A workshop on

Poverty Reduction and Shifting Cultivation Stabilization in the Uplands of Lao PDR: Technologies, approaches and methods for improving upland Livelihoods

Organized by the National Agriculture and Forestry Research Institute with support from the Lao-Swedish Upland Agriculture and Forestry Research Program
Held at the Provincial Meeting Hall, Luang Prabang
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Welcome note

It is my pleasure to welcome you to Luang Prabang and the NAFRI workshop on "Poverty Reduction and Shifting Cultivation Stabilization in the Uplands of Lao PDR: Technologies, approaches and methods for improving upland Livelihoods".

The problems facing uplands development are complex. While a number of projects and programs have gained valuable insights and experiences in uplands development, there have been few opportunities to systematically share experiences, and work jointly to find solutions to the major livelihood crisis of the Uplands.

Five years after its establishment, NAFRI is organizing this workshop in order to bring together the range of technical knowledge and experiences that have been gained both within NAFRI and in other projects and programs working in upland areas. From this we expect to create a better shared understanding of the key challenges facing uplands development.

It is my heartfelt belief that with all our efforts, the outcomes of this workshop will significantly contribute to the National Poverty Eradication Program (NPEP) and the goals of the Government of Lao PDR. Likewise, we envision that the workshop will lead to better coordination between projects, programs and organizations working in the uplands so as to ultimately benefit of the poor and better tackle the issues of poverty and sustainable development.

The main purpose of the workshop is better understand the status of technical and experiences (both good and bad) available for improving upland livelihoods and farming systems. The objectives of the workshop are to:

- (i) review existing knowledge and (ii) share relevant information between researchers, extensionists, development practitioners and academics.
- Provide feedback from the field to policy makers, researchers, academics and donors to improve the implementation of policies related to shifting cultivation stabilization and poverty eradication.

Enclosed in this booklet is a range of materials to help you better understand how the workshop is organized and how you can make the most of your time. This includes:

- Overview of the workshop process and structure
- Overview of papers to be presented at the workshop
- Abstracts of presentations and papers
- Draft list of participants

This workshop would not be possible without the support of many different organizations and people. I would like to express my sincere thanks and appreciation to Sida and the Lao-Swedish Upland Agriculture and Forestry Program for their generous support to NAFRI in order to make this very important workshop a reality. I would also like to thank all the projects and programs within NAFRI which contributed their time and effort to support the organization of different aspects of the workshop. Finally, we are grateful to the provincial government of Luang Prabang for hosting the workshop.

Again, we hope you enjoy your time in Luang Prabang and you find the experiences and lessons gained at the workshop useful in your own work.

Sincerely,

Dr. Bounthong Bouahom
Acting Director General, NAFRI
Overview of the workshop process and structure

This workshop has been organized in consultation with a number of staff within NAFRI and a range of projects and programs working in the uplands. Based on this feedback and the expectations of participants who registered for the workshop, we have tried to organize the workshop in a way in which everyone can participate and learn from the myriad of experiences that are being showcased at the workshop.

The information below provides with an overview of structure of the workshop (see diagram below) and the key elements it is comprised of. This includes:

- Presentations and papers presented at the workshop
- Information market
- Field trips
- Working groups

Overall Workshop Process and Structure

<table>
<thead>
<tr>
<th>Day 1: Introduction and Overview of challenges and opportunities in uplands development</th>
</tr>
</thead>
<tbody>
<tr>
<td>- General presentations which provide participants with overall understanding of issues, challenges and opportunities</td>
</tr>
<tr>
<td>- Information market to provide participants with opportunity to network and share experiences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 2: Field Visit</th>
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</thead>
<tbody>
<tr>
<td>- Show examples of upland research &amp; development initiatives</td>
</tr>
<tr>
<td>- Provide opportunity to interact with farmers</td>
</tr>
<tr>
<td>- Provide time to participants to interact outside the workshop hall so as to stimulate further discussions during the workshop</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 3: Parallel Session on Specific experiences and lessons in uplands development</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Provide participants with opportunity to learn from approaches, methods and technologies used in the uplands</td>
</tr>
<tr>
<td>- To catalogue, review and identify gaps in existing knowledge and experiences in uplands development</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day 4: Working groups and wrap up</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Identify specific challenges and opportunities and develop strategies and mechanisms to address them</td>
</tr>
<tr>
<td>- Encourage the new linkages and contacts to further work on a specific issue or topic</td>
</tr>
<tr>
<td>- Discuss feasibility of uplands source book for Lao PDR</td>
</tr>
<tr>
<td>- Evaluation of workshop by participants</td>
</tr>
</tbody>
</table>

Who to contact during the workshop

If you have any questions regarding the workshop, you can contact the following people who are all intimately involved in workshop preparations.

<table>
<thead>
<tr>
<th>What information you need</th>
<th>Who</th>
</tr>
</thead>
</table>
| Arrangements in Luang Prabang, Administrative support & Field Trips & Hotline support | Houmchitsavat Sodarak Mobile: 020-557-0076
Bandith Ramangkoun Mobile: 020-221-1317
Sisongkham Mobile: 020-551-3523
Michael Victor Mobile: 020-552-6993
Dirk Van Gansberghe Mobile: 020-540-5251 |
Outputs of the workshop

As shown in the diagram there are a number of outputs we expect to achieve from the workshop, and include:

- A number of products will be developed from the workshop so as to disseminate the outcomes more widely. This includes: 1) Summary of workshop; 2) CD-Rom of presentations and other documents from workshop itself; and 3) Proceedings of papers presented at workshop
- Dialogue established between researchers, development workers, and academics
- Contribution of development of network for uplands development practitioners
- Feedback from field experiences to improve implementation of government policy

Presentations and papers

On Days 1 and 3 of the workshop, a number of presentations will be made. Presentations focus on key issues that have arisen, technologies being used or tested, and/or approaches and methods being used, rather than the project or program itself.

Day 1 of the workshop has been structured to provide participants with a general picture of the key issues, challenges and opportunities identified in uplands development. It was felt that providing participants with an overall picture of uplands development in Lao PDR will help to create a better shared understanding and allow everyone to focus on specific issues during the parallel sessions.

Due to the high number of abstracts submitted, presentations on Day 3 have been grouped into three overall parallel sessions. These sessions will be held at different locations in Luang Prabang and include:

- Parallel Session 1: Experiences in Forest and Land Management in Upland Areas
- Parallel Session 2: Experiences in upland cropping and livestock systems
- Parallel Session 3: Development approaches being used in the uplands

How will the translation be dealt with?

This has been a difficult issue to resolve, especially given the unexpected number of participants that requested to attend the workshop. We have tried to take the numbers into account and ensure that those who speak only English or Lao will be able to make the most of their time at the workshop.
• **For presentations on Day 1 we will have simultaneous translation from English into Lao.** We expect that most presentations will be in English language on Day 1 and have a 100 translation sets for Lao participants to listen to the presentations. For presentations and discussions by facilitators on Day 1, these will be done in English and Lao language.

• **On Day 3** most presentations will be made in Lao language and we have requested presenters to make their overheads in English. In addition, we expect staff from projects could help to summarize in either Lao or English.

  *Do I have to choose one parallel session and stay there all day? How can I move from one parallel session to another?*

You are welcome to choose the presentations that you would like to listen to and move from one room to another. While the parallel session rooms are not too far apart, you will most likely require transport from one parallel session to the next. We have arranged for a number of vehicles to drive from one parallel session room to another and expect that they will be stopping by each parallel session every 20 minutes or so. Please wait right outside of the parallel session room and a vehicle should be around soon.

**Information Market**

On the afternoon of Day 1, we have provided participants structured time to network and share information. This will also allow presentations to focus on substantive technical issues, rather than provide only an overview of project activities. During the morning coffee break there will also be a short ceremony to open the information market. The objectives of the information market/display are to:

- Provide participants with opportunity to share experiences & disseminate information
- Develop a better idea of who is working where and what they are focusing on

**How is the information market arranged?**

There are two types of displays at the information market:

- **Information booths** (numbered 1-16): These are primarily for those who requested a large space for their project or program
- **Poster Displays** (numbered I-VI) which are focused on presenting a particular activity or technology or dissemination information.
What is being showcased at the information market?

**Information Booths (numbered 1-16 in diagram on page 1)**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Action Contre La Faim (ACF)</td>
<td></td>
</tr>
<tr>
<td>2. Rural Development Project Phongsaly (PDDP)</td>
<td></td>
</tr>
<tr>
<td>3. German Development Service, Upland Agriculture Development Center</td>
<td></td>
</tr>
<tr>
<td>4. Shifting Cultivation Stabilization Pilot Project</td>
<td></td>
</tr>
<tr>
<td>5. CIAT booth and display of information</td>
<td></td>
</tr>
<tr>
<td>6. CIAT booth and display of information</td>
<td></td>
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<tr>
<td>7. Lao Tree Seed project</td>
<td></td>
</tr>
<tr>
<td>8. MSEC/IWMI/IRD Program</td>
<td></td>
</tr>
<tr>
<td>9. MRC/AIFP, Watershed Management Component</td>
<td></td>
</tr>
<tr>
<td>10. Lao-IRRI Information and Materials</td>
<td></td>
</tr>
<tr>
<td>11. Luang Prabang Agriculture and Forestry College</td>
<td></td>
</tr>
<tr>
<td>12. NUOL Information Booth/Display</td>
<td></td>
</tr>
<tr>
<td>13. National Agroecology Program – CIRAD</td>
<td></td>
</tr>
<tr>
<td>14. NAFReC booth for work in IUARP and LSUAFRP target areas</td>
<td></td>
</tr>
<tr>
<td>15. NAFRI Booth</td>
<td></td>
</tr>
<tr>
<td>16. NAFRI Booth</td>
<td></td>
</tr>
</tbody>
</table>

**Poster Space (Numbered I-VI in diagram on page 1)**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. (a) WWF</td>
<td>(b) World Resource Institute</td>
</tr>
<tr>
<td>II. (a) Friends of Upland Farmers</td>
<td>(b) LEAP/NAFES</td>
</tr>
<tr>
<td>III. (a) NTFP unit/FRC/NAFRI and SNV</td>
<td>(b) JICA Forestry Program</td>
</tr>
<tr>
<td>IV. Posters on Po Sa, Indigenous soil classification (IUAFRP/NAFREC)</td>
<td></td>
</tr>
<tr>
<td>V. (a) Lao-Belgian Village Development Program (Savannakhet)</td>
<td></td>
</tr>
<tr>
<td>VI. (a) NISF/Vietnam</td>
<td>(b) UNDP</td>
</tr>
</tbody>
</table>

When will the information market be open?
The information market will be open throughout the workshop but primarily on day 1 in the afternoon and throughout most of Day 2. Since students from Luang Prabang Agriculture College and Souphanouvong University have expressed interest to explore the information market and we have set aside this time for them on Day 2 of the workshop during the field visits. Thus, if you would not like to go on the field trips you can visit and further explore the information market.

