Regional Project on Shifting Cultivation: Promoting Innovative Policy and Development Options for Improving Shifting Cultivation in the Eastern Himalayas

IDRC Grant Number 105333

2nd Technical Progress Report, October 2008 – September 2009
Submitted on 1st February 2009

Country/Region: Bhutan, Nepal and Bangladesh

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1. Synthesis

The eastern Himalayas are a focal area in the regional climate change debate and very rich in biodiversity. Shifting cultivation is a common land use in these areas, reflecting an adaptation by farmers over the centuries in response to the problems posed to cropping by steep slopes and heavy seasonal rainfall. Notwithstanding this, many people believe that this type of land use is universally unsustainable and that farmers should take up horticulture or forestry instead. Others advocate leaving shifting cultivators to carry on as they always have, even though the external situation has changed (eg. appropriation of land for other uses and marked reduction in the land available for shifting cultivation). Neither attitude recognises the need for a pragmatic approach to deal with the livelihood issues of the cultivators and the health of the ecosystem. With the Regional Project on Shifting Cultivation, ICIMOD offers the idea that shifting cultivation should be allowed for those farmers who wish to practise it. At the same time, shifting cultivators need research and development support, as well as a more appreciative policy environment, to help them improve and adapt their shifting cultivation practices to the present day situation.

The aim of this project is to contribute to the livelihood security of the shifting cultivators in the eastern Himalayas by researching policy options that support the improvement of shifting cultivation systems in terms of natural resource management and livelihoods and tenure security. Shifting cultivators face similar constraints in the three countries where the project is implemented. It focuses on two key current policy issues that are common for Bangladesh, Bhutan and Nepal. They are: (1) tenure security of land and natural resources and (2) appropriate land use options and extension approaches. The project's specific objectives are:

(i) To assess tenure changes and institutional arrangements in different shifting cultivation areas caused by various policy interventions and evaluate economic, social and ecological impacts, and identify gaps and needs for improving the relevance of policy interventions

(ii) To analyze and compare good practices and options related to shifting cultivation and alternative options adopted to generate new knowledge for appropriate policy recommendation

(iii) To share good policies and practices related to shifting cultivation and alternative options through regional exchange.

This second Technical Progress Report covers the first year of the project. We report against the project milestones for this reporting period, given in **Annex 1**. This first year was mainly dedicated to setting up the research teams in the participating countries and preparing the research strategy. This is a regional project, which means there are regional activities that ICIMOD organizes and where all country teams have to be present, and there are activities which the country teams implement, preferably simultaneously in each country. Part of the design of the project is that the research is comparable across the countries, so ICIMOD and the countries have to decide together on the research questions and methodology. They have to be appropriate in the various situations that exist and address the policy priorities of all

participating countries. To establish this, the regional activities were planned in a logical order. Step 1 was to have the inception workshop in January, step 2 to develop country work plans and LoAs by March, step 3 to have the research workshops to prepare the research questions and methodologies with the country teams (in May and June), and step 4 were the baseline studies. Other supporting activities were to set up the project website with document repository and e-discussion facility, and to attend any events in the countries that might be relevant for the policy dialogue process.

Unfortunately, the activities could not take place according to plan, because of the uncertainty whether IDRC would be allowed to implement the project in India. This caused all regional activities (inception and research workshops) to be put on hold indefinitely, and without them it was also difficult to start working with the country teams on other activities. Not knowing which countries we were going to work and without even an estimated timeline, it was difficult to plan our activities, engage the country teams in Bhutan and Nepal and decide on specific approaches. With the Bhutan and Nepal teams, we ended up preparing work plans and LoAs even before the inception workshop, and when there was still no news by the end of April, we decided to start working on the baseline studies before the research workshops. This rescheduling required extra planning, preparing and explaining to everyone involved. In the mean time, the team worked on the two research protocols. Rather than reviewing the literature on shifting cultivation itself, the challenge was to come up with the key concepts, methodologies and tools that will be useful for the planned research. For the research protocol on tenure and institutions in shifting cultivation (T&I), the ICIMOD team was able to come up with a broad conceptual framework to be presented to the partners at the research workshop. It remains quite broad and theoretical, however, until the research questions can be finalised and the countries can customise it to the specific situations in the project areas.

Dr. Karki and Dr. Sharma engaged ICIMOD's focal ministry in India, the Ministry of Environment and Forests (MoEF), to elicit the approval from the Indian government. The decision finally came in August, and as a result no project activities will be implemented in India. For the project this is inconvenient, because India has by far the most extensive experiences in dealing with shifting cultivation, both positively and negatively, and has most to offer for the other countries to learn from. Originally it had been the partners in Northeast India who brought up the issue of shifting cultivation as a topic for ICIMOD. Its relevance for the Nagaland Environmental Protection and Economic Development Project (NEPED) is part of what makes this project interesting for IDRC and ICIMOD.

In September, Bangladesh was taken on board as a participating country. With support from ICIMOD Board Member got the official approval from its focal ministry, the Ministry of Chittagong Hill Tracts Affairs (MoCHTA), and did a pre-selection of partners and other relevant stakeholders. Shifting cultivation is an issue in six of ICIMOD's regional member countries. Initially, the plan had been to have field research Bangladesh too, but later this was changed for budgetary reasons. The situation of shifting cultivation in Bangladesh will bring its own interesting aspects to the research, including the prevalence of common property tenure

of shifting cultivation land and the formal recognition of the customary leaders. This will greatly contribute to the broader understanding if shifting cultivation as practiced across the eastern Himalayan region. At the same time, the complicated political situation in the CHT will pose challenges.

The details of the results achieved between April and September 2009 will be reported on under various sections below.

2. The research problem

Research questions

Shifting cultivators can be defined as those farmers who still prefer to practice shifting cultivation despite government efforts to ban slash-and-burn practices and provide alternatives. Shifting cultivation should be recognised as a legitimate practice that ensures the survival of people living on marginal lands. At the same time, the ground realities of increasing population pressure and intrusive market forces should not be ignored. Shifting cultivators need research and development support, as well as a more appreciative policy environment, to help them improve and adapt their shifting cultivation practices to the present day situation, and to address emerging ecological issues such as carbon emission and climate change, and respond to the demographic pressures and a globalised market economy.

In order to improve the livelihoods of the shifting cultivators, and to address their specific needs, it is important to understand shifting cultivation as a changing system, from their perspective. The three main priorities in this are:

a) to improve the relations between the shifting cultivators and their governments, by generating a better understanding of and more appreciative attitude towards shifting cultivation among policy and decision makers;

b) to analyse how tenure security of shifting cultivation land and other natural resources is affected by policy and local-level customary institutions; and

c) to promote a constructive approach to improve shifting cultivation based on local innovations and appropriate interventions.

To achieve this, the research focuses on two main topics. They are: (a) tenure and institutions and (b) land use options. As presented in the framework presented in table 1, each of these requires research at the policy-level, at the field level, and mapping exercises, in order to generate useful information for the policy dialogue process. The topics given under each category are examples for orientation. All country teams have endorsed these main topics, and are currently thinking how they can be specified for their respective context.

Table 1: project focus areas

	Tenure and institutions	Land use options
Policy	Effect of policy on access and tenure of land and resources.	Evaluation of forest, agriculture, extension related policies in SC areas.
Field-level	Formal and customary institutions governing land use and tenure locally (ground reality)	Compare shifting cultivation with "settled" agriculture or settled forestry options.
Mapping	Mapping customary (past) and formal (current) boundaries and tenure status	Show where SC is, what it looks like, learn how to interpret remote sensing images in SC

The scope and focus of the research are best reflected in the draft research questions that the team is currently working on. The questions are as follows:

Tenure and Institutions (T&I)

Policy research: 1. What is the effect of policy on shifting cultivators' tenure of land and natural resources?

Field research: 2. What are the formal and customary institutions that govern land use and natural resource tenure locally, and how are they changing?

