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Introduction to the Shifting Cultivation Research Sub-programme¹

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Summary

The Shifting Cultivation Research Sub-programme in Luang Prabang Province was established in 1989. Up to 1995 the main objective was to devise and test technical, extension and development methods that could facilitate sustainable and productive land-use in the uplands and highlands of Laos. This was sought accomplished through a combination of research, training and practical development activities in forestry, crop production, horticulture and animal husbandry.

In the forth phase of the LSFP, the objective of the Shifting Cultivation Research Sub-programme will be more narrow, by concentrating on applied research. Thus, the purpose is to create an adaptive research system that will produce results relevant to improving the land-use in upland areas of Laos, particularly shifting cultivation areas. The research will include both experimental field trials and descriptive research.

Introduction

Shifting cultivation is widely practised in the uplands and highlands of Lao P.D.R., particularly in the northern part of the country. Shifting cultivation is based on short periods of cultivation alternating with longer periods of fallow, when natural vegetation will re-grow on the land. If the fallow period is sufficiently long soil fertility is restored and potential weeds are suppressed by the forest regrowth.

With fallow periods of 5 to 15 years, shifting cultivation can sustain repeated cycles of productive cropping, and can be considered a sustainable farming system. However, in most parts of the country the fallow periods are becoming shorter and thus unable to ensure sustainable shifting cultivation. The shortening of fallows is caused by population pressure, government restrictions on shifting cultivation and clearing of older forest, competing land-use objectives, and concentration of people in areas with road access, urban centres, rivers and irrigation. Farmers are thus clearing fields in young re-growth and are unable to employ adequate fallow periods. The consequent soil degradation and proliferation of weeds and pests result in lower yields and increased demand for weeding, often beyond the capacity of the farmers. Many shifting cultivators are therefore experiencing increasing poverty and uncertain prospects.

Shifting cultivation may have serious environmental consequences, particularly in areas of higher population density. The forest area of Laos has been reduced considerably by shifting cultivation, by preventing forest regeneration in already affected areas and by the clearing of mature forest. This diminishes the national timber resources and important natural habitats. Where shifting cultivation is intense, accelerated erosion and changes in the water discharge may impair the water resources for irrigation, hydropower and domestic usage.

Solving these problems is a high priority of the Lao Government, as expressed in policy resolutions and ministerial decrees. The Shifting Cultivation Research Sub-programme in Luang Prabang was established to help identify possible solutions and work methods for addressing shifting cultivation.

Organization

The Shifting Cultivation Research Sub-programme is implemented by the Department of Forestry, at the Ministry of Agriculture and Forestry. The Sub-programme started in 1989, with financial and technical assistance from the Swedish International Development Authority (SIDA). Activities are centred at and around the field station at Ban Thong Khang in Nane District, 66 km by road south of Luang Prabang. An administrative office is located in Luang Prabang Town.

Twenty-eight staff members are currently working for the project, assigned by Luang Prabang Province. Nine of the staff members have higher level education and 19 have mid-level training. One foreign advisor is employed, in a technical advisory role. About 30 workers are hired full- or parttime from villages near the station.

Past activities of the Project 1989-1995

The development objective was to contribute to sustainable, productive and equitable land-use in shifting cultivation areas of Laos. This was sought accomplished through:

1. Studying the extent and impact of shifting cultivation in Lao P.D.R.
2. Studying existing shifting cultivation systems to identify development constraints and potentials and define a strategy for improving the land-use and living standard of people.
3. Developing and implementing improved land-use practices, including crop production, animal husbandry and forestry.
4. Developing and employing suitable extension and training systems in cooperation with farmers and local authorities.
5. Strengthening Department of Forestry's ability to address the technical and socioeconomic problems associated with shifting cultivation.

Method development was the main scope of the project, but practical development work was carried out in pilot villages to test the methods and to obtain a direct development impact. Project activities included research and extension activities in forestry, agronomy, animal husbandry and socioeconomic issues. An integrated approach to land management was taken to address the complex issues met by both farmers and development agencies.