Field trips
Day 2 has been set aside for visiting field projects near Luang Prabang. The field trips are primarily in the morning and will also allow participants an opportunity to interact in a less formal and more open environment. It will also allow participants an opportunity to discuss directly with farmers their own lessons and experiences. The objectives of the field visit are to:

- Enable workshop participants to visit some interesting sites where they can see examples of different upland research & development initiatives;
- Give the opportunity for workshop participants to get to know each other and interact outside the conference hall while being stimulated for further discussions during the workshop;
- Enable workshop participants to spend some hours in the open air outside the conference hall, in a friendly rural atmosphere.

There are 5 field trips planned:

<table>
<thead>
<tr>
<th>Field Site</th>
<th>Guide/Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pak Ou, IUARP and selected FLSP sites</td>
<td>Bounthan Keoboualapha &amp; Bruce Lundquist</td>
</tr>
<tr>
<td>2. Phouxai, LSUAFRP</td>
<td>Houmchitsavath Sodarack &amp; Sisongkham Mahathilath</td>
</tr>
<tr>
<td>3. Ban Lok Sip, SSLC/MSEC/IWMI with lunch at Huay Kot station, NAFReC</td>
<td>Anneke De Rouw and Khambay Phanthavong</td>
</tr>
<tr>
<td>4. Xieng Nun, FLSP/NAFRI</td>
<td>Viengsavanh Phimphachanhvongsgod &amp; Peter Horne</td>
</tr>
<tr>
<td>5. Kangsi Waterfall Park, Provincial Forestry Office Luang Prabang</td>
<td>Sianouvong Savavathong</td>
</tr>
</tbody>
</table>
Where and when do we meet for the field trips?
Field trips will leave at 7:45 am from the Provincial Meeting Hall. Please try to arrive by 7.30 am so we can leave on time and get everyone into the buses.

How do I sign up for the field trips?
You can sign up for the field trips during the information market in the afternoon on day 1. Each field trip is limited to 40 participants in order to maximize interaction and ensure optimum exposure to lessons in the field.

Unfortunately, this means that many participants will not be able to participate in the field trips. We apologize for this and hope that those who have already been to many of the sites will take the opportunity to network and further explore the information market.

Working group discussions
On Day 4 of the workshop, we have set aside time for working group discussions. The working groups will be facilitated by experienced facilitators and work on concrete issues identified in the workshop itself. In general, the objectives of the working groups are to:

- Identify specific challenges and opportunities and develop strategies and mechanisms to address them.
- Encourage the development of new linkages and contacts to further work in the specific area after the conference ends.

What topics will be discussed?
A number of topics have already been identified in discussions with those who are attending the workshop. We hope these will be complemented by other topics that arise during the workshop itself.

These include:

<table>
<thead>
<tr>
<th>Working group topic</th>
<th>Proposed Session facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Developing an Upland Source Book for Lao PDR</td>
<td>Julian Gonslaves and Phouthone Sophathilath (NAFRI)</td>
</tr>
<tr>
<td>2. Land management/allocation issues and strategies</td>
<td>Thongphath Leuangkhamma (FIPD/DOF) and Peter Jones (NAFRI/LSUAFRP)</td>
</tr>
<tr>
<td>3. Plantation Crops (rubber, sugar, tea, etc)</td>
<td>Phoui Visonnavong and Olivier Ducourtieux (PDDP/Phongsaly)</td>
</tr>
<tr>
<td>4. Agrobiodiversity</td>
<td>Bounkong Souvimon, Horticulture Research Center (NAFRI) and Pernille Dyg (FAO)</td>
</tr>
<tr>
<td>5. Ethnic and gender considerations in uplands farming systems</td>
<td>Dr. Monthathip Chanpengsay and (NAFRI) Ingrid Baken (FAO)</td>
</tr>
<tr>
<td>6. NTFP development and issues</td>
<td>Sounthone Keptanh (Forest Research Center/NAFRI) and Joost Foppes (SNV)</td>
</tr>
<tr>
<td>7. Scaling up and institutional mechanisms required</td>
<td>Viengxay Photakoun (NAFES) and Dr. Joanne Millar (CIAT)</td>
</tr>
<tr>
<td>8. Appropriate cropping systems for the uplands</td>
<td>Bounthan Keoboualapha (Northern Agriculture and Forestry Research Center/NAFRI) and Bruce Lundquist (NAFRI/IUARP)</td>
</tr>
<tr>
<td>9. Livestock Systems Development</td>
<td>Viengsavanh Phimphachanhvongso (Livestock Research Center/NAFRI) and Peter Horne (CIAT)</td>
</tr>
</tbody>
</table>
Categorization of options addressed in the abstracts

This table provides an initial categorization of options/solution and problems addressed based on the abstracts submitted by participants for the workshop. Please note that not all of the presentations have been catalogued in the table below. The table was prepared by Dr. John Raintree and is part of his paper and presentation "How do we know an uplands solution when we see one".

<table>
<thead>
<tr>
<th>Paper</th>
<th>Options/Solutions</th>
<th>Problems Addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CROPPING SYSTEM SOLUTIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cropping systems (IUAFRP) Linquist et al.</td>
<td>18-27% increase in yield under shifting cultivation from rice variety selections resulting from participatory selection procedures; improved rotational cropping systems addressing problems of weeds, soil fertility and declining yields (for farmers practicing rotational cropping); intensive continuous cropping systems with dry season fallows (for permanent field farmers); a multi-faceted, participatory and adaptive research approach</td>
<td>increased poverty and lower productivity due to declining yields, decreased soil fertility, increased weed pressure and labor requirements resulting from shortened fallows due to increasing population pressure; and slow adoption of sustainable upland technologies due to lack of site-specific recommendations due to difficulties in addressing the high biological, economic and cultural diversity of the uplands of Lao Paddy rice in uplands Lao-IRRI Pandey et al.</td>
</tr>
<tr>
<td>Farming system Technologies LSUAFRP Chanpengsay, Calub and Overgoor</td>
<td>lowland and upland annual crops, sloping land integrated fruit tree systems, small and large livestock feeding systems, integrated pig-fish pond systems, frog production, and wet season vegetable cultivation</td>
<td>low household income and food insecurity associated with diagnosed production constraints, and variable adoption of solutions by households with different conditions</td>
</tr>
<tr>
<td>Direct seeding, Agro-ecology CIRAD/NAFRI Tivet et al.</td>
<td>zero-tillage direct seeding on crop residues (reduced erosion, increased yield, reduced chemical use, reduced labor, reduced capital cost, increased income per man-day)</td>
<td>effects of agricultural “mining” incl: soil erosion, loss of fertility, decreased yields, chemical pollution, road and paddy field destruction</td>
</tr>
<tr>
<td>Generation-extension approach Agro-ecology CIRAD/NAFRI Tivet et al.</td>
<td>“agroecological” cropping systems developed through the “generation plus extension” approach (replication of forest systems, non-disturbance and continuous cover of soil, reduced erosion, increased organic matter, improved soil physical structure, recycling of nutrients, weed control)</td>
<td>problems of soil &amp; water conservation, environmental damage, food safety, high cost associated with conventional agriculture</td>
</tr>
<tr>
<td>Cropping systems Chansom RDP Bokeo</td>
<td>modification of SALT designs to include leguminous cover crops with direct economic benefits (e.g. rice bean, lab-lab bean, black bean, mungbean, stylosanthes)</td>
<td>non-adoption of SALT techniques by farmers</td>
</tr>
<tr>
<td>Fruit trees IUARP Lai et al</td>
<td>integrated fruit trees systems with a continuous income stream from annual crops, medium term fruits (pineapple, banana) &amp; long term fruit trees planted in contour hedgerows</td>
<td>declining rice yields and limited opportunity for income generation</td>
</tr>
<tr>
<td>Rice cropping and fallow</td>
<td>farmer experimentation with adaptive changes in land use through a four-step process of</td>
<td>population pressure on rotational shifting cultivation</td>
</tr>
<tr>
<td>Paper</td>
<td>Options/Solutions</td>
<td>Problems Addressed</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td>IWMI/NAFRI de Rouw</td>
<td>intensification, leading in the final stage to the ending of upland rice cultivation</td>
<td>and labor shortage for weeding</td>
</tr>
<tr>
<td>Indigenous agroforestry LSUAFRP Sodarak et al.</td>
<td>systematic survey and description of indigenous agroforestry practices resulting in the cataloging of 24 distinct agroforestry systems found in 17 villages, including home gardens, rotational and intercropping systems, NTFP plantations, improved fallow practices, fishpond systems and livestock grazing practices</td>
<td>lack of knowledge about alternative indigenous agroforestry production systems in shifting cultivation areas</td>
</tr>
<tr>
<td><strong>LIVESTOCK MANAGEMENT SOLUTIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock Intensification CIAT Phimphachanhvongsod et al</td>
<td>intensification of livestock production through farmer managed feed resources in combination with strategic use of veterinary medicines</td>
<td>limitations on livestock production due to epidemic diseases and feed shortages; high labor demand for intensification of shifting cultivation on steep slopes</td>
</tr>
<tr>
<td>Livestock Technologies CIAT Phengsavanh et al</td>
<td>intensification of livestock systems as an alternative to shifting cultivation, using hard technologies adapted through participatory research (+ research needs identified)</td>
<td>problems associated with unsustainable shifting cultivation</td>
</tr>
<tr>
<td><strong>NTFP &amp; FOREST MANAGEMENT SOLUTIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role of NTFPs SNV/FRC/NAFRI Fopppes &amp; Ketphanh</td>
<td>long-cycle NTFP production systems</td>
<td>food insecurity, lack of cash income, instability of shifting cultivation, watershed deterioration, loss of biodiversity of wild and cultivated plants and animals</td>
</tr>
<tr>
<td>Wildlife hunting WCS Johnson, et al</td>
<td>recommendations for developing village models of sustainable wildlife use for subsistence</td>
<td>unsustainability of harvest rates of wildlife for subsistence consumption</td>
</tr>
<tr>
<td>Aquilaria crassna Jensen NAFRI/KVL</td>
<td>possibilities for achieving effective ex-situ conservation and high income from various activities in the current planting boom (forest domestication, single-tree planting, agroforestry, wood lots, and plantation establishment)</td>
<td>entry of <em>Aquilaria crassna</em> (<em>‘wood of the gods’</em>) on the critically endangered species list due to excessive and indiscriminate harvesting</td>
</tr>
<tr>
<td>Community forestry woodlot species LTSP/NAFRI Pathammavong</td>
<td><em>Aquilaria crassna</em>, <em>Tectona grandis</em>, <em>Eucalyptus camululensis</em> and <em>Acacia mangium</em></td>
<td>need to identify priority tree species for planting that match planting sites</td>
</tr>
<tr>
<td><strong>LAND USE PLANNING, LAND ALLOCATION &amp; RELOCATION SOLUTIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resettlement ACF Laurent Romagny</td>
<td>alternative sustainable livelihood strategies that do not require displacement of population</td>
<td>difficulties associated with displacement of population as a development strategy (health and sanitation, doubling of mortality, insufficient paddy land and access to basic services)</td>
</tr>
<tr>
<td>Participatory land use plan GTZ-RMD Lundgren</td>
<td>various recommendations for improvement of Participatory Land Use Planning (PLUP) procedures</td>
<td>need for improvement of implementation procedures for land use planning and land allocation</td>
</tr>
<tr>
<td>Paper</td>
<td>Options/Solutions</td>
<td>Problems Addressed</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Landuse &amp; livelihood issues</strong>&lt;br&gt;LSUAFRP&lt;br&gt;Jones et al</td>
<td>village level planning options to mitigate adverse consequences of relocation and improve the effectiveness of well-intentioned poverty alleviation programs and policies</td>
<td>land use, livelihood and social problems arising from relocation and village merging</td>
</tr>
<tr>
<td><strong>Land use approaches</strong>&lt;br&gt;SCSPP&lt;br&gt;Ladouangphanh &amp; Phetsomphang</td>
<td>forest protection and containment of upland cultivation within agreed agricultural zones through land use zoning, village land use agreements and inter-villages networking and monitoring</td>
<td>conservation and livelihood problems arising from land use planning procedures that do not give enough time to villages to adapt to land use zoning before carrying out land allocation</td>
</tr>
<tr>
<td><strong>OTHER POLICY RELATED DIAGNOSIS AND PLANNING SOLUTIONS</strong>&lt;br&gt;Shifting cultivation&lt;br&gt;Ducourtieux</td>
<td>understanding of how farmers optimize family labor use and reduce risk through shifting cultivation</td>
<td>policies and development interventions which increase poverty and risk through over-simplification of traditional farming systems</td>
</tr>
<tr>
<td>Cardamom&lt;br&gt;PDDP&lt;br&gt;Rossard and Visonnavong</td>
<td>lessons about development prerequisites (economic issues, market risks, compatibility of new crops with farming systems, and suitability for different classes of farmers)</td>
<td>failure of attempts to promote conversion of shifting cultivation into cash crop-based agriculture</td>
</tr>
<tr>
<td>Changes at Houay Cha&lt;br&gt;GAA&lt;br&gt;Kinzellmann et al</td>
<td>sustainable stationary upland farming and integrated farming techniques, improved livestock production and management of NTFPs</td>
<td>unsustainable shifting cultivation and rice deficiency of 3-6 months</td>
</tr>
<tr>
<td>Novel approach to upland Development&lt;br&gt;SCSPP&lt;br&gt;Ladouangphanh &amp; Kulasiyura</td>
<td>participatory village development planning and livelihood analysis for introducing alternative sedentary technologies and products, water supply and irrigation, systematic NTFP management, community based drug rehabilitation, primary health care, revolving funds, income generation for women, etc</td>
<td>poverty and environmental degradation from unsustainable shifting cultivation</td>
</tr>
<tr>
<td>Balanced approach&lt;br&gt;UNODC&lt;br&gt;Leik Boonwaat</td>
<td>a balanced strategy for opium elimination based on alternative development, demand reduction and law enforcement, where the key element is provision of timely and sufficient alternatives</td>
<td>problems associated with drug addiction and failure to implement national policies and international commitments</td>
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<tr>
<td>Combining science and local knowledge&lt;br&gt;SLU/ICRAF/&lt;br&gt;NAFRI &amp; NISF&lt;br Minh Ha Hoang&lt;br&gt;Fagerstrom et al</td>
<td>domestication of bamboo production and other interventions guided by a knowledge-based systems approach to combination of local and scientific knowledge in farmer field schools and participatory watershed management activities involving local and external stakeholders</td>
<td>land degradation, declining crop yields and food insecurity resulting from forest conversion to intensively cropped farmland</td>
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<tr>
<td>Forest cover change in Nam Et Phouy Leuy&lt;br&gt;NUOL/FF&lt;br&gt;Vongvisouk</td>
<td>detection of cover and land use changes and in-depth interviews with local villagers to understand the causes of these changes and the effects of NBCA delineation on village livelihoods</td>
<td>loss of forest cover and insufficient understanding of the causes of forest cover and land use change</td>
</tr>
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<td>Livelihoods in Katu villages, Sekong&lt;br&gt;Alton et al.</td>
<td>recommendations for improvements in planning methodology for poverty alleviation and emergency response in rural areas</td>
<td>insufficient understanding of the socio-cultural-economic context of rural poverty and inadequacies in current emergency response capacity and delivery systems</td>
</tr>
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<td>How do we know a solution&lt;br&gt;LSUAFRP/NAFRI&lt;br&gt;Raintree</td>
<td>a systematic approach to the recognition of upland solutions that avoids common pitfalls, defines a search frame for appropriate solutions and provides as basis for an on-going inventory of upland solutions</td>
<td>lack of clarity about the current inventory of upland solutions</td>
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<td>Paper</td>
<td>Options/Solutions</td>
<td>Problems Addressed</td>
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<td><strong>INSTITUTIONAL SOLUTIONS &amp; IMPLEMENTING MECHANISMS</strong></td>
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<tr>
<td><strong>Participatory seed source management</strong>&lt;br&gt;LTPS/NAFRI&lt;br&gt;Mounlamai &amp; Ravensbeck</td>
<td>decentralized seed supply with participation of local people in seed source management, collection and marketing</td>
<td>lack of seed supply in upland areas</td>
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<td><strong>CBFM Nam Khan Watershed</strong>&lt;br&gt;PAFO/Luang Prabang&lt;br&gt;Sianouvong</td>
<td>community-based forestry and agroforestry development (a partnership between villagers, government officials and civic organizations)</td>
<td>poverty and loss of forest cover</td>
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<td><strong>Fruit trees</strong>&lt;br&gt;UADC&lt;br&gt;Bubbeldam &amp; Vongvilasai</td>
<td>extension approaches to promote fruit growing</td>
<td>need for alternatives to slash-and-burn &amp; marketing constraints on fruit tree growing</td>
</tr>
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<td><strong>Farmer field school and gender</strong>&lt;br&gt;NAFES/FAO&lt;br&gt;Sihanath &amp; Baken</td>
<td>Farmer Field School approach with focus on multidisciplinarity, use of group approaches, on-farm technical innovation, assistance in removing critical bottlenecks, and empowerment through training, facilitation and networking</td>
<td>difficulties of reaching women and dealing with farming systems as a whole in food security programmes</td>
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<td><strong>Sekong Development</strong>&lt;br&gt;SEP-DEV&lt;br&gt;Mahaxay &amp; Chagnon</td>
<td>new institutional approaches for integrated rural development</td>
<td>lack of impact and sustainability of externally funded fixed term projects</td>
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<td><strong>Scaling up</strong>&lt;br&gt;CIAT&lt;br&gt;Photakhoun et al</td>
<td>farmer participation in adaptive research with “hard technologies” and market-chain research using an “agroenterprise development” approach</td>
<td>need for new approaches to deal with the diversity and complexity of upland farming systems through integrating new technologies into existing farming systems and making markets accessible</td>
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Abstracts of papers presented at the conference

