THE ROLE OF INSTITUTIONS AND TENURE SECURITY IN SHIFTING CULTIVATION

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1. Introduction

Shifting cultivation is a dominant land use across the eastern Himalayas starting from Nepal, through Bhutan, to the Chittagong Hill Tracts and the Northeast India. While estimates from other countries are not available, it is estimated that in India alone 10 million hectares of land is under shifting cultivation. It is mostly the indigenous communities that practise shifting cultivation. Tenure of shifting cultivation land and the associated natural resources is largely governed by the customary institutions. In some cases, for example Bhutan, formal laws govern the tenure.

Policy makers continue to perceive shifting cultivation as an outdated, destructive and unsustainable practice. This perception has led governments to decree policy to transform shifting cultivation into permanent or sedentary agriculture (Darlong 2004). Governments provide support to promote horticulture, sedentary agriculture, community forest, etc. on the shifting cultivation land. In India individual ownerships of shifting cultivation land under permanent cultivation such as wet rice cultivation, terrace lands, orchards, gardens, etc. are on the rise (Darlong, 2004). In Bhutan government has decreed a policy to convert shifting cultivation land to dry land farming. In Nepal, shifting cultivation is not recognized as a legal land use category and leasehold forestry promoted in its place. In Bangladesh, government policy supports conversion of shifting cultivation land to orchards, and forest and commercial plantations. In all the countries public investments continue to expand road networks to link shifting cultivation areas to the market.

Converting shifting cultivation land to other uses involves a long-term investment. To secure long-term investment, individual users appropriate the communally-owned shifting cultivation land. Where individuals own shifting cultivation land customarily, conversion of shifting cultivation land to other uses, such as leasehold forestry, deprives the individual owners of their customary tenure rights. Where shifting cultivation land is converted to dry land farms the owners are deprived of tenure rights of a portion of the land overgrown with trees.

The researchers and development workers now hold a perception that transforming shifting cultivation land to other uses has undermined the effectiveness of the customary institutions in governing the tenure of shifting cultivation land. Tenure insecurity of shifting cultivation land is on the rise in the case of communally-owned shifting cultivation land. In all the cases less land is available for shifting cultivation *per se* and the fallow cycles have been shortening. Invariably, conversion of shifting cultivation land to other land uses has created a tenure insecurity making shifting cultivation land use unsustainable.

Concepts relevant to this research are presented in the appendices starting from A through G. These appendices are intended to prepare the researchers conceptually and make them adept in planning and implementing the research.

2. Research Objective and Questions

The objective of the study is to find out how transformation of shifting cultivation land to other uses is making shifting cultivation land use unsustainable. The following research questions will be investigated to achieve the objective:

1. What are the policies and implementation mechanisms related to shifting cultivators' tenure of land and national resources and the institutions regulating them, and what is their impact on tenure and customary institutions?

   1.1. What are laws, strategies, policy and legal instruments that regulate and affect shifting cultivator's tenure over land?
   1.2. What are laws, strategies, policy and legal instruments that regulate and affect shifting cultivator's tenure over natural resources (water, Forest resources and other services)?
   1.3. What are laws, strategies, policy and legal instruments that regulate and affect customary institutions?
   1.4. What are the government organizations (macro, meso and micro) that deal with shifting cultivation, and their relationships?
   1.5. What are the perceptions of different stakeholders on these policies, and the way they were formulated and implemented?

Stakeholder	Formulation & Process	Relevance	Interpretation
Shifting cultivators			
Policy makers			
Administrators			
Others			

   1.6. What are the direct and indirect impacts of those policies on tenure of land and other resources?

	Direct	Indirect
Land tenure		
Tenure over other resources		

   1.7. Are there any international conventions/ treaties that (can) affect policies, and the way they are formulated and implemented?
   1.8. Are there any local movements, advocacy initiative, etc. that (can) affect policies, and the way they are formulated and implemented?

2. What are the formal and customary institutions that regulate land use and natural resource tenure, and why and how are they changing?
   2.1. What are the different customary institutions prevalent in the project areas?
   2.2. How have the customary institutions changed from the past, in terms of their roles and structures, and why? And are there any past customary institutions that no longer exist now?
   2.3. What are the changing relationships of customary institutions to/with other formal/informal institutions?
   2.4. What is the effect of this change on land and natural resource tenure and land use?
   2.5. Are there any changes in land use that have affected the customary institutions on tenure of land and natural resources?

The research will be carried out in the most predominant shifting cultivation areas of Bangladesh, Bhutan and Nepal.

3. Method

The method will include literature review and field surveys. The literature review will focus on the review of the formal policy documents and informal policies affecting the customary institutions that govern the tenure of shifting cultivation land and the associated natural resources. It will also cover the review of documents related to the implementation of the policies.

The field surveys will focus on the assessment of actual change of the customary institutions and tenure of shifting cultivation land and the associated natural resources caused by the implementation of the policies. Survey sampling will be designed, sampling process will be followed, and data will be collected from the field.

Detailed methods that will be applicable to this research is presented in the appendices, from H to M, under the methods.

4. Results

The field data will be treated statistically. The research results will be analyzed and presented.

5. Discussion

An analytical and logical discussion will be presented along with the findings.

6. Conclusion and Recommendation

Conclusion and recommendations will be made.

I. Concept

APPENDIX A: Context of research

This research protocol is part of the "Regional Project on Shifting Cultivation (RPSC): Promoting Innovative Policy and Development Options for Improving Shifting Cultivation in the Eastern Himalayas", in Bhutan, Bangladesh, and Nepal with financial support from the International Development Research Centre (IDRC). The project aims 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 tenure security. It works through three approaches: (1) Engaging policy and decision makers in dialogue; (2) Regionally comparable interdisciplinary research; and (3) Regional sharing and exchange. The research will focus on the policy as well as the community-level.

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

Research protocol

This research protocol describes research questions (or hypotheses), their justification, the underlying concepts and theories, and the research methodologies used to answer them. To have a common protocol for research in different countries and situations means to ask the same questions and apply the same methodologies in each of the countries and sites, even though the answers and findings may be very different according to the local situation. The assumption is that there are common issues underlying each of the situations, which need to be studied under different circumstances. The common protocol makes the research findings from each situation comparable with the others, so we can learn common lessons across the region from the different situations. This is especially advantageous for policy research, because the same policies usually apply to the entire country, and it is difficult to change that for the sake of an experiment. By comparing situations in different countries, various policy options can be assessed.

