrigated rice. Often they sell only the production from the irrigated area while the rainfed rice is for the families own consumption. This leads to interpretation problems if extensionists do not recognise the situation.

At the time of the calculation, there is usually still some rice in the store. It is not known whether the farmer will sell this rice or use it for own consumption. Depending on these choices the cash balance can be positive or negative. This is a further example of the importance of meaningful interpretations.

There are more similar examples. It is not helpful to do calculations without attentive interpretation.

The best calculation form is just as good as the way it is used.

<p><i>It is recommended that extensionist get intensive training for the calculation and interpretation!</i></p>

4.2 Interaction with LEAP

The objective of the practical training was to do an analysis of the economic pattern of Lao farm households and to develop economic tools for Lao farm households. As discussed in the first capture the analysis of the economic pattern was changed into a more general description. Still, information for this analysis is needed but could not be worked out during the 6 months of the practical training. The tool development was first seen to provide a number of internationally well known tools. In the course of the practical training the development of only a small number of tools were seen as more useful for the already existing extension system in the LEAP pilot areas. Therefore, test and training was focused on calculation sheets for selected farming systems.

The provided economic tools are now in use. After the trainee Stefan Schuermann left Laos, extensionists started to calculate in respective production groups of their districts. The data from 56 farmers of Soukuma district in Champassak Province is already complete. Until end of January 2005 calculations of 500 – 600 production systems will be collected.

4.3 Diploma Thesis

As discussed earlier, there is only few information about the profitability of each production system on farm level available. But to be able to improve the income, farmers need to produce for the market and therefore it is important to know about the potential income and constraints of each production system. How is the extension able to advise farmers if there is not enough information available?

Rice is the most important crop in Laos and livestock the highest cash generator. This is the reason why these production systems are high priority in many projects. This is not wrong since they are very traditional and well adapted to the local environment. Many projects focus on improvement in rice and livestock production without having information about the profitability of the production. Even if a farmer produces for own consumption only, the cash amount of the output has to be higher, than the cash amount of the input. If this is not the case, and this was often found during the tool tests, farmers have to cover the costs with money from another cash source. This is the main reason why farmers often have problems with cash availability and therefore have to sell the products at low prices –soon after harvest, sometimes even before harvest- or have to borrow money or rice.

Under those circumstances, it is proposed to carry out a diploma thesis which provides information about the situation of rice, chicken and pig production in Luang Prabang, Champassak and Salavane.

The diploma thesis would statistically analyse the data provided by the end of February 2005 and discuss the insights gained. Furthermore, it would be the basis for yearly analysis by the Lao extension service.

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APPENDIX A1: ECONOMIC TOOLS AND MANUAL

(Appendix A1 is printed in a separate book)

APPENDIX A2: LAO PDR - CENSUS RESULTS IN BRIEF

Agricultural holdings

No. of households ('000)	798
No. of agricultural holdings ('000)	668
No. of land holdings ('000)	647
Farm population ('000)	4'058
Average household size	6.1

Area of holdings

Area of holdings ('000 ha)	1'048
Average area of holding (ha)	1.62

Holdings by area of holding (%)

• Less than 1 ha	36
• 1-2 ha	36
• 2 ha and over	27
Average parcels per holding	2.1
Average parcel size (ha)	0.77

Land use (% of land)

Temporary crops	73
Left fallow (uncultivated)	11
Permanent crops	8
Forest	5
Other land	2

Land tenure

Land tenure (% of land)	
• In owner-like possession	97
• Other land	3
Percent of holdings renting land (%)	5

Land clearance (% of land)

Cleared in last year	18
Cleared 2-3 years ago	11
Other	71

Rice cultivation

Glutinous rice (% of rice area)	93
Improved varieties (% growers)	30

Other crops (% of holding growing crops)

Vegetables	36
Maize	24
Cassava	11
Sugar Cane	3

Fruit trees (% of holding growing crops)

Mango	23
Coconut	17
Banana	17
Jackfruit	11
Tamarind	11

Use of inputs (% of holdings)

Mineral fertilizer	28
Organic fertilizer	33
Pesticides	11

Livestock ('000 of animals)

Cattle	944
Buffalos	992
Pigs	1'036
Goats	94
Other livestock	40

Poultry ('000 of birds)

Chickens	9'669
Ducks	1'351
Other poultry	195

Percent of holdings with livestock

Cattle	31
Buffaloes	48
Pigs	49
Local chickens	73

Average animals per holding

Cattle	4.5
Buffaloes	3.1
Pigs	3.2

Local chickens	19.3
----------------	------

Use of vaccination (% of holdings)

Cattle	36
Buffaloes	48
Pigs	8

Use of machinery (% of holdings)

Tractor	21
Water pump	4

Fishing (% of holdings)

Aquaculture facilities	8
Other fishing	71

Farm labour

Farm occupations (% of adults)	92
Holdings with outside labour (%)	26

Sale of farm produce (% of holdings)

Main purpose for sale	6
Sold some produce	35

APPENDIX A3: SAMPLE HOUSEHOLDS

Background case study Siang

Total Land 1.4 ha all used for rainfed rice, 1 ha he use as well for irrigated rice production.