Session 1: Overview of challenges opportunities and experiences in Uplands development

NPEP approach and strategy in relation to the uplands

Mr. Anonth Khamhung, Director General, Department of Planning, Ministry of Agriculture and Forests

This presentation outlines and reviews the National Poverty Eradication Program goals and strategies and how it relates to Uplands Development. The presentation also explores the Ministry of Agriculture and Forestry Strategic Vision for 2020 and how links to and complements NPEP. The MAF Strategic Vision for the Agriculture and Forestry Sector is intrinsically linked to the National Poverty Eradication Program. NPEP has been developed over a number of years in consultation with all stakeholders from the local to international levels. The aim of NPEP is to bring about more collective and collaborative efforts across concerned line agencies and with the provinces in order to ensure that action plans and resource allocations are harmonized and are focused to agreed target areas. Four leading sectors have been identified: 1) Agriculture and forestry; 2) Education; 3) Health; 4) Transport/Infrastructure.

Review of policies and practices in upland areas

Dr. David Thomas, Senior Policy Analyst, World Agroforestry Center (ICRAF), ICRAF Chiang Mai, Thailand

Development in upland areas of the Lao PDR is subject to evolving policies on stabilization of shifting cultivation, elimination of opium production, designation of specific fixed areas for agricultural and forestry land use, relocation and consolidation of villages, and the focal site strategy. Overall visions underlying these policies have been articulated for agriculture, forestry and integrated watershed management, which are to be achieved through decentralized participatory processes under NPEP and national natural resource management guidelines. As these efforts have unfolded, provincial and district agriculture and forestry offices have been faced with a growing range of activities and target objectives, many of which they have often been ill-equipped to meet in a manner consistent with officially mandated participatory procedures. The government has recognized many of these implementation problems and policy coordination needs, and is seeking to address them under strategies associated with NPEP.

Most policy implementation prior to NPEP has focused on placing constraints on ways in which local communities can use upland land and forest resources. As in neighboring countries, these constraints are justified primarily by national concerns about impacts of upland land use practices on the sustainability of environmental services provided by forest, land and water resources in upland areas. Vision statements usually emphasize needs for holistic rapid transformation of degrading upland livelihoods, with emphasis on moving from traditional subsistence systems into ‘appropriate’ forms of commercial production located in ‘suitable’ areas. While some ‘success stories’ have been identified, previous efforts to transform upland livelihoods appear to have brought turbulence and uncertainty at household and community levels in many areas. Household core subsistence enterprise and food security have been disrupted, commercial opportunities often seem distant and vague, and delivery of promised institutional support has been weak.
Government efforts to strengthen institutional support for upland agriculture and forestry center on research and extension services. Although NAFRI is emerging as the most integrated national research organization in the region, it is still young with objectives to achieve. While much progress has been made in lowland rice production, livestock health, and some field and tree crops, much work remains in potentially promising areas such as horticulture, agroforestry, non-timber forest products, and smallholder timber, as well as irrigation for intensive production in small upland valleys. Upland conditions, policies and constraints also imply needs for community-based natural resource and landscape management, as well as local processing, micro-enterprise and marketing. Improved extension services under NAFES are an even newer venture. While initial visions appear quite promising, and pilot projects such as IUARP, LEAP, and others presenting at this workshop are helping point the way, progress has been limited by lack of broad collaboration and support required to develop capacities at all necessary levels.

If commercial production of diverse niche products is truly part of the vision for upland areas, much more effort needs to be made in exploring market opportunities and comparative advantages of specific upland areas, in building on indigenous practices to produce marketable surplus, in developing suitable producer identities and product lines based as much as possible on local knowledge and resource endowments, and in developing production-processing-marketing chains and local entrepreneurial skills. And if organically-grown products are to be emphasized, there are further technological and organizational needs.

While the challenges are many, there is a broad range of experienced and motivated people participating in this workshop. We sincerely hope that the range of promising alternatives can be expanded, and that further efforts under NPEP for development in upland communities can be improved and accelerated as a result of discussions at this workshop, and subsequent actions they can inspire and help organize.

How Do We Know an “Upland Solution” When We See One?

Dr. John Raintree, Socio-economic Advisor, Lao Swedish Upland Agriculture and Forestry Research Project (LSUAFRP), NAFRI

If this workshop is about identifying solutions to upland problems, then this paper is about a search frame to aid us in recognizing a solution when we see one. There are three main sources of ideas for upland solutions: 1) Diagnosis of local problems, 2) Inventory of local solutions, 3) Historical pathways of development in comparable systems.