- How they are relevant to/ important for the research
- How the concepts fit together
- Definitions and meaning of key terms (annex)
- How to research that aspect (methodologies and tools)

Justification: country situations and issues

Bhutan

Two types of shifting cultivation are practiced over extensive areas in Bhutan. Tseri is largely practiced in subtropical and tropical broadleaf forests, and pangzhing is found in temperate grasslands. Together they account for about one-third of cultivated area nationwide. The Royal Government of Bhutan promotes agricultural development with intention to address farmers' best interests and meet nature conservation goals at the same time. A major government concern is to maintain 60 % forest cover for all times,

the actual cover is more than this at the moment, and the shifting cultivation is seen as a threat to forest cover and biodiversity. Government efforts to discourage shifting cultivation 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 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, there is still fallow rotation in places around the country, so it is not clear how these policies have impacted actual land use and livelihoods of farmers on the ground. The shifting cultivation in Bhutan is practiced in remote areas on the steepest, most rocky lands, which are prone to landslides. Depredation from the abundant wildlife, especially wild boars, is also a problem, because the shifting cultivation lands are furthest from the homestead and nearest to the forest.

Many questions remain on what is happening with shifting cultivation and what can be done for the farmers. There are various issues that need to be looked at in detail and from various different perspectives. How far have the improved technologies, different land use options and approaches that were promoted after the ban on shifting cultivation practice really tickled down to the shifting cultivators? What about their household food security and livelihood situation in the past and now? Do the policy makers, local administrators and agriculture extension operate in harmony to address the genuine need of these cultivators? And finally, do the current project and the partners involved in the project address issues and concerns of these shifting cultivators so that they can live better?

Bangladesh

In the Chittagong Hill Tracts of Bangladesh, there are 11 ethnic groups who all practice shifting cultivation traditionally under various customary forms of common property tenure. The headmen and karbaris are the customary village leaders, whose responsibility for land management and tax collection has been formally recognised in the Chittagong Hill Tracts Regulation, 1900. At district level, there are the Hill District Councils (HDC) and the overarching Chittagong Hill Tracts Regional Council (CHTRC) that have come into place since the Peace Accord of 1997 to represent the indigenous peoples of the CHT and control the natural resources. These days there are many stakeholders in natural resource management (NRM). The government has resettled a large number of people from other parts of Bangladesh in the CHT, with help from the army, thereby increasing the population pressure and overexploitation. These outside settlers do not know the land, and they don't practice shifting cultivation. As a result, they have negative impact on the natural resources. The Forest Department's official aim is to protect the forest, but its interest is to control as much forest land as possible and establish commercial plantations. Other organisations are the Union Parishads (lowest administrative unit) and NGOs, who have a positive role in NRM. The Ministry of Chittagong Hill Tracts Affairs (MoCHTA) and the Ministry of Forest and Environment (MoFE) have a positive but very minor role in NRM. The main issue is to get more in-depth on the interests and roles of all these stakeholders in NRM and shifting cultivation, and try to generate more constructive collaboration towards a common goal.

Nepal

Shifting cultivation has been a principal livelihood for several of Nepal's indigenous nationalities, including the Chepang, who have been practicing this in various forms in an integrated manner for centuries. More than 100 caste and ethnic groups inhabit the country, and 59 indigenous nationalities are officially recognized by the Government of Nepal. The Chepang are a highly marginalized indigenous people, and 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.

Land tenure is a major issue for Nepal's shifting cultivators, which affects their livelihood and food security, as well as they way they manage their natural resources. Many shifting cultivators have managed their land communally for centuries through customary boundaries and institutions that are recognised within their own community. 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. For example, 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, and on forest roots or fruits for the remaining period.

Current policies and programmes of Nepal Government in which shifting cultivation is directly or indirectly discouraged include those related to land and land management, community and leasehold forestry, nature conservation, watershed management and agriculture. The government is implementing various programmes in the Chepang communities, with the understanding that shifting cultivation should be eradicated, and without consulting them. This is causing problems for the farmers for whom shifting cultivation is their traditional agriculture system and a major source of livelihood. They feel they have the rights to practice it, and that the policies and programmes on which they were not consulted are unacceptable. Nepal is one of the signatories of ILO Convention 169 on Indigenous Peoples, but there is still a lot of advocacy work required to make them implement it. Some of the research and development organisations who are working with the Chepang take a more positive and constructive approach to make improvements within the system. The conclusion is that there should be multi-stakeholder consultation and participation while formulating and implementing any policies that are relevant to shifting cultivation system and shifting cultivators.

- situation of partners themselves, are they government, NGO, CBO – this affects their access to information and role they can play or not play, as well as their perspective on the topics and the way ahead for shifting cultivation.
- show similarities and differences in the situations

APPENDIX B: Shifting cultivation development and adaptive management

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. The discussion about shifting cultivation is often dominated by people who over-romanticise and those who blame it outright for many problems, both based on a limited understanding. It is such people who would say "shifting cultivation is banned, so we cannot work on it", or "shifting cultivation is too sensitive…". The way to deal with that is to take the objective and practical approach that this project has adopted, and intends to maintain.

Shifting cultivation as we see it

The term shifting cultivation covers a diverse range of farming systems practiced in various ways across the Eastern Himalayan region, including in Bangladesh, Bhutan, China, Myanmar, Nepal and North East India. In its traditional forms, there are certain basic components that are always part of these systems. Nowadays, however, most systems have been subjected to change, so there are many new modified forms, as well as so-called distorted forms where farmers are unable to maintain their traditional practices, but innovations fail to succeed.

The best known components of the shifting cultivation farming systems are the slashing and burning, but that is by far not all. It is important to know that most shifting cultivation systems are managed at the landscape level, especially traditionally, rather than by households individually. Shifting cultivators rotate their crop fields, and allow forests to grow in these areas during the fallow phase. These fallows are not 'abandoned' land, as is often thought. They play an integral role in the system, for soil conservation, control of weeds and pests, and they provide a range of livelihood products. Shifting cultivation is strongly linked with the indigenous knowledge and culture of its practitioners. These indigenous communities manage their land and natural resources under customary common property regimes, which are governed by time-tested traditional practices. Other salient features are high diversity in wild and agricultural products, and the maintenance of community-protected patches within the village landscape on strategic locations.