9 pigs

1 handtractor

Livestock

He has been raising buffaloes until 2003. Then he sold all 4 buffaloes and bought a hand-tractor because of mouth and feeth disease. And also he increased the pig-production.

Future: He want to raise goats in the lowland rice field.

He got two upland fields where he plants job's tears.

1.4 ha lowland rice. In the past, the yield was about 2.5t/ha. In 2002 the yield was only 1t/ha because of a fly. About 3 years ago he started to use improved variety, which was promoted by DAFES (LEAP).

He could increase the yield up to 3.2t/ha. At the same time he stopped with slash and burn cultivation and started with irrigated rice production.

The woman is in the pig production group (LEAP). She ad already been trained from the EU-Livestock project. She does a good pig raising.

Garden in the rice field:

Eggplant, Chilly-pepper, Banana tree, Mango, Grass for Pig-feeding

He also plant industrial tree (maissac = teak)

He has about 3'000 trees and is planning to plant 1.5ha more of this trees in the upland.

When they have money, they buy gold, to save for the children.

No investment on land, but trees and other production.

He has 9pigs, 17ducks, 120chickens.
Distance to field is 20min walk.

Maissac

Start to grow in 1997

Technique.

First you make rows with 2.5m distance.
(2.5x2.5m)

You plant at the beginning of the raining season.
The seedling he produces him self (no costs).

Make a fence around the area.

Weeding: 2x per year, later 1x per year, and when big enough no more.

About 10% dead, because if you plant close to stones (dry).

Seedling: 3days in the water (before you take the peal of).

After wash the peal off and sop in the water for 1 day. Spread it in the seedbed. Cover with sand, slightly.

After one week, start to germinate. Wait until got 2 leaves, then transplanting in the plastic bag with soil.

When 40cm high, transplant in to field.

Sell:

Small tree circumference: 80cm – 80'000kip, U: 100cm – 100'000kip

He start to sell from U: 50cm

To get U50cm you need 10 years in wet area and 15 years in dry area.

1 tree diameter about 90cm, 18 m long: he can sell for about 1 million kip.

Family

3 adult

0 elder

2 (9-15)

1 (<1)

Livelihood: Medium class (sufficient)

No irrigation access.

Background Nudam case study

Total Land (6ha)

Lowland rainfed 2 ha (+rent 1.7 ha for 200kg of rice = value of 240000kip)

Forest 4ha (some bamboo, fuel wood, keep buffaloes)

Handtractor 1 (11'000'000 kip)

Family structure

6 adults

3 elder

3 (9-15y.)

1 (<9y.)

Buffaloes 3 (3*2'700'000=8'100'000 kip)

Problems

Not enough water

Poor soil

Rice diseases and insects (worm eat leaves, grasshopper in rice)

Future plan

Grow more in dry season (pepper and vegetables in the river bank)

Work on his forest to create more rice field (slash and burn and cultivate every year)

Technique

Use improved varieties for rice growing (not hybrid)

Before seeding sop in the water for 3 days.

Transplanting 20 x 20 cm, 3-5 seedling per howl, 3-5 cm deep.

Caring: Chemical fertilizer 16-20-00

By ploughing 170kg

15days after transplanting 150 kg

Start to produce grain 150 kg

15 kg for seedling production

Harvesting after har. Dry 1 day in

Soil: Sandy-lom

Land taxes 74'000kip for 2ha

Fixed capital consumption 246'000 kip per year

He can sell vegetables for 300'000 kip per year.

Livelihood class: Medium (sufficient)

APPENDIX B: WEEKLY TIME SCHEDULE

[illegible]

APPENDIX C: LAOS IN BRIEF

General Information

Laos is a land-locked country in mainland South East Asia. Its total land area is approximately 237,000 square kilometres (equivalent to the State of Victoria). Laos is bordered by China, Vietnam, Cambodia, Thailand and Burma. Much of Laos's terrain is mountainous and densely forested. The Mekong River forms a large part of Laos's border with Thailand, and 1,800 of the river's 4,000 kilometres pass through Laos. Main towns (including Vientiane, Luang Prabang, Pakse and Savannakhet) are located adjacent to the river.