Mapping: 3. How can mapping help resolve conflicts between customary and formal tenure arrangements in shifting cultivation areas?

Land Use Options and Extension Approaches (LUO)

Policy research: 1. What are the existing policies related to land use options and extension approaches and their effects on shifting cultivation?

2. What are the adaptive management objectives for shifting cultivation areas that farmers, governments and other relevant stakeholders can agree upon?

Field research: 3. How is land use changing in shifting cultivation areas, what are contributing factors, and what is the impact on livelihoods and conservation?

4. Which innovative options and extension approaches are useful to improve land use in shifting cultivation areas, and what is their impact on livelihoods and conservation? (Options can be anything ranging from farmers' and introduced innovations to government programmes)

Mapping: 5. How can mapping and geographic information systems (GIS) support multi-stakeholder land use planning and decision-making at community level?

Justification

Most interventions in shifting cultivation areas are taken without understanding of the farming system or its practitioners. This is why interventions are more difficult to implement here than in other farming systems. Examples of adverse policies are those that consider fallow land as 'abandoned' and allocate it to other purposes, thereby causing a shortening of the fallows in the remaining area. Current regulations generally favour sedentary and intensive farming practice. Those that regulate the use of chemicals, fertilizers and seeds are often a disincentive for organic farming and a threat to the integrity of the shifting cultivation practice and traditional seed supply arrangements. Government extension programmes are limited to known commercial crops, for which shifting cultivators have to compete in an existing market with farmers from the plains who have much better land and infrastructure. At the same time, opportunities to establish market linkages for local niche products and to retain benefits locally are often not considered.

On the ground, change is obvious in the landscape and in the communities. In the past few decades, they have had to change from customary leadership to government administration. The customary leaders were strong in land management skills, but have difficulties dealing with administrative skills. Customary tenure systems have been replaced by land registration and taxes. The children these days get a school education, leaving little time to convey them the indigenous knowledge and practices they need to manage the shifting cultivation. In the past, communities were more homogeneous and various systems were in place to ensure that everyone had access to land, natural resources, labour and other livelihood means. Nowadays, the disintegration of traditional customs and social fabric means that especially the poor lose access to labour, land and other resources.

It is clear that shifting cultivators, their governments, and research and development organisations each have their own experience with, and understanding of, these pressures. All are making efforts to address them, by developing options and innovations in their own way. However, the mutual respect and understanding are largely missing, making it difficult to reach agreement on the way ahead or to collaborate. Therefore, policy response has always been to do away with shifting cultivation, while farmers are maintaining and modifying their traditional practices. While traditional practices are discouraged, the alternatives proposed by 'outsiders' are often not working, so they are not really an alternative. As a result, the concerned policies don't have their intended effect, and communities keep struggling to maintain their livelihoods.

The question is how to change a traditional system on marginal land to face current challenges posed by entering the market economy, being part of a state, and also climate change. A particular obstacle is the on-going misunderstanding and miscommunication between farmers, R&D and decision makers. So can communities and their governments, come up with a common vision on the future of shifting cultivation? And can all stakeholders learn and manage together? This is required for adaptive management to be successful. And

what is the future of shifting cultivation? One could say, "there won't be any shifting cultivation in 50 years!", but what will happen to the shifting cultivators? Decisions on the management of shifting cultivation now will have an impact on shifting cultivators' situation in the future, in the same way that some of their current problems have been caused by deprivation of their rights in the past. Will they still be farming or leave agriculture? Will they be working their own land or be farm labourers for others?

Recent innovations in parts of the Eastern Himalayas have shown that farmers and government can come up with common goals and work toward them together constructively. The IDRC supported NEPED I and II in Nagaland, is an example where the government has started taking a more appreciative view of shifting cultivation and farmers themselves are proud to be shifting cultivators. Their joint efforts have made land use more productive and environmentally sustainable at the same time. Researchers and government officials have realised that shifting cultivation is an important livelihood for these people, and managing it well contributes to farmers resilience in the face of climate change and other threats.

Mapping and the use of geographic information can support these efforts both at the national and the local level. For policy and decision makers it is important to know where the problem is and how many people are affected. In the case of shifting cultivation, there are no recent official records, maps or figures, so the shifting cultivators and their problems are largely invisible. The purpose of an overview map would be to draw the attention of the policy makers, and serve as a tool in the decision making process. In a dynamic system such as shifting cultivation, land use planning is complicated and requires the involvement of all stakeholders in the community and outside. Participatory maps would enhance the capacity of community members to have a say in this process, and enable outsiders to get an understanding of local resources and knowledge without having to visit these remote areas. Therefore, the purpose of participatory maps at local level is to enhance the mutual understanding and cooperation between communities, research and extension services and government officials.

In the current climate change debate, there is attention for mitigation (forcusing on the reduction of green house gasses, including carbon) and adaptation (how communities and agricultural systems can adjust to the expected changes in rainfall pattern, temperatures, and resulting droughts, floods, hailstorms, etc. Both of these aspects are important to take into account as part of this research, because they influence the policy discussion on shifting cultivation, and the sustainability of shifting cultivators' livelihoods. Rather than predicting which climatic change is most likely to happen, and its consequences, for the moment it is better to be prepared for any possibilities. This means creating resilience in the face of too little water as well as too much water, temperature rise as well as hailstorms. Farmers in mountain areas have to deal with a high variety in micro-climates, and the effects of climate change are even less predictable than in the plains. Land and natural resource tenure are an important factor in the resilience of mountain farmers. For shifting cultivators, having access to a larger area of land, or having lands spread out across a larger landscape is likely to

increase their resilience and reduce their risk. Access to drinking and irrigation water is another major factor.

Related activities

The ICIMOD team has been working on two draft research protocols, one on "Tenure and Institutions in Shifting Cultivation" (T&I) and one on "Land Use Options and Extension Approaches for Shifting Cultivation Areas" (LUO). We have been looking for useful concepts, methodologies and tools, through literature review and interaction with visiting scientists from other organisations. The research protocols will be presented, discussed and finalised at the upcoming research workshops. The T&I research workshop will cover concepts, methodologies and tools, which will appear in the protocol as well. They are on the following topics: (1) Land use and climate change adaptation; (2) Adaptive learning and management; (3) Governance and Policy analysis; (4) Institutional analysis; (5) Land and natural resource tenure, and Rapid Land Tenure Assessment (RaTA); (6) Social and gender analysis; (7) Stakeholder analysis; (8) Research skills. The LUO research design and workshop are still in process.

The research questions were put up for discussion at the "Shifting Cultivation Inception and Sharing Workshop", with the objective to seek the expert opinions and experiences from policy and decision makers and peer experts to refine the research priorities. The participants were policy and decision makers, representatives of peer organisations involved in research and development of shifting cultivation, and the project's implementing partners from Bangladesh, Bhutan, India and Nepal. Their comments on the research focus are captured in the following bullet points, and will be incorporated during the research workshops:

- Focus on the change processes going on in shifting cultivation;
- look at local innovations and technologies, and their availability for farmers;
- extension should be an important topic;
- include economic aspects, and focus on poverty and food security;
- several governance issues are important;
- define who we mean by shifting cultivators, maybe categorise, and show where they are;
- maintain objectivity/ neutrality and mind that shifting cultivation is a sensitive issue in most of the participating countries.

The team further discussed the questions on "Land Use Options and Extension Approaches" with Dr. Meine van Noordwijk, Global Science Advisor of the World Agroforestry Centre (ICRAF). He is one of the main scientists behind the large volume of research on shifting cultivation in South East Asia by ICRAF's Alternatives to Slash-and-Burn programme. Dr. van Noordwijk remarked that he will be interested in our research, as it nicely complements ICRAF's work on the topic.