So how can we understand shifting cultivation in its changed forms? If the fields don't rotate anymore, can you still call it shifting cultivation? If the farmers have diversified their livelihood options, can you still call them shifting cultivators? Many shifting cultivation communities have reached a state of limbo, where traditional practices have ceased to exist, but what has come in its place is not working. They can't return to the way it was, nor find ways to improve their current situation. The issues they have been facing since the past are still there: steep land, unclear tenure, they may have stopped fallowing, but what if nothing has replaced its function? In many areas, the forest fallows are no longer what they used to be. Reduced land availability has caused a reduction of fallow phases, and some areas are not fallowed at all anymore. But does that mean we can now treat them the same as settled farmers? The fallow function is gone, but what has come in its place? Considering the steep and marginal lands they have, it is difficult to find good practices that can compensate for the loss of fallow period.

This research sets itself apart from other natural resource management by recognising that shifting cultivators face different challenges and have different opportunities than other mountain farmers. It is based on the following principles:
Those who prefer to practice shifting cultivation should be allowed
They should receive the R&D and policy support they need, which is different than for other farmers.
Don't replace shifting cultivation, but improve it for the benefit of all
Build on farmers' own innovations and good traditional practices

Change and challenges

Several drivers of the changes in the shifting cultivation systems can be identified, including pressures from outside, as well as changing needs of the shifting cultivators themselves. Population pressure is the first challenge that comes to mind, but it is not just the shifting cultivators' communities themselves that are growing. Looking at the increased pressure on land everywhere, people feel that shifting cultivation is no longer suitable, nor acceptable, but converting it to more intensive agriculture or forestry is easier said than done. The drive for nature conservation, and expansions of the protected area network, are more prevalent in shifting cultivation areas, which are on the forest margins and rich in biodiversity resources. These have also reduced the land available for agriculture.

In the current climate change debate, opposing views are arising again.
In the age of global climate change, resource use and management practices that rely on the use of fire and thus emit carbon are coming under increased pressure. This is particularly the case with shifting cultivation. As mentioned before, the there are strong and conflicting views on the merits and harms of shifting cultivation, and the same discussion prevails in the current climate change discourse, reinforcing existing prejudices, laws and programs with little concern for the people affected by them. Now, shifting cultivation is bad because it causes carbon emission and thus contributes to climate change.

Mr. Christian Erni, Asia Coordinator of the International Work Group for Indigenous Affairs, notes that: "The potential impact of an inclusion of shifting cultivation as a "major driver of forest degradation" (or even deforestation) in global and national REDD 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." On the other hand, Ms. Janis Alcorn raised the topic of REDD payments for shifting cultivators on the discussion list of the IUCN Commission on Environmental, Economic and Social Policy (CEESP). She writes: "This REDD scenario opens a new path that entails recognizing and respecting the positive values of swidden and swiddening communities unappreciated in the past. When this path is not taken, REDD can threaten the forest as well as the livelihoods, food security, and rights of millions of forest-dependent peoples and communities."

Economic forces, broadly captured under the term globalisation, work both ways. Countries' economies are increasingly taken up in the world market, which has its impact in shifting cultivation areas as well, where the promotion of horticulture and forestry plantation is on-going. At the same time, the communities' needs are changing. The need for cash and income diversification, the need for access to for health services, and education, and for many the unceasing desire to escape poverty.

Shifting cultivators, their governments, 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.

On the ground the change is obvious in the landscape, but also 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.

Why research tenure and institutions, and how? Analytical framework

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, such as the case presented in the box.

Figure 1 shows the framework for analysing this problem. On one side are the farmers and on the other the decision-makers, mostly from governments, but also at the international level and local or district levels. They both manage the natural resources in shifting cultivation through their own institutions, and they have institutions that connect them with each other. These are the institutions that regulate the tenure and management of shifting cultivation resources. They can be formal or informal, customary, or traditional or new, and they exist at community, district, government, and international-level.