In the diagnostic approach, the search for solutions begins with an analysis of the problems. A clear view of the problem is often all that is needed to suggest the nature of the required solution. Many of the papers in this workshop have used this approach, either explicitly or implicitly. The starting point is a usually some kind of participatory analysis of problems and opportunities with the local community. Causal diagramming is a useful tool for obtaining clarity about problems, causes, and intervention points within the system where solutions can be applied. There is never only one problem or one solution, but rather an interrelated set of causes and effects, and a range of possible solutions at different levels of the system. Diagnostically relevant solution types identified by papers in this workshop include: cropping systems solutions; livestock management solutions; NTFP and forest management solutions; land use planning, land allocation and relocation solutions; other policy-related diagnostic and planning solutions; institutional solutions and implementing mechanisms.

Inventory of indigenous solutions already being experimented with by local innovators is another powerful and even more relevant source of solutions. “Home grown” solutions identified in this way tend to have the advantage of being rooted in indigenous knowledge, compatible with local culture, and pre-adapted for effectiveness under local biological and
socioeconomic constraints. The view that livelihood solutions have to be "given" to rural communities displays a profound ignorance of the realities of rural life, where innovation in the face of adversity has always been a condition of continued survival. Several of the papers in this workshop discuss locally originated solutions and one paper in particular reports on a systematic inventory of indigenous agroforestry innovations.

Knowledge of common pathways of historical development in comparable systems is another source of insights into proven solutions to contemporary challenges. We know from the global experience that there are only a certain number of proven directions for the transformation of shifting cultivation. Historically, they have usually involved the adoption of one or more of the following core elements: rice paddies and fish ponds, homegardens and tree crop plantations, mixed farming systems with draft animals and managed feed sources, extensive agro-pastoral systems in dry or mountainous areas; mulch/green manure/cover crop farming in humid areas. What these all have in common is that they are ecologically sustainable and more productive than degraded shifting cultivation.

Success with these approaches may require the ability to solve two development riddles. Riddle #1: When is a solution not a solution? Answer: 1) When it generates more problems than it solves, 2) When it is not adopted by the intended beneficiaries. Examples are given. Riddle #2: When is a problem not a problem? Answer: When it is part of a solution. Example: Traditional, long-fallow shifting cultivation with enriched fallow crops and NTFPs -- a proven, highly productive and sustainable system at low population densities.

Following a brief outline of an information management system for keeping track of upland solutions, the paper concludes with a preliminary review of the current inventory of solutions and some critical gaps that remain to be filled.

Session 2: Understanding the complexity of shifting cultivation stabilization

Livelihoods in Katu Villages in Sekong

Dr. Charles Alton, UNDP rural livelihood program, National Economic Research Institute

The purpose of the Project is to improve planning methodology on provincial and district levels for the alleviation poverty in rural areas with specific reference to service delivery and emergency response capacity.

The objectives of the study were to understand the complexity of livelihoods within the nation's diversity, for example, bio-physical conditions, ethnic groups, ecosystems, and bio-diversity. Based on mostly poverty criteria two research study areas were selected: Luang Nam Tha [Meuang Sing and Meuang Long] and Sekong [Meuang Tha Taeng and Meuang Kaleum].

An attempt is made to understand these livelihood systems within the holistic context of their socio-cultural-economic situation. The methods used were those of traditional anthropology, ie, associated with semi-structured interviews [SSI] in the form of question guidelines [QSGs]. These QSGs were undertaken with key informants concerning village level information [eg, overall village conditions, socio-cultural situation, original village conditions, the migration process, and gender]. In addition household level data was gathered from selected households from the three socio-economic strata of the village.
The data is now being collated and entered into databases. The preliminary findings seem to indicate that the key issues related to the impact of various government and community actions on village livelihood systems:

- community involvement in natural resource management, including that of land and forests;
- sufficient agricultural land area is necessary for livelihoods as well as proper land use planning;
- migration of populations and resettlement of villages;
- infrastructure and government services;
- livelihood system component performance improvements are important; and
- gender balance in labor burden is crucial.

Shifting cultivation and Poverty Eradication: a complex issue

Mr. Olivier Ducourtieux, Doctoral candidate, Paris-Grignon National Institute of Agronomics (INA P-G),

Shifting cultivation is often described as "traditional", inflexible and outdated, in contrast with "modern", mechanised and chemical agriculture. That belief leads to overlooking farmer know-how, accumulated over generations to exploit natural resources while adapting itself to the mutations of the physical, social and economic environment.

Research conducted in Phongsaly provides an idea about how complex and consistent a slash-and-burn farming system can be and how farmers optimise family labour but also limit their risks.

External interventions — policies, projects, etc. — are aimed at improving the farmers' livelihood by converting their farming practices. When those interventions overlook how diversified slash-and-burn agriculture is, they often lead to oversimplifying the farming systems, impoverishing people and exposing them to natural and economic risks. The actions are then counterproductive. To improve them, the role of local services should be rethought, from the underlying policies/projects to an active interface adapting the principles of the intervention to local conditions and farmer rationalities.

The Balanced Approach to Opium Elimination in the Lao PDR, Shifting Cultivation and Poverty in the Uplands

Mr. Leik Boonwaat, Alternative Development Specialist, Programme Facilitation Unit, United Nations Office for Drugs and Crime and the Lao National Commission for Drug Control and Supervision.

Laos became part of the notorious Golden Triangle in the early 1970s. Presently it is the third largest producer of illicit opium in the world. The Government of the Lao PDR is committed to its obligations to national policies as well as international conventions to eliminating opium poppy cultivation. Opium poppy is mostly grown by ethnic minorities in some of the most remote, poorest and least accessible upland regions of northern Laos. The national programme strategy to eliminate opium balances three key components; alternative development, demand reduction and law enforcement. Cultivation has been reduced significantly and some farmers have been able to cope successfully without opium. Providing timely and sufficient alternatives is key to the quality and sustainability of elimination. The elimination of opium poppy, shifting cultivation and poverty are ranked as national priorities. To achieve this a complementary and synergistic development partnership with all relevant parties must be formed.
Session 3: The social and ecological impacts of shifting cultivation stabilization and poverty reduction programs in the uplands

Implementation of the land allocation policy in Lao PDR: origins, problems, adjustments and local alternatives
Dr. Bernard Moizo, National University of Laos, IRD

In this paper I will briefly outline the origins and contents of land tenure reforms in southeast Asia before turning to the Laos land titling programme. I shall look into its origins and development as well its main goals and objectives. I will then expose the implementation process of the land titling programmes and overall pitfalls as pointed out in several national reports on the issue. The following part of the paper will itemize the major local problems encountered since the programme implementation as well as some possible adjustments to improve people’s livelihood, get better understanding of local perception of space and promote better uses of natural resources. In the second part of the paper I will draw from examples in several villages form the Luang Phrabang area were farmers have developed alternatives directly or indirectly prompted by the land allocations policy. The main point is to show that past strong relationship existed between some swidden farmers and their land (included sacred preserved forest) that are now directly threaten by the way this policy is currently implemented and results in further and deeper environmental and social crisis that need to be addressed urgently.

Resettlement: an alternative for upland development?
Mr. Laurent Romagny, Head of Mission, Action Contre la Faim Laos

To integrate upland population who remain very isolated into the development plan, the national answer has been to move certain of these villages from up land areas down to the plains.

"If development cannot be brought to them, lets bring them towards development". Such a theory leads to an identification of displacement as an ideal strategy for development and rural planning.

Consequently, when moving down to the plains, populations are facing a particularly difficult experience during resettlement in their new habitat. This leads to severe sanitary condition, resulting in the doubling of the mortality rate of the population resettled, certain villages reaching up to 20% mortality in their first year of installation. This situation is accentuated by the difficult conditions of reinstallation, as population do not always find paddy land and access to basic service.

The national objectives set up by the government show its willingness to implement a sustainable development policy. Nevertheless, the strategies operated to reach these objectives have to take into account the populations whom they are aiming at, and for whom there should be implemented, putting them at the center of their definition. Sustainable livelihoods development policies, particularly the ones concerning upland areas, should be explored and promoted. These development strategies would constitute alternative to option that would lead to displacement; preventing all the negative consequences it is producing on ethnic minorities inhabiting Lao upland areas.
Livestock Intensification: a pathway out of poverty in the uplands

Mr. Viengsavanh Phimphachanhvongson (NAFRI LRC), Mr. Phonepaseuth Phengsavanh (NAFRI/CIAT), Mr. John Connell (CIAT) and Dr. Peter Horne (CIAT)

Smallholder farmers in the uplands of Lao PDR are becoming increasingly dependent on livestock to ensure their livelihood security. The main issues limiting livestock production are (i) epidemic diseases and (ii) feed shortages. There is little likelihood of "magic bullet" solutions to these problems. A combination of better feeding and animal management combined with strategic use of veterinary medicines, is likely to be far more effective, achievable and sustainable. These ‘best practices’ emerge by using (i) the best available livestock technologies and (ii) sound methodologies for encouraging farmers to innovate and adapt the technologies to their own farming systems.

Having a managed feed resource is the key factor enabling farmers to intensify their livestock systems in the uplands. It allows them to keep animals closer to the village, to provide better care, to collect manure for rice paddies and homegardens and to fatten animals for market. Examples are presented of farmers who are now using the greater income from such livestock intensification to escape the seemingly-endless cycle of labour that typifies shifting cultivation on steep slopes.

The main technical and methodological issues that need to be addressed to scale-out these impacts are discussed.

The adaptation of upland rice cropping to a ever-shorter fallow periods and it’s limit

Dr. Anneke de Rouw, Mr. Bounsamay Soulilad, Mr. Frédéric Jullien, Mr. Khambay Phoumits IWMI, NAFRI

The rotational shifting cultivation in the mountainous land of Northern Laos is responding to population pressure by intensification of land use. In many areas the rotational cycle has been shortened to an unsustainable 3-5 years. With shorter rotations weed infestation becomes the major constrain in upland rice cultivation particularly where only hand labour is used. This study is part of the regional MSEC programme (Managing Soil Erosion Consortium), present in seven countries in S. E. Asia where soil and water measurements are carried out along with vegetation and agronomic studies. In Laos, MSEC started in 1998, in the Houay Pano catchment (72 ha, 102°10' E, 19°12' N), located 10 km from Luang Prabang.

The study (2001- 2003) addresses the complex relation between the progressive invasion of weeds in fields and the subsequent extra work to clean these fields in order to continue subsistence upland farming. It also indicates the conditions where upland rice cropping is no longer possible. The study combined various sources of information (i) documents, including maps e.g. topographic, soil, land use, (ii) interviews with farmers with fields in the catchment, (iii) direct observations of cropping practises during three seasons including crop cuts at harvest, (iv) a vegetation survey of weed and fallow vegetation comprising about 300 sample plots (9m_ each).

It was found that the adaptation of the slash and burn system to land shortage and increasing weed problems was not gradual but step-wise. Over the past forty years four successive stages in the slash and burn system were identified in the study area. Changes from one stage to the next typically involved: a switch in tools, changes in priorities in the cropping calendar, introduction of drastic tillage techniques, but most of all profound changes in the weed flora. In Houay Pano catchment, the fourth stage dominates presently, this being also the phase that “ends” the possibilities of upland rice cropping. Therefore, the farmers in the catchment actively experiment with alternative land uses and cropping patterns.
Section 1: Land Management approaches to uplands development

Village Land Use and Livelihoods Issues Associated with Shifting Cultivation, Village Re-location and Village Merging Programs in the Uplands of Lao PDR

Mr. Peter Jones, Mr. Somsak Sysomvang, Mr. Hongthong Amphaychith and Mr. Sukhan Bounthabandith, LSUAFRP/ NAFRI

The Land Management component of the Lao-Swedish Upland Agriculture and Forestry Research Program (LSUAFRP) is undertaking action research on land use issues in project target villages in the uplands of Phonesay and Na Mo Districts. The villages are located in lower-lying areas where land use is affected by the relocation of people from more isolated highland villages as a consequence of district plans to eliminate/reduce shifting cultivation and opium production. The District has introduced programs to consolidate or merge villages to provide better infrastructure and government services.