3. Research findings

Monitoring of the policy environment has been going on since the beginning of the project, by following public media (Bhutan and India) and attending relevant events in Nepal, including:
(1) the national interaction program marking the recent coming into force in Nepal of the Convention on the Rights of Indigenous and Tribal Peoples (No. 169) of the International Labour Organisation (ILO) (3/10/2009);
(2) the Leasehold Forestry Planning Workshop organised by the Department of Forests (29-31/12/2008), and
(3) the 7th National Gathering of Chepang and Cultural Festival (3-5/3/2009).

In Nepal the constitution building process is on-going and the Nepal Chepang Association (NCA) and Nepal Forum for Indigenous Nationalities (NEFIN) are involved in this process, each having representatives in the Constituent Assembly. For shifting cultivators, it is mostly the indigenous peoples' rights and environmental rights that are important. The role of the RPSC project and the relevance of its research could be to see how these rights can be implemented in practice, once they are enshrined in the constitution in some way or form. At a more practical level, the partners in Nepal want to look at the forest policy, including its community and leasehold forestry programs, and the impact they have on livelihood security in shifting cultivation areas. In Bhutan, the Ministry of Agriculture has shown a great deal of interest in the project and the topic of shifting cultivation. An important policy to study in the project will be the Land Act 2007.

At the policy-level, the Ministry of Environment & Forests, Government of India, and the G.B. Pant Institute of Himalayan Environment & Development have published a report titled "Governance for Sustaining Himalayan Ecosystem Guidelines & Best Practices" [1]. It states that: "Shifting cultivation, the most prominent farming system of north east Himalaya, has been a way of life for a large number of ethnic groups and other marginalized upland communities. This practice, on account of its perceived negative environmental consequences, is often considered controversial. However, realising its deep rooted linkages with indigenous ethnic culture and its importance for ensuring social and environmental security, there is a need to find ways and means to reduce its ill effects and promote ecological (e.g., biodiversity conservation, forest and farm management), and economic values (e.g., species of commercial value and innovative organic farming) for the overall development of the region and its people." In has an interesting box titled "Traditional Wisdom – Maintaining Soil Fertility", on the alder plantations in Khonoma village (Nagaland, India).

At the global level, the topic of payments for shifting cultivators from REDD (Reducing Emissions from Deforestation and Forest Degradation) was raised on the discussion list of the Commission on Environmental, Economic and Social Policy of the International Union for

[1] MoEF,GOI and GBPIHED (2009) "Governance for Sustaining Himalayan Ecosystem (G-SHE) Guidelines & Best Practices" can be accessed at the website of the Ministry of Environment and Forests, GOI (www.envfor.nic.in) or that of the G.B. Pant Institute of Himalayan Environment & Development (http://gbpihed.gov.in).

Conservation of Nature (IUCN). In March we were able to provide important information on the functioning of shifting cultivation systems in our region, and their potential for carbon sequestration payments. The Jhumia Network also discussed how and whether shifting cultivators could access any payments for environmental services, such as REDD schemes. The Jhumia Network is an e-discussion list of shifting cultivation experts and other interested people. It can be accessed at: http://in.groups.yahoo.com/group/jhumias.

The first preliminary research findings are further coming out of the situational analysis that the country teams are implementing to serve as baseline study. The ICIMOD team prepared guidelines, with keywords and questions and a basic checklist, and accompanied the country teams to several of the project sites. Please see **Annex 2** for more details. In Bhutan and Nepal this activity is completed and the country teams are now ready to complete the exercise on their own. In Bangladesh, this exercise is planned for early 2010. A detailed overview of the preliminary findings is presented in **Annex 3**.

The most interesting preliminary findings from Bhutan and Nepal are on the changes taking place in the shifting cultivation systems. The Bhutanese team discovered that shifting cultivation is indeed still practiced in parts of the project districts, although in the land records these lands are nowadays registered as "dry land". The farmers are actively trying to change their land use toward what is more acceptable to the government, but this is a slow and difficult process and farmers are struggling to find suitable options. The land is steep and those community-level institutions that they worked through in the past, for labour and land allocation, have disintegrated. The land tenure is a hot issue at the moment, because the His Royal Highness, through the National Land Commission, is reviewing the peoples' land holdings across Bhutan, and considering granting people ownership of those lands they used in the past but could not register for various reasons. Many past shifting cultivation lands are in this category. In Nepal, visits to the Chepang areas revealed that land is so scarce that substantial parts of it are cropped annually, because there is no space to rotate. However, without adjustments to compensate for the non-existent fallows these systems are unsustainable and lose productivity. Here too, farmers and development organisations are looking for options, because the farmers have no other land to use. Though it is the only agricultural land these people have, many do not have ownership certificates. This is creating conflicts with the forest department, which is trying to implement leasehold and community forestry there.

4. Project implementation and management

The main activities implemented this year are:

- To establish effective partnerships in Bhutan and Nepal through the work plans and LoAs;
- to resolve the problem with the project's endorsement by the national governments;
- to initiate Baseline survey (situation analysis) in Bhutan and Nepal;
- to continue work on the draft research protocols; and
- to organise the "Shifting Cultivation Inception and Experience Sharing Workshop".

Strengthening the effective partnerships and preparing work plans was an important activity this year. Preparatory workshops were held in Nepal (December 2008) and Bhutan (January 2009), to (a) discuss the project with the implementing partners, (b) explore the countries' research priorities on the topics in more detail, and (c) discuss partnership arrangements and inception workshop preparations. After these meetings, the partners started preparing draft work plans, which were discussed and finalised with the three country teams at the inception workshop. The ICIMOD Directorate and Dr. Eklabya Sharma have made extensive efforts to gain government approval via ICIMOD's focal ministry, the Ministry of Environment and Forests. The benefit of this has been that we brought shifting cultivation once again to the Ministry's attention, resulting in a more positive attitude toward ICIMOD's work on this topic.

For Bhutan, an LoA between the Gross National Happiness Commission - Bhutan and ICIMOD was signed in April 2009, designating the Policy and Planning Division (PPD) and the Council for Renewable Natural Resources Research of Bhutan (CoRRB), both from the Ministry of Agriculture, Royal Government of Bhutan (RGoB), as implementing partners for the project. Bhutan has selected project areas across the country, depending on where shifting cultivation used to be practiced most in the past according to government records.

For Nepal, two separate LoAs were signed, one with the Nepal Chepang Association (NCA) and one with Local Initiatives for Biodiversity Research and Development (LI-BIRD). The main responsibilities for the NCA will be the tenure and institutions related research work as well as the national-level policy dialogue activities, in which they will be supported by the Nepal Federation for Indigenous Nationalities (NEFIN) and consultants with a stronger track-record in research. LI-BIRD will be responsible for the land use options research and the GIS-related work, but the two organisations will work closely together on most major activities. The RGoB and LI-BIRD complemented the project funds with in-kind contributions for items such as staff salary, travel allowances and office space and equipments as per their financial situation. The inception workshop further contributed to strengthening the partnerships (see under 5. Project outputs and dissemination).

There was a problem with the project's endorsement by the national governments, which was resolved in September. The Government of Bangladesh has accepted to implement this project in the Chittagong Hill Tracts, where partners will be identified and work initiated from October 2009 onwards. The project further hopes to benefit from the vast expertise and experience available in India by engaging Indian experts as resource persons in regional project activities. This problem has caused substantial delays in overall project implementation. As none of the regional activities could take place on time, all other work was affected as well. There has been progress on all milestones, but especially (a) protocols, (c) research workshops and (f) country reports have been partly postponed till the next period. As will be reported on below, the Bhutan and Nepal country teams have already completed a large part of the field work for the baseline study/ situation analysis, but we feel there is no need for country reports yet.

During the 2nd year of the project, the main activities will be:

- To initiate the partnerships and prepare the work plan in the Chittagong Hill Tracts of Bangladesh (November 2009);
- to hold the T&I research workshop in Bhutan in November (2009);
- to organise LUO research workshop in December 2009, hopefully in Bangladesh;
- to have the GIS research workshop in Nepal, Spring 2010;
- to organise and attend various activities in policy dialogue;
- to further develop and implement the communication strategy with interns, including the website;
- to implement (country teams) and provide technical backstopping (ICIMOD) for the research work as per the protocols; and
- to organise regional exposure visits for the country research teams.