The institutional setup is often unclear and leaves a lot to be desired. Adaptive learning and management can support better collaboration in land use planning and management between farmers and their governments. Such an approach should be based on:
- Common views and understanding,
- Participatory learning and research,
- Collaborative action,
- Joint decision making and negotiated agreements, and
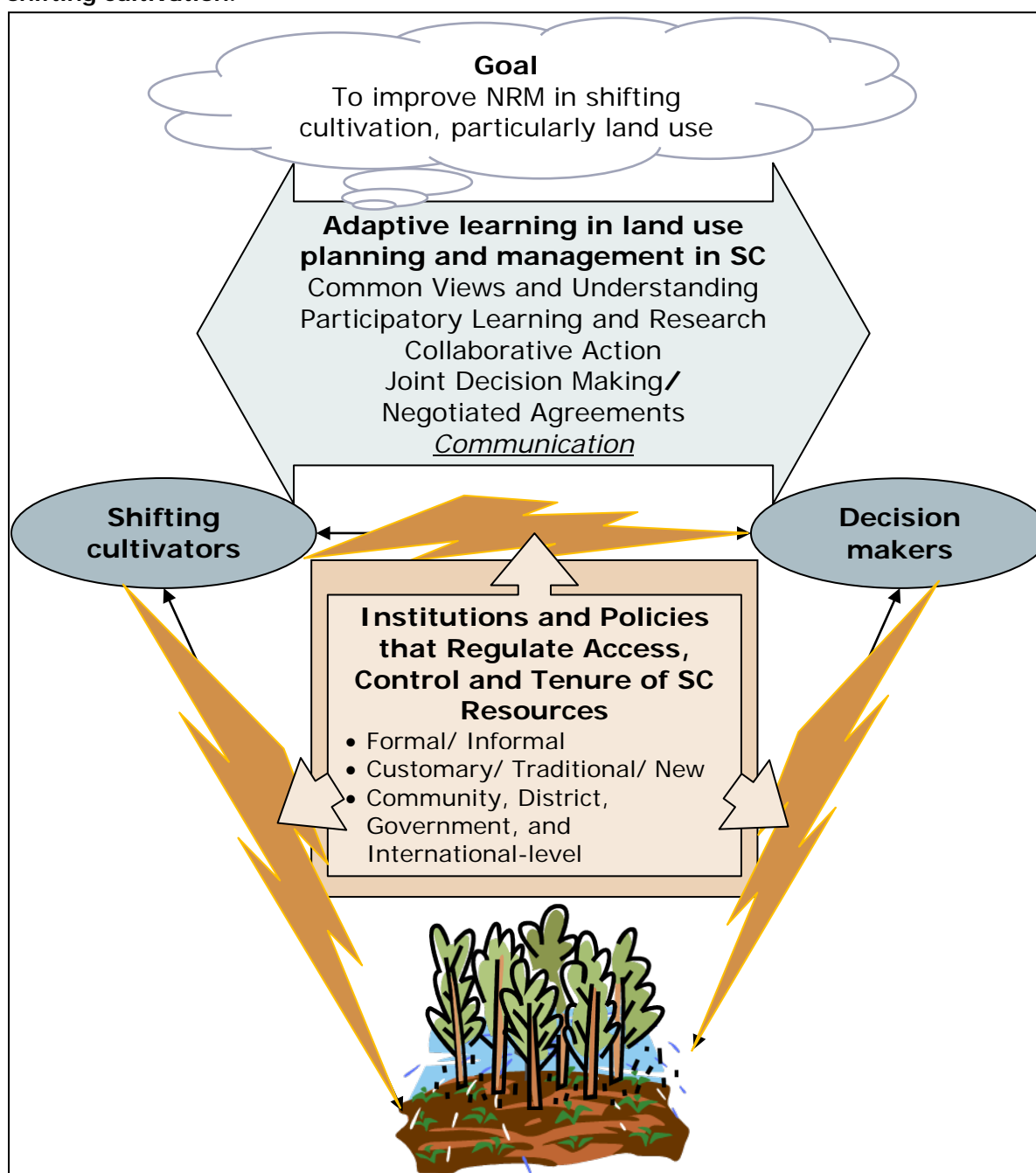- Improved communication.

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?

Tenure: which boundaries?

This picture clearly shows the difference between the officially recognised land ownership (yellow area) and what the farmers consider as actually theirs traditionally, which includes the purple area.

Figure 1: Analytical framework on adaptive learning in tenure and institutions in shifting cultivation.

Goal
To improve NRM in shifting cultivation, particularly land use

Adaptive learning in land use planning and management in SC
Common Views and Understanding
Participatory Learning and Research
Collaborative Action
Joint Decision Making**/**
Negotiated Agreements
Communication

Shifting cultivators

Decision makers

Institutions and Policies that Regulate Access, Control and Tenure of SC Resources
- Formal/ Informal
- Customary/ Traditional/ New
- Community, District, Government, and International-level

Adaptive learning and management

Why adaptive learning and management in shifting cultivation? Communication and collaboration between farmers and governments is a challenge in all communities, but especially for shifting cultivators, because they are in the most remote areas, and because the views on its future are most conflicting. Collaborative and adaptive management has benefits in shifting cultivation areas. Being adaptive, it allows for building on traditional knowledge and customary practices, while opening the way for meeting new challenges through participatory action research.

Adaptive and co-management are learning by doing, so research together with implementation. In the land use options research this can be action research on land use and innovative economic institutions. In the tenure and institutions research, it can focus

on the negotiated agreements, and decision-making processes and institutions. The discussion on who owns, controls, and accesses the co-managed resource is an important part of co-management (Borrini-Feyerabend et al 2004).

Adaptive and co-management

Collaborative or co-management of natural resources is described as 'A situation in which two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources (Borrini-Feyerabend et al 2000). Theoretically, co-management may mean collaboration between any two or more stakeholders, but most often it is understood to be between communities and governments.

Adaptive management of natural resources is a management approach that is based on where implementing and learning go together, so the managers can adapt to specificities in the local situation. In other words, it is an approach to understanding and practicing collaborative management that is based on the recognition that the management of natural resources is always experimental, that we can learn from implemented activities, and that NRM can be improved on the basis of what has been learned. The central tenet of adaptive management is an open, investigative and analytical attitude, which will be fostered with government and research & development agencies.

Adaptive management is especially relevant in the management of shifting cultivation farming systems, because of the wide diversity in agro-ecological and socio-cultural aspects that has to be dealt with. Each ethnic community traditionally practices its farming in a different way, and as these are mountain areas, agro-ecological diversity is strong. Furthermore, there is a need for communities and other stakeholders (e.g. government departments, companies and the NGO-sector) to learn to work together towards better management. This collaboration can only be achieved if all actors show an interest in each other's approaches and are willing to adapt their ways to come up with a joint approach.

The collaboration can be facilitated through multi-stakeholder processes, defined as 'processes that bring together all major stakeholders in new forms of communication and decision-finding (and possibly decision-making), recognise the importance of equity and accountability, and the democratic principles of transparency and participation (Hemmati 2002)

In the case of shifting cultivation there is one disadvantage of the co-management concept in that in many parts, the management is now largely under community-only control. Therefore, if co-management is promoted, farmers may see this as a way for governments to increase their control. In India and Nepal, this issue has arisen when community forestry and joint forest management were promoted, which has not been successful. Therefore, in those situations where communities themselves are largely in control, we prefer to promote a community-based approach to natural resource management in shifting cultivation, in which the supportive role of governments is enhanced, but not necessarily their control.

At the same time, inequitable access to natural resources and environmental degradation cannot be addressed without significant and durable changes in the distribution of power in society. Management approaches and resource access are to a large extent the result of political choices and processes. Thus, making co-management work requires dealing with the regional, national and international contexts, crucial determinants of which are legislation and policies (Borrini-Feyerabend et al 2004). In the case of shifting cultivation in the Eastern Himalayas, the detrimental role of the policy environment in community resource management is particularly pronounced and the failure current policies increasingly recognised.

According to Borrini-Feyerabend et al (2004), problems often arise when change is imposed by force or is hurried through, without the benefits of slow advances and testing through time." (p. XXVIII) "Customary and community-based rights and traditional NRM systems have been overlooked, negated or simply crushed in the name of the "higher" goals of modernisation and development" (p. 16). In the eastern Himalayan countries, such "higher" goals are to maintain forest cover, biodiversity conservation and more recently mitigation of climate change.