Research to date in study villages has indicated that the merging of Hmong families into the original Khmuu settlements, while having some desirable outcomes, is giving rise to a range of land use, social and livelihood problems. This paper explains the type of action research that is being conducted in close co-operation with District Authorities to identify problems that have arisen in study villages. It also provides quantitative and qualitative information on the consequences of village re-location and makes suggestions on actions relating to land use planning that might be taken at district and village levels to ameliorate adverse consequences of the re-location program. It puts forward some suggestions that could be considered by senior decision makers to ensure that well-intended livelihood improvement and poverty alleviation programs are not adversely affected by ineffective land use planning procedures and activities.

Land Use Planning Approaches Used to Involve Villagers in Land Use Management and forest management protection

Mr. Amphay Ladouangphanh and Mr. Phetsay Phetsomphang, Shifting Cultivation Stabilization Pilot Project

Land use planning (LUP) is a key activity in the Institutional Strengthening Capacity Building Component of the SCsPP and has the task of “investigating and developing new and/or modified approaches and options to land allocation in upland areas”. Since the end of the year 2000 LUP activity has focused on piloting approaches to land use planning at village level that are appropriate to the topographic and socio-economic conditions prevailing in Xam Neua District, and manageable under the resource constraints faced by the District and Provincial agencies working with the Project.

The paper describes the modified approaches to LUP that are being developed by the project in co-operation with the PAFO/PAFES and the DAFO. The conditions in villages are taken into account to help determine the particular LUP activities that are most applicable. For example, more isolated villages with little access to markets receive minimum LUP inputs, while in those with more potential for sedentary farming systems, land use zoning is implemented and village land use agreements are developed to facilitate inter-village networking aimed at improving natural resource management at village level. The paper
elaborates on how land use zoning, village land use agreements, inter-village networking and monitoring activity may be used to contain upland cultivation within agreed agricultural zones, while protecting forest areas.

A phased approach to LUP is applied. The reasons for deferring land allocation to a later stage in the LUP process are explained. Time is allowed for the village boundaries and land use zones to be mapped and digitized, and clusters of villages to be “formed” into “networks” to facilitate villager understanding and co-operation regarding management and use of resources before land allocation is attempted. Approaches to land allocation are being reviewed and pilot activity will commence in 2004. Preliminary views on land allocation methods are presented, along with proposals for securing villager land use rights, starting with the issue of Temporary Land Use Certificates and progressing to land registration.

### Land Use Planning (LUP): An Approach to Poverty Reduction and Stabilization of Shifting Cultivation in the Uplands of Lao PDR to Improve Upland Livelihood

**Dr. Jens Kallabinski and Ms. Doris Lundgren, Lao-German Rural Development Programme Luang Namtha**

In 1995 the national Land Use Planning (LUP) and Land Allocation (LA) program was started in order to revise land use in villages in Luang Namtha Province. The GTZ RDMA, Programme has been interested in improving this process for securing and upgrading the upland livelihoods of villagers in the mountainous areas in the Muang Sing district. The predominant hill tribe in the district are Akha people. They used to practice slash-and-burn cultivation in the uplands which is now restricted. It was found that in most villages people didn’t understand the reasons for the LUP/LA process and in some cases the land that was allocated to them wasn’t sufficient. Therefore GTZ was seeking for solutions to improve the process by supporting and training governmental staff. More participatory elements were included into the process, renamed as Participatory Land Use Planning (PLUP). The new approach has been evaluated by the consultant in August 2003 leading to a variety of recommendations of how to further improve the process in the future.

### Section 2: Forest, Tree and Natural Resource Management in Relation to Local Use and Livelihood Strategies

**Non-Timber Forest Products for Poverty Reduction and Shifting Cultivation Stabilization in the Uplands of Lao PDR**

**Mr. Joost Foppes and Mr. Sounthone Ketphanh,**

NTFP Unit, Forestry Research Center

Gathering of NTFPs is as important for human livelihoods in the uplands of Lao PDR as agriculture and livestock. NTFPs provide food security and they are the main source of cash income for people who live in the uplands.

NTFPs are therefore promising for the development of forest-based rural micro-enterprises as strategy for poverty alleviation. NTFPs also provide a good entry point to community based land use planning, land allocation and management. This bears consequences for the way upland development interventions (by Government and donor-supported projects/programs) should be designed.
Many NTFPs are derived from the mosaic of forests an falls created by shifting cultivation. A case is made for the development of long-cycle NTFP production systems that are suited to the ecology of the uplands in Lao PDR, as a strategy to stabilize shifting cultivation, protect watersheds and conserve biodiversity of wild and cultivated species of plants and animals.

Wildlife hunting and use in Luang Namtha province: implications for rural livelihoods and biodiversity conservation in the Uplands of Lao PDR

Dr. Arlyne Johnson, Mr. Sarinda Singh and Mr. Malykham Dongdala
Wildlife Conservation Society

Policies for poverty alleviation and forest management in Lao PDR aim to reduce unsustainable rates of wildlife hunting and trade while increasing rural food security. We conducted household surveys in 24 villages made up of six ethnic groups in Luang Namtha province to evaluate the harvest, consumption, and trade of 56 species of commonly used mammals, birds, and reptiles. We compared results with national policy for achieving sustainable rates harvest rates of managed species as well as food security. Findings indicated that small mammals and birds were consumed weekly in the majority of households, that the abundance of all reptiles, large mammals and birds available for harvest is declining, and that most families maintained a preference for wild versus domestic meat. Results suggest that wildlife is an important component of the diet in many households and that harvest of most species is likely unsustainable. Recommendations are made for developing village models of sustainable wildlife use for subsistence.

Forest cover and land use change detection in Nam Et Phou Leuy Biodiversity Conservation Area, Houaphan

Mr. Thoumthone Vongvisouk, Project Coordinator, CBNRM Research Project, Faculty of Forestry, National University of Laos

The current study was conducted by the author for Bachelor of Science Degree at the Faculty of Forestry, National University of Laos in 2002, under the guidance of Sithong THONGMANIVONG and Khamla PHANVILAY from the Department of Watershed Management and Land Use Planning of the Faculty of Forestry and collaboration with the Biodiversity Conservation and Community Development supported by the IUCN Project at Viengthong District, Houaphan Province.

The study focuses on forest cover and land use change in Nam Et Phou Leuy National Biodiversity Conservation Area (NBCA) which was established under the Prime Minister Decree No.164 in 1993, using satellite image interpretation of LANDSAT 7 from 1989 and 2000. In addition to the image analysis in-depth interview was conducted in four villages of Viengthong District to understand the causes of forest cover and land use change in the villages and how the project affected the livelihood basis of local villagers at Nam Et Phou Leuy NBCA.

The result of study indicates significant changes in forest cover and land use between 1989 and 2000. For example, dense forest decreased from 58 to 52 percent between 1989 and 2000 Secondary forest increased from 23 to 37 percent between 1989 and 2000. On the other hand, grass land and agriculture land decreased from 6 to 2 percent and 13 to 9 percent respectively. The result indicates degradation is continuing, in dense forest, while some forest recovered following the delineation of NBCA boundary.
Indigenous agroforestry practices in two districts in the northern part of Lao PDR

Mr. Houmchitsavath Sodarak, Mr. Chanhpeng Ditaphon, Mr. Vienghad Mr. Thammavong, Mr. Nongnnao Ounthammasith, Mr. Olle Forshed, NAFRI/LSUAFRP

Among the farmers in the northern uplands of Lao PDR the use of shifting cultivation is the most common agricultural practice. The shifting cultivation practices have been widely described in literature and today we know quite a lot about the different varieties and how they are functioning. Side by side with this main cultivation system also other systems have been practiced traditionally for many decades. The people have used the forests and the forested land to grow different crops more or less intensive. These farmers’ practices have been more or less intensive with a span from just a few treatments in the natural forests to highly advanced and complicated systems consisting of different crops and trees which make benefit of each other. All these kind of practices which here is called indigenous agroforestry practices has not been so widely described, neither in international or national literature. We know today very little about the range or spectrum of the indigenous practices and how they are functioning. This study was an attempt to find out more about the mentioned practices. The study, which was carried out as a survey over existing indigenous practices in two districts in the northern part of Lao PDR aimed at finding and describing indigenous practices used today. It was carried out in two steps where the first one had a broad focus and attended to find interesting places and persons when the second more concentrated on describing each interesting practice found. Totally during the survey 17 villages were visited and around 150 farmers were interviewed. It has been difficult to define and decide what an indigenous agroforestry practice really is since many systems and practices are closely linked to each other. But, during the study 24 practices were found and classified as indigenous agroforestry practices or systems. The main directions of practices found in the districts were home gardens, rotational or intercropping systems, NTFP-plantations, improved fallow practices, fishpond systems and livestock grazing practices.

Suitability and productivity of community forestry woodlot species in upland areas, northern Lao

Mr. Bounnhong Pathammavong, Lao Tree Seed Project/NAFRI

Priority tree species need to be identified first when tree planting is considered. It is crucial to choose species that match planting site, vital for successful establishment of woodlot and in avoiding too many risks.

Less than 20 tree species have been selected by Department of Forestry for planting purpose in upland areas, and Forestry Research Center has prioritized tree species for planting and aim to match identified seed sources with planting site.

To assist in poverty reduction, appropriate tree planting and productivity is important, which is able with fast growing and short-term production of certain tree species. For this purpose *Aquilaria crassa*, *Tectona grandis*, *Eucalyptus camaldulensis* and *Acacia mangium* are selected, already planted in upland areas either privately or through projects.

Productivity figure of these species are a measure of socio-economic benefits, and recommendations should adjust appropriate planting and management techniques in the light of the different social settings and ecology in the planting area.
Community based forest management and Agroforestry Development: A case of Nam Khan Watershed, Xieng Ngeun District, Luang Prabang

Mr. Sianouvong Savavthong, Forestry Section, PAFO/Luang Prabang

Forest cover in Luang-Prabang has continue decreased due to shifting cultivation, which is the primary means of food production in rural areas. However measures to discourage shifting cultivation must provide rural populations with alternate opportunities for income generation, village forestry development and promote intensive upland farming to improve the farming system.

Some of the upland farms were developed in participatory afforestation, and conservation of remnant forest program under a partnership between the official and communities. With official assistance farmers groups have developed forestry and agroforestry systems, such as the one based around the pilot site of Village-based Forest Conservation and Afforestation Project (V-FORCAP) in the Nam Khanh watershed, one of the 15 Integrated Rural Development Target Area of Luang-Prabang, which is being implemented jointly by the Provincial Department of Agriculture and Forestry and the Lions Club of Nagoya Johoku, Japan.