For the LUO research design and workshop, the project would like to make use of the expertise in environmental economics available at IDRC, as mentioned during the inception workshop.

5. Project outputs and dissemination

The inception workshop, or "Shifting Cultivation Inception and Sharing Workshop", was a major output during this reporting period. It contributed to "a work plan with clearly defined roles and responsibilities that addresses the research priorities of all three countries agreed upon through an inception workshop held at the beginning of the project", as was stipulated in the milestones for the first half year of the project. According to the participants, the workshop achieved its objectives quite well, by contributing to (1) refining the research priorities for the project, (2) linking the project with policy issues and priorities for shifting cultivation in the countries, and (3) clarifying the roles and responsibilities of the partners in the project. On a scale from 1 (low) to 5 (high), they were rated 4 by respectively 60%, 60% and 45% of the respondents. A full report of the workshop will be submitted together with this report.

The workshop was co-organised with ICIMOD's Innovative Livelihood Options team, who are running the "Programme for Securing Livelihoods in the Uplands and Mountains of the Hindu Kush-Himalayas" that is funded by the International Fund for Agriculture Development (IFAD). The RPSC project greatly benefitted from the experiences in shifting cultivation development that were shared by the IFAD projects in Meghalaya and Manipur (India), Tashigang (Bhutan) and Nepal, and the cooperation benefitted the sharing of project resources.

We have drafted a communication strategy together with the knowledge management team at ICIMOD, which will be implemented in 2010. At present, the project page on the ICIMOD website is still quite simple, and can be accessed at http://www.icimod.org/?page=363.

6. Capacity building

As we reported in March, Ms. Sita Chepang attended the Online Advocacy Training organized from 26 February – 20 March, 2009 by ICIMOD and the Mountain Partnership Secretariat-Asia Pacific Decentralized Hub (MPS-APDH). ICIMOD further invited on person from NEPED, and two from LIBIRD for training on "Documentation and Dissemination of Sustainable Land Management Technologies and Approaches Using WOCAT[2] Tools", in April 2009. From the United Mission to Nepal, Mr. Kamal Aryal got the invitation to give training on integrated hedgerow technology in the remote Rukum district of Nepal.

From 10 – 16th August Two members each from the Bhutan and Nepal country teams participated in the "Hands-on Training on Participatory 3- Dimensional Modelling (P3DM) for Land Use Planning" in Meghalaya, India. They learned to build the 3-dimensional models together with the communities, and are now confident that they will be able to implement this activity in their respective countries. They achieved the workshop objectives with great personal effort and enthusiasm, even though the main trainer had to cancel at the last moment and despite harsh local conditions. We will see if the Bangladesh partners will have need for such training, and make a separate arrangement accordingly.

Mr. Kamal Aryal participated in the 16th World Congress of the International Union of Anthropological and Ethnological Sciences (IUAES), Kunming China from 27-31st of July 2009. He presented a paper titled "Why do certain plant species become a part of human culture? A case from the Chepang indigenous community of Nepal.". Shifting cultivation was an important topic at this congress, and there were participants from Bangladesh, Bhutan, China, India, Myanmar and Nepal. The presentation and deliberations provided a good opportunity to raise the project's profile and share our knowledge across these countries.

7. Impact

ICIMOD's publication "Debating shifting cultivation in the Eastern Himalayas" from 2006, was cited in the policy-level document mentioned above (MoEF,GOI and GBPIHED, 2009)[3], on the importance of strong traditional institutions for "ensuring equitable access to shifting cultivation patches", and the example of such institutions still existing in Ukhrul (Manipur).

Furthermore, the Jhumia Network was instrumental in linking the coordinators of the indigenous peoples' delegation at the preparatory meeting for the COP 15 in Bangkok with shifting cultivation experts from the HKH region. Through this link Mr. Amba Jamir and Mr. Dhrupad Choudhury were able to attend the major advocacy side events of the inter-sessional meeting of the Ad-Hoc Working Group on Long-term Cooperative Action, AWG-LCA. This was arranged by Mr. Christian Erni, Asia Coordinator of the International Work Group for Indigenous Affairs, who writes: "The potential impact of an inclusion of shifting cultivation as a "major driver of forest degradation" (or even deforestation) in global and national REDD

[2] WOCAT is World Overview of Conservation Approaches and Technologies (see: www.wocat.net)

[3] MoEF,GOI and GBPIHED (2009) "Governance for Sustaining Himalayan Ecosystem (G-SHE) Guidelines & Best Practices" can be accessed at the website of the Ministry of Environment and Forests, GOI (www.envfor.nic.in) or that of the G.B. Pant Institute of Himalayan Environment & Development (http://gbpihed.gov.in).

strategies on shifting cultivators all over the world is worrying. Since at least in Asia most shifting cultivators belong to indigenous peoples the issue ranks top in the priority list for urgent advocacy during the preparatory processes for COP 15."

8. Recommendations

The main change in the project is that the research that was planned for India, will now be implemented Bangladesh. Although no project activities will take place in India, the project would like to build on the considerable expertise and experiences available there for the benefit of the project and regional sharing. This change has led to delays in the overall progress of the project, and is expected to have cost implications as well. ICIMOD is therefore preparing a revised project document with changes to the timeline and budget for consideration by IDRC. It will be submitted separately after consultation with the partners in Bangladesh.

Annex 1: Milestones for October 2008 till September 2009

The project milestones for the reporting period from October 2008 to March 2009 are:

a) Effective partnerships established for project implementation;

b) A work plan with clearly defined roles and responsibilities that address the research priorities of all three countries agreed upon through an inception workshop held at the beginning of the project; and

c) Draft research protocols developed by ICIMOD together with the local partners.

The project milestones for the reporting period from March to September 2009 are:

The report shall contain a reflection on research progress as well as an outlook into year 2 to cover:

a) Progress status on the common research protocols;
b) Documentation of partners trained where necessary;
c) Documentation of research workshops on (1) policy and tenure, (2) land use options, and (3) GIS and P3DM;
d) Documented policy dialogue engaged in, through participation in national policy events and networking in 3 countries, and synthesis by ICIMOD ;
e) Research findings and expertise shared regionally through the virtual network and Jhumia network.
f) Annual progress reports from each country and overall assessment of progress by ICIMOD as per agreed strategy (protocol) and according to IDRC template. The main report by ICIMOD shall contain per country reports as annexes on the following:
    (i) per country one study report on policy and tenure research work (protocol);
    (ii) per country one study report on land use options (protocol);
    (iii) per country one study report on GIS and P3DM as per strategy (protocol).

Annex 2: Guidelines for the situation analysis field work

Key words and leading questions:

These keywords and questions are for keeping in the back of your mind during the process. The baseline study report should reveal how much is known about these topics at the beginning of the project. Information should be gathered from the communities, the relevant government offices, and secondary sources, and the report can be organised according to the following keywords and leading questions.

1. Innovative land use options and approaches
    a. Which land use options and approaches are currently in practice and/or promoted in these shifting cultivation areas?
    b. How are the community members' experiences with that?
    c. Do they notice any climatic changes and how do they cope (now and in future)?
2. Access and control over land and natural resources (tenure-related)
    a. Which are the main natural resources that are important for shifting cultivators?
    b. Who has access and who has control over them?
    c. Are there any conflicting situations and how do they deal with that?
3. Institutional setup
    a. Who are the stakeholders in the shifting cultivation, within the community and outside, and what is their interest and role?
    b. What are the institutional arrangements to manage natural resources, labour and community affairs?
4. Shifting cultivation related policies
    a. What are the main policies and (government) initiatives related to shifting cultivation? (E.g. related to agriculture, forest, watersheds, land reform, and poverty alleviation)?
    b. Who are the main actors and institutions in the government, non-governmental sector and broader development community involved, and what is their role?
    c. How are the processes for policy dialogue, planning and decision-making, and implementation shaped (formal and informal)?