Most NRM systems of contemporary indigenous and local communities are puzzles of old and new knowledge and practices, tools and values of different historical and cultural origin." (p.33) Indigenous knowledge and practices, and the new economic, political and environmental conditions in which indigenous knowledge and know-how exist today, are important to consider. The resilience of livelihood systems depends on them in the face of changing conditions (p.35),

Collaborative management projects present opportunities to engage a multiplicity of social actors in a dialogue and joint action-research about natural resource management" (p.35) "When the dialogue and action research are conducted with equity and integrity, they can produce concerted agreements and institutions capable of meeting the challenges of modernisation through the wise merging of features of different historical and cultural origins (p.36).

The following are possible first steps to establish collaborative management, to which the planned research can contribute:
Identify the management unit and main social actors with interests, concerns and capacities to manage it; (this can start from a natural unit or a social unit)
Re-assess together the need and feasibility for co-management in the specific context and for the specific unit;
If co-management is found to be needed and feasible, identify the human and financial resources available to support the process;
Establish a "start-up team" to promote and facilitate the process up to the setting up of the multi-party negotiating forum.

Adaptive learning

The key recommendations on adaptive learning that have emerged from a review of IDRC-supported research projects on community-based natural resource management over the past decade are:

1. Put people at the centre. Participatory action research leads to positive changes that could never have been imposed from outside. Solutions to rural poverty and natural resource degradation should be driven by the knowledge, experience, learning, and action of local resource users.
2. Learn by doing. In the development and introduction of resource-management strategies, knowledge gained by the resource users through practice and application should be matched with knowledge acquired by formally trained researchers.
3. Help communities secure their access to natural resources. Co-management arrangements should begin with efforts to ensure that local people's rights to use natural resources are recognized as legitimate and guaranteed by law. A key challenge is to ensure secure collective tenure for the common pool resources that are essential to the livelihoods of poor rural people but hard to manage.
4. Build new institutions for resource management. Effective management of common pool resources depends on collective action, which in turn requires institutions and new forms of governance. Local organizations can contribute to these innovations, but they rarely take shape by themselves. Outside technical advice and support will usually be needed.

5. Deliver early returns on livelihood priorities of the poor. Community and organizational development is a long-term process based on the trust of local people. External facilitators can build local commitment and demonstrate the potential gains from resource co-management by improving poor people's livelihoods quickly.

6. Build linkages and networks. Direct creation of local organizational capacity is essential. But community groups involved in resource co-management require much broader support than that. They need to build capacity in areas such as public awareness campaigning, advocacy, and participatory action research. They must be able to tap into existing networks of governmental and nongovernmental organizations, and create new learning partnerships.

7. Multidimensional innovations must be interdisciplinary. Technical insights aren't enough to solve the complex problems of poverty and environmental degradation. If research is to respond to the multiple constraints faced by the poor, social and institutional analysis must mesh with biophysical and ecological studies. New interdisciplinary approaches are needed.

8. Policies should enable local innovation. Long-term solutions to local problems sometimes require higher level policy reforms. Insufficient policy attention has been paid to securing collective rights over common pool resources as a way to help the poor. Over the long term, government failure to provide an enabling environment for innovative local institutions severely weakens co-management of common pool resources. (http://www.idrc.ca/en/ev-103258-201-1-DO_TOPIC.html)

Dr. Julian Gonsalves of the International Institute for Rural Reconstruction mentions the following elements of the adaptive management and learning process:
- Learning-by-doing as a reiterative process
- Capacity building to adapt/test/ innovate
- As a process it changes power relations
- Participatory research: reflect on experiences and modify action
- Participatory monitoring and evaluation
- Self-evaluation to build a culture of learning, transparency and accountability
- Strengthened local institutions to generate social capital
- Skills to anticipate or/and resolve conflicts
- Question what kind of research is needed?

Climate change adaptation

At the latest with the publication of the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (2007) it became apparent that Climate Change is a reality and that many socio-ecological systems of the world are already today struggling with adverse impacts of global climate change. It has been further reaffirmed that climate change is going to affect the most disadvantaged people in the poorest regions the hardest. Especially communities and sectors which are highly dependent on natural resources are expected to be the most vulnerable to change.

The past few years have witnessed a major increase of interest in vulnerability of human-environment systems (HES) to global climate change. However, until today the understanding of vulnerability differs largely and there has still no one conceptual framework of vulnerability been agreed upon (Clark et al. 2000; Füssel 2007; Kasperson et. al. 2005) Nevertheless, many recent concepts coincide that vulnerability is a multidimensional concept which involves exposure, sensitivity and resilience (Clark et al. 2000; Füssel 2007; Adger 2003). Earlier, vulnerability mainly dealt with physical aspects while today it is increasingly concerned with physical, economic, social, environmental and institutional aspects (Wisner & Birkmann 2006). Furthermore, age, class, ethnicity, religion, social status and gender have been recognized as important determinants of vulnerability and adaptive capacity (Adger, 2006).

Hence, mountainous socio-ecological systems can be regarded as areas which are especially vulnerable to climate change or to say it in other words 'hotspots of climate change'. However, human induced climate change is not the only threat to mountain socio-ecological systems. Other drivers including population growth, outmigration of men, land use pressure in particular in the developing world have caused an expansion of agricultural cultivation into less suitable regions, and the abandonment of traditional land use practices leading to dramatic changes in highland social-ecological systems (Spehn et al. 2006).

So far, most studies (especially those carried out in the framework of the UNFCCC) focus on national and larger scales, leaving a vacuum at the sub-national level (Thomas & Twyman, 2006). Furthermore, the main focus on climate change adaptation research is currently being laid on coastal areas and small island states whereas mountain socio-ecological systems still form a blank spot in many parts of the world.

The proposed research project will focus on local communities living in mountain ecosystems. Mountain areas are especially sensitive to climate change and people depending on goods and services derived from mountain ecosystems are therefore regarded to be especially vulnerable. However, while predictions on the physical impacts of climate change are becoming more and more precise, so far the social implications of climate change are less understood.