The V-FORCAP will be extended for three years from 2001, involves a joint review of village land-use plans by villagers and district officers concerned to identify and delineate forests to be conserved, areas to be afforested, and areas where conservation-oriented farming practices are to be introduced; training of village forest leaders and district officers concerned in forest management and livelihood improvement; establishment and operation of communities (school and village) nurseries; tree-planting in degraded forests alongside forest conservation work; and introduction of conservation-oriented farming practices with developing systems for expansion of planting materials.

Since 2001, farmers and official have tried to develop a more positive partnership by sharing costs and profits of forestry development in order to improve farmer’s livelihood. However, strong collaboration to be fostered between communities, official and private companies for secure development in the future.

Domestication of Aquilaria spp. and rural poverty - socio-economic and genetic aspects of the planting boom in the “Wood of the Gods”

Mr. Anders Jensen, Researcher, PhD Candidade, KVL, Denmark, NAFRI

Aquilaria spp. or May khedsana is within the past 3 to 4 years planted in all parts of Lao P.D.R. and is now a major plantation species along with other NTFP species as well as teak and eucalyptus. The planting boom covers all levels of domestication: 1. forest domestication, 2. single-tree planting, 3. agro-forestry, 4. wood lots and 5. plantation establishment, and is solely fuelled by an increasing trade demand for agarwood, a resinous wood decay, from Aquilaria trees found in natural forests. If plantings become successful, this would have a significant socio-economic impact in rural areas. Due to excessive and indiscriminate harvesting over the past 40 years, the main species found, Aquilaria crassina, is critically endangered by IUCN categories, and is a species with high priority in conservation. My presentation is a reflection over the socio-economic and genetic aspects of the planting boom and to what extent dual promises of high income and effective ex-situ conservation are kept.
Tree Seed Source Management and seed collection with participation of local communities

Mr. Khamphone Mounlamai and Mr. Lars Ravensbeck, NAFRI/Lao Tree Seed Project

Lao Tree Seed Project promotes and facilitates the use of quality seed for planting activities simultaneously supporting conservation of indigenous species to ensure sustainable supply for future planting. A decentralized seed supply approach has been adopted that includes participation of local people in seed source management and seed collection. Seed source are selected and established in collaboration with local forest authorities and villagers, and an agreement signed between the stakeholders explaining rights and responsibilities. Both foresters and villager are interested in the concept and willing to implement its activities.

At present the target is one hundred seed source, hereby considering the genetic diversity in species using a gene-ecological zoning system. Till now efforts have been concentrated in the lowlands, but will gradually involve upland areas also. In this way marketing of seed will contribute the poverty alleviation the communities, providing at the same time an incentive to protect the sources.
Parallel Session 2: Experiences in Upland cropping and Livestock Systems

Section 1: Upland agriculture cropping and livestock technologies

On-Farm Testing of Alternative Farming System Technologies in Selected Villages in Luang Phabang and Odoumxay: Off-Season Tomatoes and Frog Culture

Dr. Monthathip Chanpengxay, Mr. Bounhom Thepphavong, Mr. Phayvanh Siphanhduang, Mr. Vison Phounsavath, Dr. Blesilda M. Calub and Mr. Paul Overgoor, LSUAFRP, NAFRI

Several farming technologies are being tested on-farm in selected uplands in Phonsay, Luang Prabang and Namo, Odoumsay based on village problem diagnosis. This study aims to assess jointly with farmers the performance of technologies that can reduce poverty and likewise provide alternatives to shifting cultivation. These include lowland and upland annual crops, sloping land integrated fruit tree systems, small and large livestock feeding systems, integrated pig-fish pond system, frog culture and wet season vegetable production. In 2002, 72 farmers tried 9 technologies while in 2003, these grew to 345 farmers trying 15 technologies. Initial results show that among these technologies, off-season tomato production and frog culture generated the greatest farmer interest and adoption. Income generation was a major factor for technology adoption. In 2002, tomato production provided an additional net income of 469 US$/1,000m². In 2003, the income from tomato ranged from 21-240 US$/1,000m². Frog culture gave farmers an additional net income range of 28 US$/100 frogs in 2002 and 30-35 US$/100 frogs in 2003. Other factors influencing the success or failure of these alternative technologies include farmers’ local knowledge and previous experience, technical support, availability of suitable land, capital and labor, ethnicity and market opportunities. Participatory monitoring and evaluation will look further into farmers’ adoption behavior and their system of evaluating technology options.

Agroecological Systems, principles and generation-extension approach: On-farm experiments of direct seeding on crop residues from South Sayaboury

Dr. Florent TIVET, Mr. Chanthasone KHAMXAYKHAY, Mr. Hoà TRAN QUOC, Mr. Bounsay CHANTHARATH, Mr. Khămèo PANYASIRI, Mr. Thammakham SOSOMPHOU, Mr. Patrick JULIEN, NAFRI and Annual Crops Department and Agrosystems Programme, Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD-CA)

Since the 90s in the southern districts of Sayaboury province in the Mekong corridor, traditional farming systems have changed through an extensive agriculture development based on cash crops production. This development, on the way of intensification, depends on local market accessibility, transfer of technologies from Thailand and financial capacities of local enterprises. Inputs, heavy mechanization and technical skills come from this country. Cropping is largely opportunist due to Thai market offers, land preparation based on areas. As the result of this development associated with land allocation and increasing density population, fallow periods are disappeared. Consequently, this “mining” development generated land erosion, loss of fertility, yields decrease, pollution by chemicals, road and paddy field destruction. Through this diagnosis, generation-extension approach has been implemented by the National Agro-ecology Program in order to propose to farmers various systems integrating corps and livestock production. On this
that satisfy land use food the sloping potential villages production, can be paddies productivity, of land farmers

The incidence of poverty and food insecurity is high in the uplands of Laos, with many farmers relying on rice-based cropping systems to meet their food needs. Intensification of land use in response to rising population pressure has reinforced a vicious cycle of low productivity, environmental degradation and poverty. One potential strategy for breaking out of this cycle is to improve the productivity of highland rice paddies or develop such paddies where appropriate conditions exist. Valley floors and terraced fields where rice can be grown under flooded conditions provide a favorable environment for rice production, especially where there are possibilities for local-scale irrigation. Indeed, many villages in northern Laos have small areas of paddy rice and in many cases there is the potential to expand this area. Such a strategy will relieve the intensification pressure on the sloping uplands, help protect the environment, and address food security needs. As food needs become satisfied from these paddies, farmers are likely to adopt a diversified land use systems on the sloping uplands for income generation and for producing goods that satisfy other livelihood needs. Despite the potential roles of highland paddies in

Livestock Intensification: forage and livestock technologies for complex upland systems

Mr. Phonepaseuth Phengsavanh (NAFRI/CIAT), Mr. Viengsavanh Phimphachanhvongsod (NAFRI LRC), and Dr. Peter Horne (CIAT)

In the uplands of Lao PDR, many examples are emerging of farmers moving away from shifting cultivation by intensifying their livestock systems. The door for this opportunity has been opened by combining the best available ‘hard technologies’ with a research process that engages farmers to work closely with researchers in evaluating, adapting and integrating the technologies on their farms.

The ‘hard feed technologies’ that currently show most promise are particular varieties of forages, maize and sweet potato. Developing these feed resources in villages allows farmers to provide better housing, animal health management and market linkages. Information is presented in the paper about the most promising varieties and management practices.

Key research needs are (i) new feed resources for pigs, especially cassava, (ii) better utilisation of forage surpluses in the wet season (iii) making a transition from cut & carry feeding to grazed forage plots to reduce labour inputs (iv) forage systems integrated with cropping to improve nutrient cycling and (v) encouraging more-rapid offtake of animals.

Three significant challenges to intensification of smallholder livestock systems in the uplands are (i) nutrient decline in regularly cut forages, (ii) the need to reinvest profits from livestock in basic inputs (animal health, pens and mineral nutrition) and (iii) developing stronger market linkages.

The role of paddy rice in the Lao uplands: Food security, farmer livelihoods, and economics

Dr. S. Pandey, Mr. K. Troesch, Mr. Lingkham Douangsavang, Mr. Khampou Phouynyavong and Dr. B. Linquist, Lao-IRRI, IUARP, NAFRI

The panel of technologies carried out, systems based on direct seeded grain on farmer crop residues with no tillage have been evaluated during two seasons. Results obtained in various conditions are shown: yield levels are closed to an even higher than those obtained in conventional systems reducing chemicals, labor costs, soil erosion and increasing income per day are observed.
Improving farmer livelihoods, the economic feasibility of increasing productivity and developing paddy terraces have not been adequately investigated. Based on farm-level data from the Lao-PDR, this paper examines the constraints and opportunities for increasing the rice production (through increasing productivity on these highland paddies and paddy terrace development) and the effects this has on farmer livelihoods. Paddy rice yields (3.0t/ha) were found to be almost double that of the upland rice (1.6t/ha). Assuming a three-year upland cropping cycle (one year of rice followed by two fallow years), a hectare of paddy can thus substitute for 5.5 ha of upland fields at the current levels of yield. The extent of household-level food shortage was found to be low for households with more paddy area. Farmers considered the major benefit of paddies to be a lower labor requirement for rice production per unit of output, thus releasing their labor for other income-generating activities. A benefit-cost analysis indicated that the cost of converting sloping lands into rice terraces can be recouped in a few years but in some circumstances this breakeven period could be much longer. Farmers considered lack of water, unavailability of suitable area for the development of paddies, and capital to be the major constraints to paddy development. These results indicate the potential for improving the food security in the uplands by raising the productivity of paddy rice through suitable technologies as well as by promoting further development of terraced paddy fields. The broader implications of these results (along with results from other countries in SE Asia) are interpreted in the context of an overall strategy for addressing food insecurity and improving farmer livelihoods in the uplands of Laos.

Improving rice based upland cropping systems for the Lao PDR

Dr. Bruce Linquist, Mr. Kazuki Saito, Mr. Bounthanhe Keoboualapha, Mr. Somphet Phengchan, et al., IUARP/NAFReC/NAFRI

Increasing population pressure is reducing fallow periods in the traditional slash-and-burn rice based upland systems of the Lao PDR. Short fallow periods have rendered these systems unsustainable as soil erosion, weed pressure and labor inputs have increased, soil fertility decreased and yields declined. The end result is lower returns on productivity and increased poverty. This situation has created a demand from both farmers and government agencies for sustainable agricultural technologies to improve upland farmer livelihoods.

A considerable amount of research effort has been devoted to the development of sustainable upland technologies over the years; however, adoption by farmers has been limited. The high diversity encountered in the uplands is one reason for slow adoption. There is considerable biophysical diversity (as seen in differences in climate and soils), socioeconomic diversity (such as ethnic and cultural diversity and large differences in opportunities and constraints between individual households) and market diversity (particularly market opportunities and market access). With such diversity, technology recommendations will necessarily be site specific. This diversity necessitates the use of participatory and adaptive research approaches through which researchers and farmers can develop technologies suited to local conditions.