The population of Laos is approximately 6million people, with an estimated annual growth rate of 2.4 percent. Population density is 23 people per square kilometre, one of the lowest in Asia. Laos's population is ethnically diverse, consisting of approximately 131 ethnic groups. Around one in ten Lao people left the country in the 1970s as a result of political changes at that time.

The official language is Lao, a tonal language similar to Thai. Before 1975, French was the predominant foreign language spoken. Between 1975 and 1989, many Lao studied Russian or other Soviet Bloc languages. Among younger Lao, English is the most widely-spoken second language.

Theravada Buddhism is the dominant religion of Laos and is followed by approximately 60 percent of Lao people. Animism is widely practised among a number of minority groups.

Laos has a tropical monsoon climate, with a wet season from May to September/October. Temperatures are coolest during December and January and highest in April and May.

Political Overview

Laos is officially known as the Lao People's Democratic Republic (Lao PDR). The Lao PDR was formed on 2 December 1975 following many years of foreign occupation, civil war and political instability. The Lao PDR is a one-party, communist state ruled by the Lao People's Revolutionary Party (LPRP). The 10-member Politburo of the LPRP is the key decision-making body. A National Assembly, which is elected by the people from a list of candidates approved by the Party, meets twice a year and is responsible for scrutinising proposed legislation.

In common with its larger socialist neighbours, the Lao leadership has recently encouraged greater economic openness, although the preservation of political stability and one-party rule remain of paramount importance. Political dissent is not tolerated.

Since 1986 the LPRP has promoted gradual economic liberalisation through a policy labelled the New Economic Mechanism (NEM). In line with this process, the Government has moved cautiously from a hard-line regime with a centrally planned economy to a more market-oriented system. Indicators of a more open society to have emerged over the past decade or so include greater freedom to travel, choice of employment, and the development of a fledgling private sector. In August 1991, the National Assembly adopted a new constitution which formalised the establishment of a market-oriented economy, guaranteed the right of every Lao citizen to own private property, and provided protection for foreign and domestic investment.

At its most recent Party Congress, in March 2001, the LPRP made a commitment to treble per capita income by 2020 through a focus on modernisation and industrialisation. General Khamtay Siphandone was re-elected as President of the Party and the State. The next Part Congress is expected to be held in 2006.

Human Rights

The human rights situation in Laos has improved somewhat over the past decade or so, largely as a result of greater economic prosperity and market oriented reform. Nevertheless, the government continues to maintain tight control over the population to minimise potential challenges to the ruling party. Political dissent is treated harshly and there are a number of political prisoners in detention.

The Lao Constitution guarantees freedom of assembly, religion and speech. However, there have been allegations of persecution of Christians in some parts of the country, including reports that Christians have been forced to renounce their faith. Freedom of speech in Laos is severely constrained.

The Australian Government monitors the human rights situation in Laos, makes representations to the Lao Government as appropriate, and has been active in promoting a number of initiatives designed to encourage an improvement in the human rights environment in Laos. Australia has funded the translation into the Lao language of key international human rights texts, and sponsored visits to Australia by high-level Lao delegations to attend training courses run by the Centre for Democratic Institutions. In 2001, under the auspices of its Human Rights Small Grants Scheme, and in cooperation with the Lao Ministry of Foreign Affairs, Australia funded the translation and printing of a human rights handbook for Lao law enforcement officials. On 10-14 June 2003 Australia held a Workshop for Lao officials on International Law and Human Rights in conjunction with Forum-Asia, a Thailand-based NGO.

Foreign Policy

The relationship with Vietnam, enshrined in the 1977 Treaty of Friendship and Cooperation (which covers defence arrangements, delineation of the border between Laos and Vietnam, and Vietnamese economic assistance to Laos), is the most politically important of Laos's bilateral relationships. High-level bilateral exchanges between Laos and Vietnam take place regularly and cooperation in political, trade, and technical matters underpins the relationship. Laos also has strong political and economic ties with China.

The collapse of the former Soviet Union and its fraternal communist regimes in Eastern Europe was unsettling for the Lao leadership, which had enjoyed close relations with and economic assistance from these communist states since 1975.