In order to examine and understand the implications of and responses to environmental changes at an individual or community scale it is important to first understand their social perception of these changes. Because, whereas from a western perspective, natural disasters or changes are often viewed as threatening, negative events, the people affected by these changes may have a different understanding of such events and may see or already have developed ways to cope with and relate them to. Also, environmental variability is not a new phenomenon, and local communities have been developing strategies to cope with and adapt to environmental variability over centuries.

Some definitions

Adaptation

Adaptation can be understood as: *Adaptive options open to any social grouping are constrained by the resilience of the human and natural system that comprise or define that grouping (Adger & Kelly, 2001).*

According to CIFOR (2009), "As the climate changes, forests and people will have to cope with gradual changes in average temperatures and precipitation rates. They will also face more frequent and intense weather events such as droughts or floods. Adaptation strategies can help people manage the effects of climate change and protect their livelihoods." Effective climate change adaptation strategies can be included into land use management plans.

Adaptive capacity

In social systems, the existence of institutions and networks that learn and store knowledge and experience, create flexibility in problem solving and balance power among interest groups play an important role in adaptive capacity (Scheffer et al. 2000, Berkes et al. 2002). Systems with high adaptive capacity are able to re-configure themselves without significant declines in crucial functions in relation to primary productivity, hydrological cycles, social relations and economic prosperity. A consequence of a loss of resilience, and therefore of adaptive capacity, is loss of opportunity, constrained options during periods of re-organisation and renewal, an inability of the system to do different things. And the effect of this is for the social-

ecological system to emerge from such a period along an undesirable trajectory (www.resalliance.org).

Vulnerability to global environmental change

The term vulnerability is a multi-dimensional concept which has been used by different research traditions and the interpretation of its meaning varies significantly across disciplines (Gallopin, 2006). However many recent concepts coincide that vulnerability is a multidimensional concept which involves exposure, sensitivity and resilience (Clark et al. 2000; Füssel 2007; Adger 2003). Earlier, vulnerability mainly dealt with physical aspects while today it is increasingly concerned with physical, economic, social, environmental and institutional aspects (Wisner & Birkmann 2006). **Vulnerability** is the degree to which a system, subsystem or system component is likely to experience harm due to exposure to a hazard, either a perturbation or stress/stressor (Turner et al., 2003)

Vulnerability assessment (in contrast to impact assessment VA focuses on particular groups or social units and tries to assess their risk in relation to multiple interacting environmental and social stresses (McLaughlin 2007)

Resilience to climate change in agricultural systems comprises of two elements: agro-ecosystem **resilience** (persistence and sustainability of yield from the land or sea in face of a changing climate) and livelihood resilience (achieved through livelihood strategy diversification, such as by introducing fish into rice paddies, or planting a wider variety of crop species). These strongly overlap, especially in cases where crop or species diversity improves niche utilisation and hence ecosystem resilience, as is often the case in shifting cultivation. Resilience is also improved through removing dependence on external inputs, decoupling agricultural practice from volatility and changes in other markets, whilst retaining assets on-farm through a reduced need to spend capital.

APPENDIX C: Good governance in shifting cultivation

The issues shifting cultivators are facing are naturally complex and many are in a way related to good governance. Therefore, it is important to see what good governance means in the context of shifting cultivation. The practice of good governance is an inseparable aspect of a successful natural resource management. In other words, the implementation of natural resource management programs at the absence of good governance principles and practices not only fails to serve the purpose of effective and sustainable utilization and preservation of natural resources, but it also leads to communal conflict as well as exploitation and degradation of natural resources. So what does governance entail? And how is it relevant to shifting cultivators? Governance issues can be divided in policy, institutions, and equity issues.

In the context of natural resource management, Good governance requires that decisions about natural resources are responsive, inclusive, and equitable. They are ensured through participatory and accountability mechanisms that build linkages among organisations, user groups and communities.

From environment perspective, "governance systems link natural resources and poverty by determining ownership, access, control over and decisions about resources. The 'rules of the game' include laws, institutions, political systems, social networks, cultural values and polices that define use, ownership and control of key resources" (United States Agency for International Development 2005). Governance in its new context is a non-hierarchical, bottom-up, and participatory system whereby a wide range of stakeholders; central and local government institutions, civil society organizations and communities – including women and marginalized segments of a society, influence decision making and implementation processes in a democratic and participatory manner.

Principles of good governance

There are universally accepted Good Governance Principles, which can be used to evaluate governance mechanisms. They are presented in the table below, and explained in the case of natural resource management.

Governance Principles	Good Governance Practices and Natural Resource Management
Participation	Active participation of all relevant stakeholders at all stages of decision making and implementation. *Example: Shifting cultivators' specific concerns are not considered when governments make "blanket" policies (one policy to fit all situations).*
Rule of Law	The rule of law implies that everyone is subject to adherence to law and no one is exempted from its consequences and sanctions. *Example: In countries where the rule of law is weaker, illegal logging is a common problem. This puts pressure on shifting cultivators' control over their forests, and reduces their opportunities to enter the legal timber trade.*
Transparency	Transparency ensures clarity in establishing laws and regulations, and abiding by them. Transparency in a natural resource management scheme builds trust and sense of ownership in communities by allowing them to access information and decision making bodies. Transparency can be measured by regulatory tools such as public auditing. *Example: When land survey and registration processes are not clear to the people concerned, local elites often gain illegitimate control, while others lose access to their traditional lands.*

Responsiveness	Responsiveness refers to the ability of governing bodies to address the needs of communities in a timely fashion. *Example: The misconceptions about shifting cultivation that are common among decision makers prevent them from understanding communities' actual needs and responding adequately.*
Inclusiveness and equity	Inclusiveness is about creating space for all marginalized segments of a society, and ensuring their participation in decision making and implementation processes in a non-discriminatory manner. Equity means programmes should meet peculiar needs of marginalized groups. Treating everyone the same is not equitable, because different people have different needs and opportunities. *Example: Inclusive and equitable programmes would address shifting cultivators' specific needs, rather than treating them the same as other farmers, or worse, discriminating them because of their negative perception of shifting cultivation.*
Effectiveness and Efficiency	Governing bodies and communities are expected to maximize their output and impact in an equitable, sustainable and efficient way, while minimizing their resource expenditures. The effect (impact) of policies can be positive or negative, and there can be intentional or unintentional effects. There is usually a trade-off between efficiency and equity. *Example: Working with well-connected mainstream farmers is cheaper and more efficient than working with remote shifting cultivators, unless of course there is a specific policy objective to target poor or marginal communities.*
Accountability	Accountability requires all stakeholders to take the responsibility of their decisions and actions. Accountability cannot be effective if adherence to any of the above good governance principles is not respected. While in the past it was only the formal and primary decision makers who were held accountable, a new trend requires communities too to be accountable for decisions that they make/influence. *Example: Extension offices should be accountable to their superiors for delivering the services their office has to offer, but also to the communities for offering what they need.*