Our objective is to develop more productive and sustainable upland rice-based cropping systems. Ensuring rice sufficiency at the local level will allow for greater diversification on other upland fields. A multifaceted, participatory and adaptive research approach has been used to develop sustainable upland systems. Using this approach a number of technologies have been developed or are emerging. First, superior upland rice varieties have been identified. Local upland rice varieties grown in Laos have been selected for favorable conditions under long fallow periods and are not well suited to short fallow conditions. Through a participatory variety selection (PVS) program, two upland rice varieties have been identified which yield 0.3–0.5 t/ha more than local check varieties (an 18–27% increase in yield). Second, improved rotational systems that address problems related to weeds, soil fertility and declining yields are being developed and tested by farmers. Depending on population pressure on land resources, potential cropping systems
range from extensive (for farmers that still rotate fields) to intensive continuous cropping on the same piece of land. Examples of extensive systems are rattan, paper mulberry and pigeon pea rotated with rice on a 3-year cycle. Intensive systems involve continuous cropping rotations with dry season fallows. In this paper we will discuss these technologies in greater detail as well as the process by which these technologies were developed.

Experiences in Upland Farming Demonstrations from Bokeo

Mr. Manythong Chansome, Technical Adviser, Lao-German Rural Development Programme Bokeo

In the past the project has undertaken a number of on-farm-demonstrations on improved upland farming techniques. SALT techniques such as hedgerow planting, mulching and integration of cover crops in upland fields were demonstrated under farmer condition in a number of villages.

In most cases the results so far haven't been very promising. At almost all demonstration sites the establishment of hedgerows was successful and most of the planted species developed well (various legume species were planted in order to test the performance and farmer's acceptance of the different species).

But only few farmers made use of the planted hedges and most gave up after the first year. In fact, it takes at least 4-5 years until there is remarkable soil improvement by using hedgerows, cover crops and improved fallow systems. Hence the long-term effect of the tested techniques could not yet be demonstrated and farmers have adopted none of the technique so far.

In May this year the project approach for long-term upland demonstrations was reviewed and a new concept was developed with support of a STC (see report on "Sedentary Upland Farming" by Peter Schroeter, 2003).

Begin of rainy season new on-farm demonstrations were established with 11 farmers in 7 villages. There is at least one demonstration site in all project target Districts.

Hedgerows of various species were planted and some farmers integrated legume cover crops such as rice bean, lab-lab bean, black bean, mungbean and Stylosanthes.

The risk of losses in rice yield is covered by the project for the first years, but farmers are not paid for labor and fencing. All demonstrations are under farmer condition. The project provided seeds, training and technical advice.

2. Observation on the field (October 2003)

At all visited plots the development of the hedgerows was similar:

• Pigeon Pea, Crotalaria and Tephrosia developed very well. All 3 species are fast growing and dense rows have built up. Tephrosia and Crotalaria are flowering and started seed production. Pigeon Pea show buds and will flower within the following weeks.

• The growth of Leucaena is slow and Flemingia germinated only at one site.

• Beans as cover crops have been planted late in Pha Oudom and are not yet planted in Nam Nhou. It is not expected that beans in Pha Oudom will develop well, because of the delay of planting and dry soil. In Nam Nhou the upland rice laid down and beans could not been planted in standing rice as intended. However, since the soil on the lower part of the Nam Nhou plot is quite moisture it should still be possible to establish soil cover by bean planting after rice harvest.

• Stylosanthes has been planted only in small quantity in order to test its suitability as cover crop in upland rice. At both plots Stylosanthes has grown fast and vigorous so that it even competes with the rice crops.

• The farmers integrated also other crops such as sesame, cassava, chili and bananas in their plots.
In order to establish living fences the demo-farmers planted seedlings of *Leucaena, Indigofera, Gliricidia* and *Flemingia*. The seedlings are well growing and in good condition.

**Outlook**

Although it is too early to talk on success the results so far are encouraging. The participating farmers are quite enthusiastic and many other farmers show interest. Further steps and further training needs are discussed with the concerned farmer. However, the success of the long-term demonstration and adoption of improved upland farming techniques depend very much on project/government support, i.e. particularly close follow-up by district- and project staff is most crucial.

**Cash crops in highlands: The cardamom experience**

Mr. Julien Rossard and Mr. Phoui Visonnavong, Rural Development Program, Phongsaly (PDDP)

Farmers are often blamed for destroying the tropical forest, especially in Lao PDR. Convert shifting cultivation into a cash crop-based agriculture is recurrently presented as the solution merging the forest protection and poverty alleviation. But many attempts have ended in failure in the recent past.

The rural Development Project of Phongsaly District (PDDP) tried to introduce cardamom cultivation, to export to China. With nearly 300 ha planted out, the crop involves now more than 75% of the farmers in the region. The experience allows to draw lessons from, especially about the prerequisites: prioritise economic issues over agronomic matters, particularly identify markets, traders or commercial risks, and appraise how the new crop would fit into the farming systems, rationally managed by the different classes of farmers, in accordance with their means of production and the socio-economic environment.

**The importance of upland fisheries: Luang Prabang fisheries survey**

Mr. Xaypladeth Choulamany, Living Aquatic Resource Research Center, NAFRI

The objective of the study was to get a better understanding of the fisheries in the uplands of Lao PDR. The information includes the degree of participation by people and their dependence on the fisheries and collection of aquatic animals, the absolute and relative economic importance of fishing in rural people’s livelihood and information on fishing gears, fishing activities, fishing grounds and fish consumption. The methodology applied was a questionnaire-based survey of random sample of villages, households and individuals in Luang Prabang Province. The study has shown that most of the official government figures refer only to “commercial catch” and those data are not collected in any systematic way. Very limited data exist on subsistence fisheries. It was also expected that local total fish production from Luang Prabang Province would be relatively low since the region does not have as good fishery resources by comparison to the lowlands, nevertheless the resources are still significant, as are the catch.
Section 2: Research approaches being used in the uplands

Integrated Fruit Tree Systems in Luang Prabang: Scaling-up Sustainable Technologies and Processes

Mr. Chun Lai, Mr. Houmchitsavath Sodarak, Mr. Bounthanh Keoboualapha and Dr. Bruce Linquist, IUARP, NAFRI

In 1999, the Lao National Agriculture and Forestry Research Institute teamed up with several international partners to establish the Integrated Upland Agricultural Research Project (IUARP), which aims to develop sustainable upland livelihood systems through an integrated, participatory on-farm research approach.

Based on findings from a participatory problem diagnosis exercise, exposure through field days and cross visits with other farmers, as well as interactions with IUARP staff, about 20 technology options have been selected and tested by farmers.

Two of the main problems identified by farmers were declining rice yields and limited opportunities for income generation. Many farmers consider fruit trees as a good option for generating cash, which can be used to purchase rice if necessary. While farmers liked this idea, their major concern was the time lag before harvesting fruit – usually five years or longer. A sustainable system that ensures a continual source of benefits was developed, integrating an annual crop such as upland rice with a medium-term fruit such as pineapple or banana, hedgerows along the contours, and fruit trees planted along the hedgerow.

Integrated fruit tree systems have clearly emerged as the most popular technology among farmers. Within the past three years, over 60 farmers have been testing and expanding this technology in the IUARP villages. To meet the increasing demand for fruit tree planting materials, some farmers were trained in nursery development. Since then, three farmer nurseries have been established, mainly to produce fruit tree seedlings. Meetings between nursery operators and interested farmers were facilitated to negotiate “fair prices” for seedlings that the latter were willing to pay, generally about half of the prevailing market prices in nurseries in Luang Prabang.

Moreover, to enable the expansion of the medium-term fruits, a "sucker bank" system was conceived. In this system, farmers who received pineapple suckers from IUARP as planting material agreed to provide the same number of suckers to interested farmers after three years. Thus, a sustainable source of planting material has been established, ensuring that more farmers can develop such systems on their own in the future.

Strategies for enabling scaling up: technology innovation and agroenterprise development

Mr. Viengxay Photakhoun (NAFES), Mr. John Connell (CIAT), Mr. Joanne Millar (CSU) and Dr. Peter Horne (CIAT)

Upland farming systems in Lao PDR are complex and diverse. For promising agricultural technologies to be successful, they must be accompanied by new approaches to (a) integrate the technologies into the existing farming systems and (b) to make markets accessible.

To address the first of these issues, MAF and CIAT have developed participatory approaches to extension, using forage technologies as a model. These methods encouraged farmers to take the ‘hard technologies’ (well adapted and productive forage varieties) and develop innovative ways to integrate and use these technology options on their farms. In a many cases, this has led to increased livestock productivity and
reductions in areas of shifting cultivation, which has released time allowing farmers to further diversify their livelihood systems.

Market issues are being addressed through the introduction of an agroenterprise development approach, examining the whole market-chain from producer to consumer and involving all actors along the chain in identifying ‘critical points’. The solution to resolving bottlenecks may lie not in productivity, but in gaining efficiencies further down the chain, such as quality improvement and ‘value adding’. Business development services then need to be developed, to continue to serve the chain and ensure is remains responsive in the long term.

Agroecological Systems, principles and generation-extension approach

Florent TIVET, Chanthasone KHAMXAYKHAY Hoà TRAN QUOC, Bounsay CHANTHARATH, Khamkéo PANYASIRI, Thammakham SOSOMPHOU, Pascal LIENHARD, Olivier HUSSON, Patrick JULIEN and Lucien SEGUY

National Institute of Agriculture and Forestry and Annual Crops Department and Agrosystems Programme, Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD-CA)

Conventional agriculture is now being questioned as it seems unable to face the main challenges of soil and water conservation, environmental protection, food safety and cost reduction. A participatory approach, known as generation plus extension, has been developed and managed by farmers, researchers and extension agents. The aim is to propose agro-ecological systems to farmers and extension agents that are compatible with sustainable regional development and which can be reproduced inexpensively on a large-scale. Agro-ecology is the understanding of dynamics and functions of agro-ecosystems, including all physical, economic and human environments. Direct seeding, mulch-based cropping systems, replicating functions of forest ecosystem, are one of the components of agro-ecology strategy. The main principle of these systems is that the soil is no longer disturbed by mechanical action, and always kept covered by farmer crop residues and deal or living mulch. These systems can be based on annual or perennial crops integration, diversification with the productions of one or two cereal or forage crops per year, which may be associated with livestock production. No tillage and proper use of cover crop must stop soil erosion, maintain and increase organic matter. Deep rooting systems of the cover crops improved, physical soil structure, intense biological activity and recycled nutrients leached deep into the soil. According to the kind of mulch, weeds are controlled. This leads to an environment friendly, technologically and economically efficient agriculture. The aim of this paper is to present agro-ecology and direct seeding mulch-based principles and generation-extension approach implemented in Lao PDR over the last three years.
How to combine Science and Local Knowledge to develop sustainable Land Use Practices in the uplands - A case study from Vietnam and Laos

Dr. Hoang Fagerström, M.H. (Swedish University of Agricultural Sciences (SLU), Department of Soil Sciences), Dr. Tran Duc Toan (The National Institute for Soils and Fertilisers, Vietnam), Mr. Houmchitsavat Sodarak (Northern Agro-Forestry Research Centre/NAFRI), Dr. Meine van Noordwijk, and Dr. L. Joshi (ICRAF, Southeast Asia).