Thailand is another important bilateral partner, for reasons of proximity and cultural and linguistic affinity, as well as strong trade and investment links. However Laos's relations with Thailand have historically featured territorial conquests in both directions, and border clashes have raised tensions and created some mistrust. Political differences, rebel activity in border areas and illegal trade in narcotics and labourers exacerbate problems between the two neighbours. Parts of the border are still undergoing formal demarcation. The opening of the Australian-funded "Friendship Bridge" between Laos and Thailand in 1994 contributed to closer links between the two countries.

In the early 1990s Laos sought to develop stronger relations with a broader range of countries, irrespective of their political, social or economic systems. Diplomatic efforts were made to expand relations, particularly trade and investment relations, with all of Laos's neighbours, other countries in the region and more widely.

Laos was admitted to ASEAN (the Association of South-East Asian Nations) in July 1997, and holds the Chair of the organisation for 2004-05. Laos is also a member of the Mekong River Commission, the Secretariat of which was relocated to Vientiane in 2004.

Laos has applied to join the World Trade Organization (WTO).

The World Bank and Asian Development Bank (ADB) have resident missions in Laos which manage wide-ranging development programs.

Economic Overview

Laos is classified as a Least Developed Country (LDC), and relies heavily on donor assistance. Estimated per capita income in 2004 is a mere US\$382. Social indicators are among the poorest in the region. Average life expectancy in 2003 was 54.

The economy is dominated by subsistence agriculture, with a low level of monetisation. Agricultural output is limited by weak infrastructure and unsophisticated production

methods, and is vulnerable to weather conditions. The agriculture sector employs over 80 percent of the population, and contributes 53 percent of GDP.

Considerable progress has been made since 1986 in the shift from central planning towards market-based economic structures. The economy has continually expanded (albeit from a very small base). A market-based price system is in place for most products, the currency has been floated and a fledgling private sector is growing in confidence. A number of banking and state enterprise reforms are gradually being introduced, with assistance from the World Bank and ADB. However current high levels of debt in the financial sector continue to hamper macroeconomic stability. A privatisation program was initiated in the 1990s with the aim of improving economic efficiency and freeing state coffers from propping up inefficient state enterprises. This latter process has slowed in recent years, and numerous enterprises remain in government hands.

Laos's economy has recovered well from the crisis point reached in the late 1990s. GDP growth for 2004-05 is estimated to be 6 percent. Further high levels of growth will be required if Laos is to achieve its stated goal of graduating from LDC status by 2020. The industry and service sectors now account for almost half of GDP growth, with key economic activity focussed in electricity production, handicrafts, foodstuffs, chemical production and mining. Tourist numbers increased significantly in the late 1990s, with the Lao National Tourism Authority anticipating around 747,000 tourist arrivals in 2004, making tourism one of Laos's biggest sources of foreign exchange.

The current account deficit is forecast to be 3.2 percent of GDP in 2004. Gross international reserves have been increasing steadily and, according to the IMF, are expected to reach US\$228 million by 2004, equivalent to approximately 4 months of imports.

By mid-2000, the Lao economy had largely recovered from the triple-digit inflation levels and drastic currency devaluation that occurred in the late 1990s. This was partly as a result of the imposition of stringent fiscal measures, as well as downward pressure on food prices resulting from good rice harvests. Average inflation, which reached 128 percent in 1999, was reduced to single figures by 2002, but climbed to almost 18 percent between March and May 2003. It is expected to fall again to 12.3 per cent in 2004.

The introduction of more attractive foreign investment legislation has led to increased foreign investment inflows, particularly in the hydroelectricity and mining sectors. One private sector consortium is planning to develop a large hydropower project, Nam Theun II, worth about US\$1.1 billion but a number of issues are yet to be resolved. Laos's foreign investment regulations are among the more open in the region and tariffs are relatively low. But trade and investment are heavily regulated, including through import and export licensing.

In April 2001 the International Monetary Fund (IMF) approved a three-year loan arrangement for Laos under their Poverty Reduction and Growth Facility (PRGF) for approximately US\$42 million. The IMF program is intended to encourage further economic growth by supporting official reserves and macroeconomic stability.

The small size of the Lao economy makes it particularly vulnerable to internal policy settings and external shocks. Significant structural impediments to further economic development include inadequate physical infrastructure and underdeveloped human resources. In addition, limited policy development and bottlenecks in decision-making processes are increasing as institutional capacity is stretched to its limits. Specific areas requiring government attention include recapitalisation and reform of the indebted financial sector; reform of state-owned enterprises; better management of foreign exchange transactions; increased revenue collection; liberalisation of the foreign trade regime; reform of the legal system and more transparent management of economic information. Ongoing economic growth will also require improved support for private sector activity, greater domestic savings and more efficient resource allocation.