Models of good governance in natural resource management

Good governance in natural resource management is a *means* employed for the purpose of poverty alleviation and natural resource management sustainability through such practices as fair, equitable and sustainable utilization and preservation of natural resources. The five following governance systems in natural resource management merit attention (Akwaku 2009).

Government-based Governance: natural resources are managed by government institutions and participation of other stakeholders is not always guaranteed.

Shared Governance: the management and accountability of natural resources are held by a wide range of stakeholders including NGOs and private landowners in a collaborative management (co-management) system, while the ultimate formal decisions are made by the government.

Community Governance: the community takes the authority, responsibility and accountability over the management of natural resources.

Private Governance: Philanthropy or for-profit private actors; NGOs, landowners or corporate institutions dominate natural resource management.

Open-space Governance: In this system of governance there is no authority for natural resource management. This in turn leads to degradation and exploitation of natural resources.

Governance systems evolve and are re-negotiated over time, so shifting cultivation resources can pass from community to private or government-based governance or vice versa. The presence of these models of governance in shifting cultivation depends on socio-economic and socio-political structures of a locality. It is feasible to have a combination of two or more of these governance modalities governing the management of natural resources simultaneously. Experience shows that there is a general trend to move from Government-based to Community-based Governance with some features of shared characteristics.

Main pillars of governance

Good governance encompasses at least two major pillars: institutions and equity concerns.

APPENDIX D: Institutions

When "institutions" is used as a sociological concept, it means "any laws, norms, values, rules, and customs by which people and organizations interact with each other". They are also known as the "Rules of the Game". In common language, the word institution is often used to mean organisation, but here organisations are considered to be the actors or "Players of the Game". The terms *institution* and *organization* are commonly used interchangeably and this contributes to ambiguity and confusion. People as well as organisations have norms, values and rules through which they work, and it is important to separate the players and the rules, in other words the actors and their institutions. Organizations have physical existence while institutions are "intangible". But both organizations and institutions follow rules and regulations and operate within a system.

Organizations are the structure of recognized and accepted roles, or "players of the game". The structures that result from the different roles can be complex or simple. The more complex an organization, the more varied its capabilities. Organisations can be formal or informal. Formal organisations are encoded in laws and have written rules, whereas informal organisations are not.

Institutions are any established laws, norms, rules, values, social practice and culture that influence the regular pattern of behaviour, or "rules of the game". They are multiple and often contest each other – making conflicting claims and supporting different values. Institutions too can be formal or informal. Formal institutions have with written rules encoded in law (for example driving rules, universities). Informal institutions can be unwritten conventions, rules, and values and norms that certain people adhere to (e.g. on how to greet each other, but also customary land tenure arrangements).

These institutions are operating at all levels from the household to the international arena and in all spheres from the most private to the most public. All institutions are interconnected with and influenced by broader institutions operating at the local, district, national, regional and international levels. In both cases they structure power relations between people. These institutions often contest each other with contrasting perceptions, conflicting claims and supporting different values (Bennet, 2005).

Examples of institutions and organisations are given in the following table.

"Institutions"	"Organizations"
• Legislation and regulations (e.g. Forestry Act, Land Act)	• Ministries and departments
• Fiscal instruments (e.g. taxes, subsidies)	• Tax department • Municipality Office • District court
• Community rules & norms (e.g. for natural resource management)	• Forest user group (formal) • Village headmen (customary)
• Borders and boundaries (e.g. between villages, between neighbours' lands, between land to be used for different purposes)	• Survey department • Village authorities
• Marriage procedures & rules	• Family • Religious groups & committees

Organizations can acquire the status of an institution, but how? As we mentioned above, "not all organisations are institutions", organisations, procedures, roles, practices and systems can acquire status of institution only through valued performance over time and with recurring patterns of behaviour. For example, the new firm of lawyers is an organization but not yet qualified to be an institution. Organizations, practices,

procedures can be considered as institutions only if they are stable, valued and consequently not easy to change. One way to find out the extent to which an organization qualifies as an 'institution' is to ask whether, if it were to disappear, people in the community, not just members or direct beneficiaries but others too, would want it back. Another way is to gauge the extent to which people would be ready to act or to sacrifice to preserve the institution for example "Parma" system in some communities in Nepal. For example, in Nepal, the shifting cultivators (both women and men) have been struggling for its existence despite un-supporting policy environment and discouraging negative understanding of external agencies like government bodies in particular. Institutions as described above are "norms, rules and regulations". In policy making, they mediate socio-economic interactions between agents and facilitate exchanges, enforcement of contracts, decision-making, coordination and conflict resolution. Their effectiveness, efficiency and the way the institutions coordinate and network define the appropriateness of governance practices.

The key elements essential for building effective institutions are as follows:
- **Inclusiveness** – this can be achieved through wider participation in decision making and ensuring the interests of various stakeholders in a balanced manner.
- **Accountability and transparency** – this can be achieved through performance reporting and public hearing as it encourages for accountability and transparency in the institution.
- **Innovation and learning** – good institution facilitates smooth adjustment to changing circumstances in the society and in the external environment. Without in-built ability to learn and adapt, institutions can become irrelevant in changing situations.
- **Complementarity** – institutions should complement each other. Proper functioning of a formal institution like a constitution depends crucially on informal institution like social norms. New initiatives should build on existing institutions so that changes are understood and stand for better chance of being accepted by the wider strata of society.
- **Commitments of all the stakeholders** – institutional capacity is not limited to the knowledge, skills and experiences but also the commitments of all the stakeholders – particularly, the individuals responsible for managing the institutions as well as its beneficiaries.