Planned Project activities 1996-1999

In the Fourth Phase of the Lao Swedish Forestry Programme, the Shifting Cultivation Research Subprogramme will focus on adaptive research, while other parts of the Programme will take responsibility for extension, land-use planning and practical rural development.

Thus, the Sub-programme will have two main objectives:

- To create a field trial research system relevant to extension and development in shifting cultivation areas of Laos.
- To create a descriptive research system that will analyse and evaluate land-use, socioeconomic and environmental issues relevant to development planning and extension in shifting cultivation areas.

Setting up these systems will involve the creation of:

- Research results relevant to development, planning and extension.
- Appropriate research methods.

- Research facilities and infrastructure.
- Institutional cooperation in research and extension.
- Staff capability in carrying out research.

The sub-programme will not carry out extension work, but will assist the DAFOs and the Extension Sub-programme in formulating extension recommendations based on the research results. The subprogramme will also maintain and improve the demonstration and training facilities at Ban Thong Khang Station and pilot villages to aid in extension, training and education. Close cooperation with the extension system is necessary.

Field trials

Four main outputs from the experimental research are planned:

1. On-station experimental results in arable cropping, cropping systems, pastures, agroforestry and silviculture. This work will be carried out mainly at Ban Thong Khang Station, in Luang Prabang Province, and at Lao Ngam Resource Centre in Salavan Province.
2. On-farm experimental research system that will test the suitability of new technology under different environmental and socio-economic conditions in co-operation with farmers. The trials will also be used to study farmers' adoption and adaptation of such technologies
3. A resource centre in Ban Thong Khang that serves as a base for research, demonstrations, training and multi-disciplinary co-operation. The sub-program will maintain and improve the demonstration facilities at Ban Thong Khang Station and in pilot villages to aid in extension.
4. Staff capability in carrying out all stages of experimental research using different types and layouts of trials. Staff training in appropriate methods of on-farm and on-station trials is a major objective.

Descriptive research

The environment, socio-economic conditions and land-use in the uplands of Laos are extremely variable, as are the potentials for and constraints on development work. The descriptive research aims at understanding:

- The environmental variability in the uplands and proposing relevant agro-ecological zones to aid in extension of new technology.
- Farmers' land-use methods and adaptations to different conditions.
- The potentials and constraints on improved land-use in the uplands.
- Farmers' ability and constraints in adopting new technology

Six main outputs are expected from the land-use system research:

1. A study of the land-use, socio-economic conditions and environment in Nane River watershed area.
2. A comparative study of land-use, socioeconomic conditions and environment in the target areas and protected areas. The research will be conducted in cooperation with the relevant District Agricultural and Forestry Offices.
3. Comparative study of the land-use and development prospects in the 11 districts of Luang Prabang Province.
4. Special studies on technological, socio-economic and environmental topics to aid in research or extension work. Tentatively, studies will deal with: farmers' teak production in Northern Laos, soil fertility and land-use, local livestock production technology, and the use of non-wood forest products.
5. Identification of constraints and potentials for improved land management and development planning in shifting cultivation areas of Laos. This work will be based on information from the above mentioned

research and from other sources.

6. Staff capability in carrying out various kinds of environmental, land-use and socioeconomic research.

Conclusion

The Shifting Cultivation Research Sub-programme has so far carried out research, extension and training relevant to development in shifting cultivation areas of Lao P.D.R. This broad mandate ensured positive interactions between research and development activities, but also meant that it was difficult to focus activities. In the Forth Phase of the Lao Swedish Forestry Programme (1996-2000) the Sub-programme shall concentrate on applied research, while development work, training and extension will be carried out by other LSFP sub-programmes. Close co-operation between the various sub-programmes is therefore essential to make best use of the resources and achievements.

The Shifting Cultivation Research Sub-programme also hopes to co-operate further with the various specialist research institutions in Laos, such as National Agricultural Research Centre, Lao IRRI, Large Animal Adaptive Research and Extension Centre, and Hat Dok Keo Station.

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