Agenda:

1. Community meeting (plenary)
    a. To explain why we are there, and about the project.
    b. Livelihood analysis (men's group and women's group)
    c. Well-being ranking (plenary) and how important is tseri for rich and poor?
2. Participatory rural assessment (PRA) exercises
3. Village transect walk (on land uses, boundaries, etc.) in 3-4 groups
4. Plenary meeting to present and discuss the results

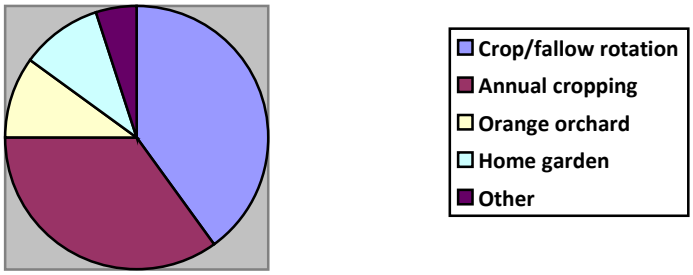
Group A: Land use options and approaches

Land use change from tseri to other uses

1. How was tseri practiced in the past? (explain that we mean the practice, not the land category)
2. What happened when the tseri land became registered in individuals' name, how did this change the way they practiced shifting cultivation?
3. What happened when tseri land became registered as dry land? Which land uses did they change to? (E.g. Dry land, horticulture, etc.)
4. What is the current practice in former tseri areas? (group discussion)
    a. How do they select fields/ how did they shift?
    b. How did they clear and burn?
    c. How did they do cultivation practices then and now (preparation of the field, seed sowing, etc.)
    d. How many years cropping and fallowing?
    e. Which crops are grown in tseri then and now?
    f. How is the production then and now?
    g. Fallow management?
    h. Soil, water and nutrient management?
    i. Livestock management?
    j. Labour management/ organization?
    k. How was food security and productivity then and now?
5. Out of the entire land they used for tseri in the past, how much percent is now under the following uses:
    a. Annual cropping (fallow for a season at the most)
    b. Shifting cultivation (used for crops in rotation with fallows of one year or more)
    c. Orchards
    d. Any other?
    e. How much was abandoned (no more cropping, even though it may be registered or not)?

    Here again we mean what they are actually doing with it, not the land category. It might be useful to make a pie-chart.

Land use change in shifting cultivation area



6. What are the different land uses, what is their relative importance (in terms of area and in terms of livelihood contribution) in the past and in the present? (Here you can make one list of the land uses in the past and rank them, and another list of land uses in the present, and rank them, and add whether their area is increasing or decreasing)

   For example:

Land use let them add and/or change	Rank in terms of area	Trend (increasing or decreasing	Rank in terms of livelihood dependency	Trend (increasing or decreasing	Main changes in operation/ management
Agriculture					
- home garden					
- rain-fed maize					
- orange orchard					
- crop/fallow rotation					
- etc.					
Pasture					
- improved pasture					
- tsamdro					
- etc.					
Forestry					
- private woodlot					
- community forest					
- sokshing					
- etc.					
Etc.					

7. What are the main changes going on within each of these land uses?
8. What are the best options (economically, environmentally and socially) for management of tseri converted dry land? If you get the additional land (access land), what will you do with it? (Try to get a discussion going between people who choose different options.)

Traditional knowledge and practices and farmer-developed innovations

9. How did you select the best land for conversion to annual cropping, orchard, pasture, etc.? What are the main differences between the converted lands and those still under fallow rotation? (E.g. in terms of proximity to the house/ village, slope, availability of water, etc.)
10. How did you manage to convert the shifting cultivation land into cropland, pasture, orchard, etc.?
11. Traditional knowledge and practices that are used in this village/ area? (on land quality, crops, crop protection, soil and water management, livestock management, etc., etc.)
12. Any more recent inventions and innovations developed by farmers in this area? How were they developed from past till now, updates, improvements, etc.?
13. How common are they in surrounding area/ rest of Bhutan? How are they spreading?
14. How widespread are these traditional practices? Are they spreading to other communities and how? How did these farmers learn about them?
15. What are the introduced options that farmers have adapted/ modified to the local context, improved, or added value to? How are they being promoted?

Climate change related questions

16. What is their overall perception about the climate change (e.g. rainfall, temperature, wind)? Do they think climate is changing?
17. Different natural calamities past and present and their affects? (flood, drought, landslides, storms, pest-disease infestation, other reasons for serious crop failure, etc.) Are they increasing /decreasing?
18. How do they normally cope with such situations, and how will they manage in future?

Land use related policies

19. What are the different policies that compliment /affect the land use system and options?
20. How well are the stakeholders (incl. shifting cultivations', extension services, civil society) aware of these policies?
21. How are these policies affecting them? Which ones are most difficult to implement?
22. What is their experience with how the government is implementing these policies?

Group B: Land and natural resource tenure and institutions

Customary institutions and practice of shifting cultivation

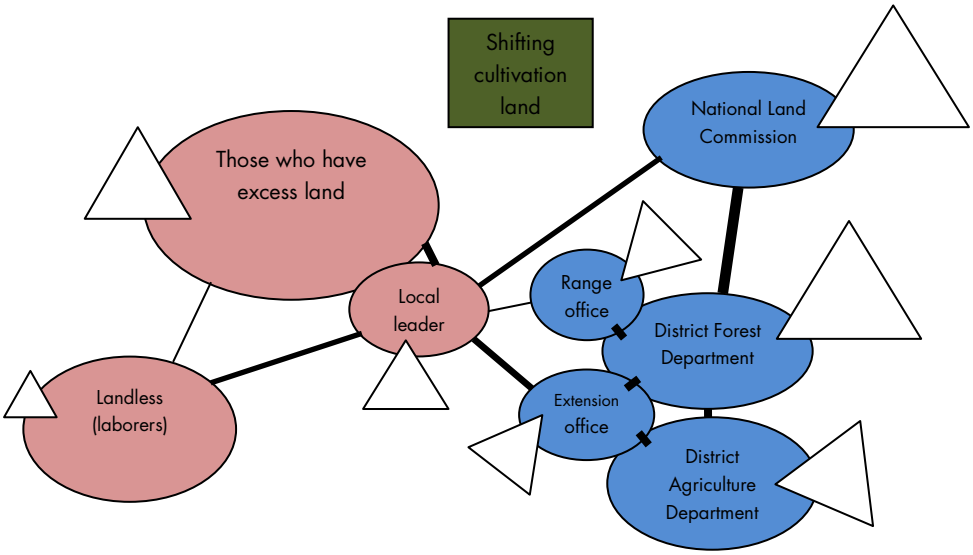
1. How was shifting cultivation practiced in the past?
2. How did they use to organise/ manage/ regulate the following in the past and how has it change now? What were the institutions involved, e.g. local customs, local rules, local leaders, festivals, etc.?
    a. Labour (individuals/ families/ groups, sharing/exchange, organisation and leadership)

b. Land distribution (organisation and leadership, borrowing/ renting/ inheriting, etc.)
c. Livestock (who did the herding?)
d. Conflicts

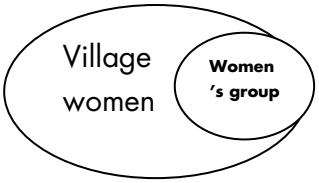
Interest groups and stakeholders

3. Who are the main interest groups/ stakeholders for shifting cultivation within the village and outside? (The following are some of the key questions to help identify interest groups/ stakeholders. Some of the questions may need to be asked to offices in the district headquarters and capital as well.)
   a. Who practice shifting cultivation and who do not? (Ethnic group, social status, gender, land tenure position, etc.).
   b. Who is most dependent on shifting cultivation?
   c. Who makes claims (customary uses) over the shifting cultivation land and resources? (These claims can come in many forms: by using the land for shifting cultivation (traditionally or currently), by putting in a formal request with govt. or forest dept., by campaigning for rights)
   d. Which organizations implement and monitor the application of the formal regulations related to shifting cultivation?
   e. Who are the people, groups, organizations most knowledgeable about shifting cultivation?
   f. Has there been a similar initiative or other projects in the region? If so who are they?
   g. Who has interest – or are in favour of – in pursuing shifting cultivation?
   h. Which institutions or group oppose to shifting cultivation? Why? Who may be negatively affected by shifting cultivation?