In the longer term, Laos has many advantages. It shares borders and common interests with Thailand, Vietnam, Cambodia and China, forming what many see as a natural economic growth area of the future. While the domestic market is very small, there are millions of people who live within 100km of Laos's borders who will generate new market opportunities as transit routes are further developed. Laos is also starting to exploit its natural resource base, particularly in energy production and mining.

Source: http://www.dfat.gov.au/geo/laos/laos_brief.html

APPENDIX D: LAOS EXTENSION FOR AGRICULTURE PROJECT

DEZA DIREKTION FÜR ENTWICKLUNG UND ZUSAMMENARBEIT
DDC DIRECTION DU DÉVELOPPEMENT ET DE LA COOPÉRATION
DSC DIREZIONE DELLO SVILUPPO E DELLA COOPERAZIONE
SDC SWISS AGENCY FOR DEVELOPMENT AND COOPERATION
COSUDE AGENCIA SUIZA PARA EL DESARROLLO Y LA COOPERACIÓN



FACT SHEET



Agriculture Extension

Name

Lao Extension for Agriculture Project (LEAP)

Duration of Support

11/2001–10/2004

Current Budget

CHF 1'133'000/year
(US\$ 708'000/year)

Cumulative Budget

(11/2001–10/2004)
CHF 3'400'000 (US\$ 2'125'000)

Line Agency

Ministry of Agriculture and Forestry (MAF) – Lao PDR

Partner

National Agriculture and Forestry Extension Service (NAFES)

Implementing Agency

Helvetas, Zurich – Switzerland

Project Location

Vientiane and Provinces of Saravanh, Champasak and Luang Prabang – Lao People's Democratic Republic (Lao PDR)

Background

Until recently, agriculture extension in Lao PDR has been mainly concerned with the development of infrastructure for agriculture (i.e. development of irrigation systems) and some occasional thematic campaigns. The technical departments of the Ministry of Agriculture and Forestry (MAF) have promoted their programmes following their own ideas about the extension project, while the Provincial Agriculture and Forestry Offices (PAFO) and the District Agriculture and Forestry Offices (DAFO) have conducted campaigns upon instructions. Since the inception of the New Economic Management Plan (1998), there have been a number of projects with extension components, but without a lasting effect towards the emergence of a Lao extension system.

The Prime Minister's Decree on decentralisation and the parallel formulation of the "Strategic Vision for the Agriculture Sector" of the MAF have provided a policy framework for a decentralised and demand-driven extension project to take place, which aims at supporting villagers to take initiatives for self-help. Thereby, extension workers will operate as "generalists" at the district level. They will simultaneously cover all aspects of agriculture, forestry, and livestock. They will be complemented by subject matter specialists based at the provincial level.

Overall Goal

Support the development of a decentralised, participatory, pluralistic and sustainable agricultural extension system that reaches male and female farmers equally.

Current Objectives

- Develop the methodological procedures for the extension system to become demand-driven and respond to both female and male farmers;
- Strengthen the institutional set-up for the delivery of flexible, participatory, pluralistic and sustainable extension. This includes the development of an effective methodology for monitoring the extension services and for coaching the extension staff at the provincial and district levels;
- Deliver training to the central and provincial staff on how to run an effective training and coaching system and to district staff on how to deliver participatory extension services;
- Maintain a continuous, well-informed debate on the effectiveness of the tested methodology and delivery mechanisms and on the policy and implementation of agricultural extension and research in the future.



Approaches

The programme aims at improving the extension methodology mainly at the district level through training, coaching and adjustment of organisational and administrative structures. The staff in the district offices is in direct contact with the farmers and hence, focus is on the improvement of their capacity. The project initially focuses on the central level and in Luang Prabang, Champasak and Saravanh Provinces.

Result Achieved and Expected

An organisational structure for agricultural extension has been put in place in the pilot provinces with a special focus on the village level. Know-how of Master Trainers has been upgraded. A training cascade from the central to the village level has been set up to ensure the knowledge transfer from Master Trainers to province and district extensionists to the farmers. Comprehensive materials for extension methodology and technical training have been generated and made available to other provinces.

Technical training using new extension approaches for production groups will be continued. Recurrent coaching cycles for extension workers will be established to ensure the quality of extension activities. Policy dialogue with NAFES to outline the future national extension system will be pursued.

Highlights

LEAP has contributed substantially to NAFES' First National Extension Workshop.

Information and Publications

Project Document is available upon request.

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