Global population growth and increasing wealth (the Millennium Development Goal is 50% reduction of poverty by the year 2015 counted from the year 2000) exert a pressure to convert forests to agricultural, industrial or residential land. Land use changes, together with the diversity in physical and socio-economical conditions in the uplands of northern Vietnam and Laos, require new sustainable land use options for obtaining food security and for environmental protection.

A Knowledge-Based System approach, whereby local and scientific knowledge are combined to develop new land use options, is being tested by a consortium of researchers, extensionists and farmers in the Dong Cao catchment, Hoa Binh province, Vietnam, and in Pakchae village, Pakou district, Luang Prabang, Laos. The methods employed are field measurements of erosion on a catchment scale, computer simulations using the WaNuLCAS and GenRiver models, application of PRA/RRA tools and the Agro-Ecological Knowledge Toolkit for Windows WinAKT 4.06. Effects on soil and water conservation, as well as on household economy of current and future land use options in different landscape units at the two sites have been evaluated.
Parallel Session 3: Development Approaches being used to the uplands

Section 1: Development Approaches being used in the uplands

NAFES’s Agriculture Extension System

Mr. Somxay Sixanomh, Central Extension Training and Development Unit, NAFES

Until recently Laos did not have a genuine extension service. Technology transfer was carried out by the technical departments of the MAF on a promotion campaign basis and projects and programs conducted extension on an individual approach. There for we need a Lao extension system that operates on a sustainable and independent basis, which is able to effectively coordinate various donors and able to operate when projects retreat. The NAFES with supports from LEAP has developed an efficient and effective extension service for achieving food security, for improving the livelihood of Lao farmers and for alleviating poverty in rural areas in general. This is so called a Village Extension System (VES), which will be presented.

The main principles of the VES are:

a) Village authorities organize the VES
b) The village authorities mandate Village Extension Worker (VEW)
c) VEWs work with groups of interested farmers on a particular topic (production groups)
d) VEW’s task is to ensure that innovations spread throughout the village
e) The district extensionist provides technical training and information and interacts with the VEWs.
f) All resources for the VES are organized and managed by the village authorities.

This approach had been applied successfully with significant result in particular upland farming for improving family income generation (eg. In Nambak, Pak ou districts LPB province.

Lessons learnt in building capacity for district staff and villagers: experiences from Remote Areas Development Project in Hongsa District

Mr. Houangkham Sihalath, a senior staff at the Agriculture and Natural Resource Programme, Project monitoring and evaluation design (former project chief), Care International

Remote Areas Development Project started in March 1999 and terminated December 2002 under the support from Care Australia, AusAID and IFAD. The project had target villages in Hongsa District located in two zones ( 7 villages in Phouleng Zone and 5 villages in Phou Toui). All of its population belongs to Pry ethnic group. Pry is one of ethnic groups in Lao PDR that have their own spoken language and do not properly understand Lao language and is considered as a group with least development opportunity in the country.

Pry people normally settle their villages on remote sloping hills, with less road access. Only 4 out of 12 villages have roads cut through, but can be used only in dry season with difficulty (no goods truck can access the villages).

Their main occupation is shifting cultivation on slopping lands, and they are reluctant to live on flat lands due to their traditional belief. According to their beliefs flat lands are the settlement areas for the Ghost of Snake and the other Ghosts. There are no
other ideas of how to rely their livelihoods on rather than their conventional shifting cultivation and raising a few small animals in natural ways. Most of them are rice deficit for 6-12 month a year.

Pry prefer to live in temporary shelters and eat simply foods. Their main foods are rice, chili, salt, and cooking powder which are supplemented by meat and fish. Pry do not know how to cook other dishes other than barbequing and boiling and do not have family common meals. The way they eat food is not hygienic.

Pry have their own custom and culture which differ from those of other ethnic groups. Their culture and custom are symbolized by active helping each other in practicing shifting cultivation and cerebrate at the end of the day with Lao whisky (LOW LAO). According to their beliefs if finishing any stage of the performing shifting cultivation activities is a reason to cerebrate. They take 3 days and more in a month as spiritual day offs to respect the the Ghost of Sky. In addition, Pry take other day offs as they believe as the Genus Day Off and The Anniversary of the Parent’s Death.

According to their custom, the most powerful family in the village must take the lead to start their annual cropping, and followed by the turn of the less powerful families and the poorest families respectively. The poorest families, therefore, have no change to start their production season timely leading to a declining yield and permanent rice shortage correspondingly.

In the reality, district staff seldom reaches Pry villages due to poor road condition and the lack of budget.

In fact the project gained a wide range of experiences, but only the experience gained from human resource capacity building at district and village levels will be raised here in the workshop which have change the lifestyles of Pry from practicing shifting cultivation to wet rice cultivation. The process of these changes is going on even if the project terminated. My presentation will particularly highlight the methodologies in building local capacity, the ways village volunteers efficiently worked and how the project has changed the production patterns of Pry from unsustainable shifting cultivation into an active permanently wet rice production.

We sincerely hope that our lessons, which I am going to present, will be partially useful or at least it could be good ideas to be taken into account, especially for projects that are trying with similar efforts.

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**A novel approach for development of uplands**

Mr. Amphay Ladouangphanh, National Project Director, Shifting Cultivation Stabilization Pilot Project (SCSPP)

The Shifting Cultivation Stabilization Pilot Project is the first decentralized project in Lao PDR. It is being executed by the Houaphanh provincial administration. The objectives of the project are:

- Poverty reduction
- Increased food production
- Eradication of opium production and reduction of consumption
- Environmental protection and conservation

The project has collected baseline data including ethnicities of beneficiaries, and carried out a livelihood analysis of households. After stratification of households into three income levels, priority groups have also been identified. Livelihood analysis determines priorities for immediate intervention of project activities consisting of participatory village
development plans (VDPs), gender sensitivity and empowerment, primary health care services including community based rehabilitation of drug addicts (CBDAC), micro finance for creation of revolving fund for income generation activities, land use planning and land allocation, sedentary farming systems, water supply and irrigation schemes, income generation activities especially for women.

The livelihood analysis approach for immediate project interventions, introduction of "Alternative Products Development", Alternative Technology Development, systematic approach to NTFP exploitation/management, community based rehabilitation of drug addicts, etc have shown promising results for the replication in poverty reduction and shifting cultivation stabilization in Lao PDR.

Farmer Field School Approach: How to reach rural women in the uplands of northern Laos?

Mr. Nhoungthong Sihanath and Ms. Ingrid Baken, FAO Special Program for Food Security/NAFES

In achieving food security and poverty reduction in the Uplands of Lao, it is crucial to include gender analysis. Women are often ignored, overlooked or forgotten in many agricultural programmes, although they are the backbone of most agricultural production, processing, and marketing, as well as domestic work and household economy. The current general lack of reliable data and the lack of recognising and valuating women’s unpaid work in agriculture hampers a complete understanding of the situation and environment upland women work and live in. Extension services, Government and international agencies need to better understand gender issues and women’s needs in order to establish proper programmes and appropriate technologies.

To facilitate sharing of experiences, innovations, ideas and the dissemination of technical know-how, the Special Programme for Food Security (SPFS) operating in Luang Namtha and Oudomxai uses the concept of Farmers’ Field School (FFS). Livestock and mushroom production FFS are well attended by women, since this is mainly their domain. These activities require limited land, which is a resource to which women have limited access: Only one woman in the SPFS’s northern project sites has an official land title. The main constraints and difficulties in reaching upland women are limited gender awareness of staff, no or little understanding of the Lao language by upland women and no understanding of local language by project staff, and limited available time of both women and project staff. To increase and encourage women participation, SPFS tries to organise separate meetings at convenient time and location for women, select topics of interest to women, and look at workload of newly introduced technologies. The project is also stimulating that gender is taken into account in the development of training materials, manuals and participatory training programmes of FFS activities. For the coming year, SPFS will include gender training and curriculum building activities in FFS and collect information on gender that can be discussed and analysed during FFS activities or other meetings. Finally, providing more hands-on field training for government and project staff in gender disaggregated data collection, compilation and analysis is needed.

Changes in Houay Cha village

Mr. Lothar Kinzelmann (Project Manager), Mr. Bounkeuth Sanongxay (National Project Director), Mr. Sonevilay Nampanya (TA Livestock and Microfinance), German Agro Action, Oudomxay Province

The project development goal is the efficient and sustainable use of the natural resources to improve food security and living conditions of the local population and for conservation of the watershed function of the designated headwaters.
A major focus is on developing sustainable farming systems along with improving livestock production and management of non-timber forest products.

Houay Cha is a Khamu village located in the uplands at altitudes between 800 and 1339 m. When the project began extension activities in late 2000, upland shifting cultivation was the major livelihood activity. More than two thirds of the population experienced rice deficiency between 3 and 6 months.

Since the project introduced stationary upland farming and integrated farming techniques, more and more farmers are adopting these techniques. Two farmers have already completely abandoned shifting cultivation and derive higher income than before from their agricultural activities. Other farmers plan to follow the example. In 2003 over 80 % of the total population was classified as self-sufficient.

There are changes going on in Houay Cha village...

**SEP-Dev: Testing New Institutional Approaches for Integrated Rural Development**

Ms. Chanhome Mahaxay, National Program Director for SEP-Dev and Ms. Jacquelyn Chagnon, SEP-Dev Senior Advisor

The Sekong Ethnic People's Development Programme (SEP-Dev) aims to become a deep-impacting, long-standing and provincially-owned programme, not just an externally-funded 5-year project. SEP-Dev's stakeholders have pioneered some new institutional approaches for setting up its integrated rural development programme.

The presentation begins with a brief overview of some of these institutional approaches.  
1) SEP-Dev develops local capacity by using different staffing patterns, a slower work pace, adequate funds for capacity building, and a guiding advisory style.  
2) SEP-Dev incorporates gender sensitive and ethnic sensitive practices as intrinsic components of all its management and community development work.  
3) SEP-Dev involves local government technical services in its planning and decision-making, and provides them opportunities to apply for small capacity-building grants.  
4) SEP-Dev assist communities to link their village and cluster area development plans to local technical services.  
5) SEP-Dev tries to model good governance in its own management and fosters good governance within its target villages.

The presentation ends with a review of the successes and challenges of using these new institutional approaches.

**Fruit growing as an alternative to slash-and-burn agriculture: findings and discussion**

Mr. Rick Dubbeldam and Mr. Bounnjang Vongvilasai, DED – German Development Service, Upland Agriculture Center

In many previous publications on sustainable and viable alternative uses of slash-and-burn uplands, it has been suggested that growing fruit trees is one of the most promising. These publications then suggest that marketing is one of the inhibiting factors, especially in the north.

From activities conducted over 1 and 1/2 years we have found out the following:  
- that marketing problems within the target districts in which UADC undertakes activities hardly occur
• that in comparison to Thailand, most planted fruit trees are not improved varieties.
• that farmers who have been trained before planting trees do not know the reasons why pruning is required
• that making fruit growing with farmers a success, means that extension (field visits) are of utmost importance, possibly more important than training before planting.

The Upland Agriculture Development Center (UADC) has been experimenting using a variety of participatory methods of extension. We have tried to adapt the farmer’s field school methodology to suit orchard inputs. The response by farmers was highly successful, many farmers adapting their orchards so as to enable their orchards to produce more and higher quality fruit.
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