4. Which are the important stakeholders in the issue of shifting cultivation? How are they linked? Who is more/less powerful?
   Organogram (Venn-diagram):



a. Find key informants or representatives of different stakeholders
b. Make a list of all stakeholders from within and outside the village. These are organisations or groups who responsible & interested in decision making and actions in shifting cultivation. (see result of question 3)
c. Prepare circles made of card or paper in three different sizes, in two colours (one for insiders and another for outsiders), and triangles in three different sizes (same number to the circles). The circles show the stakeholder's importance, the colour shows whether they are from inside or outside the village, and the triangles how powerful/ influential they are.
d. Take the list of stakeholders, and start step 5 with insiders on one colour of paper, then repeat for outsiders on the other colour paper.
e. For each stakeholder, discuss and decide relative importance in terms of their involvement in the shifting cultivation. Choose a circle and write the name of the stakeholder on it. (Little importance (smallest circle), some importance (middle sized circle), or high importance (largest circle)).
f. Now organize and stick all the circles onto the flipchart according to relationships between them, closer the relationship, the closer the circles will be together. Circles should (partly) overlap if they concern the same people, eg.



g. Add lines between stakeholders to show their communication. You can give thick line to show good/ frequent communication and thin for weak communication.
h. To reflect the level of influence on the shifting cultivation, a triangle (small, medium or large) can be attached to each circle. Please note that some stakeholders can be very important, but have little influence, while relatively unimportant ones can be influential.
i. Finally, take a look at it in the group, and discuss the relative importance and influence of each stakeholder until a consensus is reached. Ask if any important stakeholders have been left out.

5.

Stakeholders/ Interest groups	**What is their interest?**	**How do they play their role and exert their power?**
For example:		
- land holders (who have a lot of "excess land")	- get their traditional lands registered without paying tax backlog	- negotiate their customary claim within their community - negotiate with the land commission officer
- labourers who work the shifting cultivation land	- higher daily wage, easier and safer work -	- work for those who provide best conditions
- forest department	- control "encroachment" of farmers in government forest	- patrolling - permits and fines
- etc.		

Natural resources, access and control

6. Which are the main natural resources in the village? (Please list them in the table below. Encourage them to mention the different resources as they see it, give examples only if they don't understand, e.g. various types of land, forest, livestock, water (drinking, and irrigation), crops (subsistence and cash), etc.).
7. Access and control matrix: who has access, who has control?

Resources	**Access**	**Control**

Tenure related policies

8. What are the different policies that affect the tenure of land and forest resources?
9. How well are the stakeholders (incl. shifting cultivations', extension services, civil society) aware of these policies?

How are these policies affecting them? What is their experience with how the government is implementing these policies? Which ones are most difficult to implement?

Annex 3: Preliminary findings from the situation analysis

Findings from Nepal: Makwanpur, Dhading, Gorkha, and Chitwan districts

Background

Shifting cultivation is and has been a principal livelihood for many of Nepal's indigenous nationalities, and is mostly confined to the steep slopes that are unsuitable for annual cultivation. It exists in at least 20 districts in various forms, depending on the locally prevailing landscape features and indigenous customs, and referred to as *khoriya kheti*, *bhasme* and/ or *lhose*. Several indigenous communities have been practicing this in an integrated manner for centuries, reflecting an adaptation to the problems posed to cropping by steep slopes and heavy seasonal rainfall. For many communities who are dependent on shifting cultivation, this type of steep land is the only land they can access. Population growth and reducing land availability have forced these farmers to shorten their fallow period in many shifting cultivation areas, in some places to the extent that cropping is virtually annual and farmers' livelihood and food security is under threat.

More than 100 caste and ethnic peoples inhabit Nepal, and 59 indigenous nationalities are officially recognized by the government. Most of them are minorities, and excluded in every sector of society. Among them, the Chepang are a highly marginalized indigenous people, who reside in Dhading, Gorkha, Chitwan and Makwanpur districts. They are directly and strongly dependent on forest and other natural resources for their livelihoods and cultural identity. The Nepal Chepang Association (NCA) is their official representative organization and works to promote their interests and rights. According to the NCA, more than 95 percent of the Chepang are without land registration certificate and almost all of the Chepang rely on their own food production only three months. For the remaining period, they depend on forest roots or fruits.

Many shifting cultivators manage their land communally through customary boundaries and institutions that are recognised within their own community. Stones, trees and other symbols are used to separate one family's *khoria* from other. Similarly, they have very informal ways of land renting. However, these customary arrangements are not recognised or understood by the government, so in many places tenure situation is unclear and many have no land titles. This too affects their livelihood and food security, as well as they way they manage their natural resources.

Research will make it easier for the government to understand some of the positive aspects of shifting cultivation and recognise beneficial practices and their role in people's livelihoods. Recognizing and appreciating local knowledge and system will in turn give more opportunities for gradual refinement and changes in the system. In the context of new constitution making

process in Nepal, it is strategic to raise the voice of the shifting cultivation with relating ILO 169.

Selection of the sites

Seven districts have been selected for this study, based on the following criteria:

- Areas where shifting cultivation is extensively practiced, with coverage of 3 development regions of Nepal (Eastern, Central, and Western), and including the practices of various different ethnic groups,
- Shifting cultivation areas where farmers are experimenting with innovative land use options, such as orchard management, hedgerow management, leasehold forestry and others.
- Areas with land tenure problems and/ or where the introduction of leasehold and community forestry by the government is conflicting with shifting cultivators' interests.

The situation analysis has been completed in four Chepang villages in four districts, including Makwanpur, Dhading, Gorkha, and Chitwan.

Land use system and innovative land use options

Five major types of land use systems were reported in the study areas, namely shifting cultivation, national forest, community forest, Rain-fed terraced land (bari) and leasehold forest (in order of predominance).

Farmers reported that after the introduction of leasehold forestry in the area has threatened their traditional shifting cultivation lands and use rights, because their shifting cultivation lands have been targeted by the programme. The main problem is that the leasehold forestry rules and regulations do not allow the cultivation of annual crops on the leased land. This would be acceptable if the land had prior been degraded forest land, but *de facto* it was their crop land, which they have cultivated on a rotational basis for centuries. Similarly, the community forestry programme is reducing farmers' access to land and other natural resources.

Some innovative options that the farmers are trying out on their shifting cultivation land are integrated hedgerow technologies, orchard management and integration of leguminous crops. All these are found to be well accepted by the local people, and can be considered as climate change adaptation strategies to regulate soil moisture and fertility, control erosion and landslides, and enable crop diversification.

Access and control over land and natural resources

The communities have identified the most important natural resources that they are using, over which they have various levels of access and control (see table 1). The major resources they are using are land, water, forest and forest products. In some of the resources they have

individual access and control where as there might be individual access but control by the community or group.

Table1: Access and control over most frequently used natural resources

Natural resources	**Access**	**Control**
Shifting cultivation land	Private or Group (based on customary rules)	Government, except where it is registered as private
Community forest (fuel wood, fodder forage, timber)	Forest user group (FUG) members based on their own defined rules	Forest users group
Leasehold forest	Leasehold group	Leasehold group
Rain-fed terraced land (bari)	Private	Private
Orchard	Private	Private
Drinking water	All	Water users group
Government forest (fuel wood, fodder, forage, thatch, timber)	All (only with special government permission)	Government
Wild foods	All	Government/ Community forest users group

The access and control of natural resources is heavily governed by the government policy and programmes. In people's perception, they used to have free access to natural resources in the past, but restrictions have come since the implementation of the revised Forest Act 2049. This especially concerns the access and control over shifting cultivation land.

Shifting cultivators have customary rules and regulations to manage the access and control of their traditional land, which are based on their cultural traditions and rituals. These are not recognised by the government, so customary access and control is directly affected by government regulations. According to the government, the shifting cultivation land is national forest when shifting cultivators do not have land registration certificate, which is in most cases. Several indigenous peoples' organisations, non-governmental organisations and international organisations are advocating and lobbying for the formal recognition of customary tenure. However, so far they have little influence on national policy.

Institutional setup

In the shifting cultivation issue, there are a number of different stakeholders inside and outside the respective communities. They have different interests, varying levels of power and influence, and their roles and functioning are guided by different policies, rules and regulations. The study shows that the shifting cultivators themselves are one of the most important stakeholders within the community, because their interest or stake in shifting cultivation is high, but their power in decision-making is low. Strong local-level customary

institutions exist, like the *bheja* group in Nawalparasi. They decide on the allocation of land for shifting cultivation, manage conflicts, and play an important role at weddings, funerals, and other social functions. They have high customary power and legitimacy, but are not formally recognised.

The Nepal Chepang Association (NCA) is another major stakeholder, which has Village Committees in most Chepang villages in Makwanpur, Dhading and Gorkha districts. They lobby and advocate for shifting cultivators rights at local and district level, and because of their strong network they have significant influence, despite low financial resources or recognition. Local and national-level NGOs working in shifting cultivation are another important stakeholder, although they too have little policy influence. The main NGOs working in shifting cultivation in the study areas are Local Initiatives for Biodiversity and Research and Development (LI-BIRD), Nepal Agro-forestry Foundation (NAF), Ecological Services Center (ECOS), Himalayan Community Development Forum (HICODEF), and Manahari Development Institute-Nepal (MDI-Nepal).

The forest department has its own formal institutional structure from national to local level, and formulates and implements forest laws nation-wide. As a stakeholder, it has strong and direct influence and its principle interests are forest conservation and community development.

Shifting cultivation and associated natural resources related policies

In Nepal, there is no specific policy on shifting cultivation, but the practice is affected by a diverse range of policies related to forest, agriculture and other associated natural resources. Among these, the most relevant acts are the Forest Nationalization Act (1957), the Land Act (1964, amended in 1997), the National Park and Wildlife Conservation Act (1973), the Pastureland Nationalization Act (1974), the Soil Conservation and Watershed Management Act (1982), the Land and Water Resources Protection Act (1982), the Mine and Mineral Products Act (1985), the Forest Act (1993), the Mines and Minerals Act (1994), the Forest Regulations (1995, amended in 1997), the Environment Protection Act (1996), and the Leasehold Forestry Regulations (2006).

During the implementation of the Forest Nationalization Act (1957), all uncultivated lands became government property, and allocated to forestry. This included fallows and forests that communities had held been under various forms of customary and formal tenure, but which were at that moment uncultivated. Shifting cultivators did not get any compensation for their loss of land during the enforcement of act. Similarly, the Forest Act (1993) brought the ownership of shifting cultivation land, lakes, rivers, streams etc. within the forest area, thereby restricting the access of communities and threatening their livelihoods. This act also provides legal authority on Forest User Groups (FUG) to control on the overall management of community and leasehold forestry activities.

The field study found that Chepang and Magar communities used to depend on shifting cultivation since many years, but they do not know the legal provision regarding shifting

cultivation land ownership. During the group discussions, farmers were asked about the different policies related forest and associated natural resources however none of the participants are aware about the policies and plans. Farmers expressed their dissatisfaction with the policy formulation process, mentioning that they were never consulted during the recent leasehold forest policy formulation process.

Findings from Bhutan: Mongar District

Farming systems in Bhutan can be classified into three subsystems: pastoral-transhumance system; subsistence-level crop and animal husbandry; and early commercial farming. Two types of shifting cultivation (Tseri) are practiced over extensive areas in Bhutan. The first is largely practiced in subtropical and tropical broadleaf forests and is called tseri, and the other type is found in temperate grasslands and is locally known as *pangzhing*. Together they account for about one-third of cultivated area nationwide, although its distribution is uneven, with particular predominance in the East and East Central regions. In 1984, a total of 40,600 ha of land were registered as *tseri* or *pangzhing* according to the land registration records (RGOB, 1986), but the interpretation of satellite imagery reveals that the actual area used for shifting cultivation used to be nearly three times higher or around 115,000 ha (Negi, 1983). According to the Home Ministry report to the National Assembly (1993), an estimated 25,126 households practiced tseri over 80,940 hectares to meet their living requirements, while the latest RNR survey (RNR statistics, 2000) estimates the total area under shifting cultivation to be 30,459 hectares in 2000.

The Royal Government of Bhutan promotes agricultural development with intention to address farmers' best interests and meet nature conservation goals at the same time. The perception by many that shifting cultivation is universally unsustainable, being unproductive and wasteful of natural resources, has led to concerted government efforts to discourage the practice, which started with the Forest Act of 1969, and the National Forest Policy (1974) stating that "the practice of tseri cultivation has to be abolished if the forests have to be conserved." Nowadays, under the Land Act 2007 both tseri and *pangzhing* have been abolished as land categories and the land is re-categorized as either dry land (*kamzhing*) or (government) forest land. At the same time, the forest department has decreed that any land that is "overgrown with trees" will revert back to the government Reserve Forest. Despite these government efforts, field observations reveal that fallow rotation (an intrinsic part of shifting cultivation) is still practiced in many places around the country, so it is not clear how these policies have impacted actual land use and livelihoods of farmers on the ground.

Site selection

The research sites were selected according to the following three criteria:

- Prevalence of *tseri* in the district (as per RNR Statistics, 2000)
- Regional representation

- Prevalence of *tseri* at *geog* level
- Field observations of where fallow rotation is still currently practiced

The situation analysis has so far been completed in the two neighbouring *geogs* of Gongdue and Silambi in Mongar district. A *geog* is the lowest administrative unit.

Land use system, innovative land use options and approaches

In Bhutan, shifting cultivation is called *tseri*, although most people understand tseri to be the land category under which shifting cultivation land used to be recorded in the land records. That is why many will say that shifting cultivation no longer exists in Bhutan, even though the actual practice is still there. As per the Land Act 2007, *Tseri* as a land category no longer exists, and all shifting cultivation land now comes under the category of "dry land", meaning rain-fed crop land. This is except those areas that were overgrown with trees, which have reverted back to government ownership. At the same time, the government's extension services are helping the farmers to intensify their shifting cultivation, and turn it into annual cropping. However, this is a slow process of trial-and-error that can only be achieved in the more productive and less steep parts of the shifting cultivation land. Therefore, it is unknown how much of the shifting cultivation land has been converted, what happened to the shifting cultivation in the remaining parts, or how these policies have impacted farmers' livelihoods. Field observations reveal that fallow rotation (an intrinsic part of shifting cultivation) is still practiced in many places around the country.

In the past, the communities in the study areas were almost completely dependent on shifting cultivation, with some limited availability of irrigated land for rice terraces (called wet land). In recent times, however, they are converting their shifting cultivation to other land uses, mostly annual maize cultivation, orchards (mostly citrus), and home gardens. Part of the land is still under some form of shifting cultivation, and fallowed for 1-2 years depending on the land availability. These days, the permanent dry land is their prime source of livelihood and food security. Second is citrus cultivation, which is considered to be a viable option and an important source of cash income. Farmers have planted citrus in the sloping and less productive areas of their former shifting cultivation land, and used the better areas for their staple food production. Citrus is further grown in orchards, and intercropped in home gardens and other areas.

Several innovations have been introduced and put in practice by the farmers. They construct stone wall fencing to protect their crops from both domestic and wild animal damage. They also use live fencing with valuable tree species serving as protection as well as producing flowers that can be used as vegetable. *Erythrina* species are also used commonly as live fencing. Extension services have introduced contour bunding and stone terracing which farmers have adopted in many places.

Indigenous practices include the spreading of ash around their farm land to prevent the entry of wild animals, especially the porcupine, because its white colour distracts them. However, it is a temporary measure lasting for few days only. Scare crows using old tattered clothes and

shaped like humans are a common sight, and used to drive away the wild animals like monkeys and deer. In-situ manuring (tethering cattle in the field) is common as well. To control fire in shifting cultivation, they make a fire line of two meters around the field and study the wind direction before setting fire. If the wind is blowing from below, they will set fire from above the field to minimize the risk of fire escaping in the forest. All the process is managed by the group members collectively.

Land tenure and access and control over land and natural resources

Before the first cadastral survey (1960s), most land had been managed in a group system, where the communities organised themselves in groups who each chose an area to be cleared and cultivated. The area to go to was not fixed, nor was the group composition, although the groups of one village usually stayed nearby each other, and it was clear which areas they could access and which belonged to other villages. The areas were spread over a vast landscape, even into what would now be a neighbouring *geog*, and not contingent.

At the time of first cadastral survey during 1960s, farmers were informed to register their *tseri* land in their respective *thram* (their official land record), so the tseri land that was operated by group at different location had to be divided into individual shares. They resolved this issue by discussing the individual shares and imaginary boundaries amongst the members of the group. The leaders also played an important part in the allocation of land to each person without conflict. During the cadastral survey and subsequent registration process, if a particular group wished to register tseri as a common property, a common *thram* was issued by the government, reflecting the names of all group members.

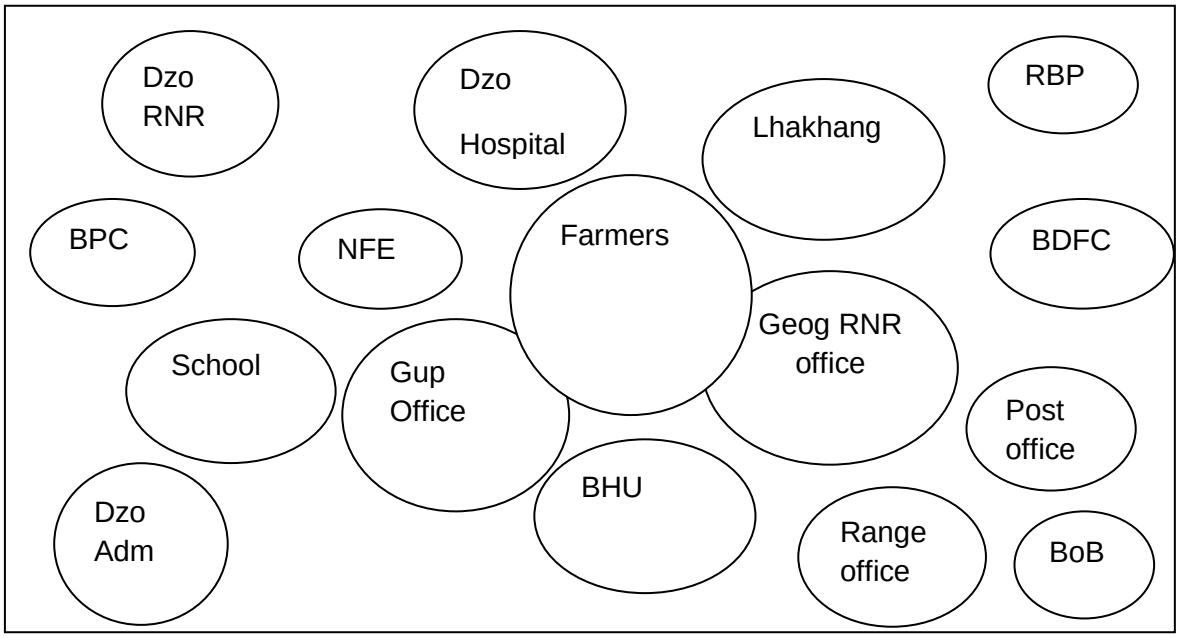
Access and control over the natural resources depends on the resources type. People have very good access to various resources, but the control is usually with a dedicated group and/ or the government. Table 2 shows the access and control over important natural resources that majority of the people are using in the study sites.

Table 2: Access and control over most frequently used natural resources

Natural resources	**Access**	**Control**
Dry land	Private	Private
Orchard	Private	Private
Community forest (if present)	Users group	Users group
Government forest	All	Government
Shokshing	Individual	Government
Tsamdro (natural grazing land)	Communal	Government
Improved pasture	Private	Private
Drinking water	All	Water Users Association
Fuel wood	All	Government
Bamboo in private land	Private	Private
Wild vegetables	All	Government

Institutional setup

Stakeholder analysis was carried out to identify and assess the importance of key people, groups of people, institutions and organisations that influence farmers in their daily lives and in decision making process. These organizational linkages also indicate farmers' access to avail services for various purposes. In the organogram, farmers are a primary stakeholder. They have little power, despite having a significant role in the issue. The Venn-diagram below shows the main organisations in a *geog*. Their importance in the day-to-day lives of the farmers is reflected in the size of the circle. In general, in all the study sites farmers are more attached with *gup* office (administrative office) and *geog* RNR office. This exercise found to be very important to know the cohesiveness of the community, and to determine whose interests should be taken into account when developing and/or implementing any program in the later stage.



Abbreviations: NFE- Non- Formal Education, RNR = Renewal Natural Resources, BHU = Basic Health Unit, RBP = Royal Bhutan Police, Dzo Adm = Dzongkhag Administration, BPC= Bhutan Power Corporation, BoB = Bank of Bhutan, BDFC= Bhutan development Finance Corporation

Shifting cultivation and associated natural resources related policies

There are a number of policies, plans, laws/acts, strategies and rules and regulations related to shifting cultivation and associated natural resources (see table 3). The important ones, which are directly linked with the shifting cultivation, are Forest Act of 1969, the National Forest Policy (1974), and the recent Land Act of Bhutan (2007). The Forest Act (1969) and the National Forest Policy (1974) state that, "the practice of tseri cultivation has to be abolished if the forests are to be conserved." Nowadays, under the Land Act 2007 *tseri* (shifting cultivation) has been abolished as land category and the land is recategorized as either dry land (kamzhing) or (government) forest land. At the same time, the forest department has

decreed that any land that is "overgrown with trees" will revert back to the government Reserve Forest.

Table 3: National policies/plans, laws/acts, strategies, rules and regulations related to natural resources

Policies/plans	**Laws/acts**	**Strategies**	**Rules and regulations**
• National Forest Policy 1974; • Draft National Forest Policy 2009 • Five Year Plan for agriculture from 1st – 10th • Draft Pasture Policy 1992 • National Assembly resolutions of 1993 (74th session?) • Water policy 2007/08	• Forest (and Nature Conservation) Act 1969; 1995; • Land Act 1979; 2007 • Thrimshung Chenmo 1952 • Constitution of Bhutan 2008 • Draft Water Act 2007/08 • Cooperatives Act 2006/7 • National Environmental Protection Act 2007 • Biodiversity Act 2003	• Bhutan National Food Security and Strategy Paper (BNFSSP), 1995 • Guidelines for Cadastral Survey • Non-Wood Forest Products (NWFP) strategy • Sustainable Land Management (SLM) strategy	• Forest and Nature Conservation Rules version 1995 and 2006 (find out more) • Rules and Regulations of Land Act 2007