Many institutions are characterized by restrictive bureaucracy and very rigid in their behaviour. It has been realized that at old institutional setting government's institutions have centralized hierarchical authority, specialized discipline and standardized procedures. That is why they are in most cases not responsive to the needs and aspirations of people. In most cases their mode of decision making is centralized and rigid without giving space for people's views and concerns. Such institutions generally work in isolation. Because of such institutional behaviour, there are conflicting views and claims among different institutions especially between formal and customary institutions. The policy interventions put forward by governments are in most cases opposed by people because they are not meeting the local realities and are against people's needs and aspirations. Unless institutions are not open to learning environments and participatory methods with decentralized mode of decision making they will not able to respond to the demands and concerns of people. The ideal institutional set up we are looking for collaboration between governments and people should be decentralized and they have to work together or linked to each other. Their realities and concerns need to be understood through multiple linkages and alliances with continuous dialogue between them.

Good governance places importance on decentralization of power and decision-making and necessitates active participation of, and interaction between, local institutions and communities. (Agrawal, McSweeney and Perrin 2008). Local institutions include:
- Local public institutions (formal local government bodies),

- Civil society institutions (rural producers organization, cooperatives, saving and loan groups),
- Private service institutions (NGOs, charities and private businesses),
- Informal institutions (practices of labor sharing, indigenous information exchanges and practices, saving societies, etc.).

The first challenge comes from determining the right degree and level of state intervention in the management of natural resources because maintaining balance between an empowered while decentralized state can be convoluted. Furthermore, public/private partnership, seen as a factor contributing to good governance, is sometimes prone to corruption as the two actors- public officials and private sector elites, often compromise public interest in each others' favour. And lastly, although cooperation and power sharing is believed to be a good tool when many stakeholders have conflicting interests, "antagonistic cooperation", may emerge at the time of decision-making, jeopardizing the sustainability of a program.

While from project management perspective it is often prescribed that policies should be SMART: Simple, Measurable, Achievable, Realistic and Timely, in fact in a complex arrangement such as the management of shifting cultivation land, it is institutional coordination- both vertically (within institutions) and horizontally (across institutions) that can address some of shifting cultivation management challenges at policy level. Once linkages between institutions are established, policies, roles and responsibilities, as well as mechanisms for coordination are assigned; the environment would be more conducive to address issues at policy level.

Many of institutional issues can be resolved through establishment of linkages among institutions and promotion of partnership among all stake holders. The key questions in understanding this notion involve: what partnership is, what partnership can achieve, and what are some approaches to partnership. In case of conflict of interest, effective conflict resolutions need to be in place to redress the understanding, information and interest gaps between various stakeholders.

Institutions are also categorized as formal and customary and/or informal institutions. **Formal institutions**: are established with written rules encoded in law for transactions and decision making (for example, formal policies, regulations, universities, driving rules, courts). Written rules are related to regulations, memberships, executive structure, powers, fines, taxes, duties and obligations.

Policies and policy instruments constitute, almost exclusively, formal institutions. Policies are a set of objective strategies for achieving public good in such ways that it brings about positive results to all affected members. Policy, in general, can be understood as a broad statement of purpose and process for addressing a particular social, economic, or environmental issue (Darren *et al* 2006). Policy is a conscious awareness of choice among different alternatives for steering societies (Dror, 1989).

There are two types of policies; vertical and horizontal. Vertical policies are made within an organization by a single body responsible for its formation. Horizontal policy making involves a number of organizations or a number of bodies within an organization that enjoys the same hierarchal position. Issues that require collaboration of a wide number of organizations must exercise horizontal policy making approaches. Policies may be reactive or proactive. The former is a response to an emergency or problem, while the latter serves as precaution.

The process of policy making is very complex and involves extensive resources and time. The logical steps taken in making a policy are as follows:

- identifying the target (in a reactive policy making setting policy makers study the problem while in the case of proactive policy making, policy makers identify a potential treat or opportunity);
- determining the right course of action for achieving the target; and
- designing programs within which implementation takes place.

Policy instruments and formulation stages include regulatory instruments (e.g. laws), economic instruments (e.g. taxation or subsidies), expenditures (research, development and education), and institutional instruments (e.g. sustainable development strategies).

Lack of policy coordination across and within organisations is a big challenge that leads to overlap of inconsistent or even contradictory policies. Policies and regulations also suffer from ambiguity in their formulation and implementations, especially when roles and responsibilities are either undefined or they are defined in such ways that they further create obstacles at implementation phases. An example of contradictory policies can be traced in Nepal's forest policy and local government policy (Tiwari, Bajracharya and Sitaula 2008). Nepal's Forest Act of 1993 granted the responsibility of forest management to user groups and recognized the entity as an independent organization. However, simultaneously the government recognized the Decentralization Act of 1982 which gave local government bodies the right to administer natural resources within their administrative jurisdiction. For a long period of time, it was not clear where the two regulatory mechanisms overlapped how this issue could be resolved.

Customary institutions are informal behaviours, values, norms with no written or documented rules and roles (greetings systems, marriage, family, customary land tenure system). Customary institutions are more flexible and dynamic over time, and may not be recognized or understood especially by outsiders; they can also be very rigid, very strong and very clear to internal participants but not always effective and efficient. Customary institutions may be operating for many generations and may have transformed to "modern" forms.

Customary literally means commonly practiced, used, or encountered; or based on custom or tradition rather than written law or contract. In law, a custom is a long-established practice that rests for authority on long consent and usage. Customary law consists of established patterns of behaviour that can be objectively verified within a particular social setting. Such customs can have the force of law when they are the undisputed rule by which certain entitlements (rights) or obligations were regulated between members of a community. Codification is the process of collecting and writing down of the customary laws.

APPENDIX E: Equity

The two main components of equity are defined as proportionality (distribution of resources according to community's needs) and egalitarianism (equal treatment of every person) (Syme, Nancarrow and McCreddin 1999). The latter also necessitate affirmative action in order to redress socio-economic and gender imbalances. Social and gender issues related to equity is often underestimated causing biased distribution of opportunities. Shifting cultivators as a group face equity issues, and within this group there are additional equity issues at play. These can be because of gender imbalances, poverty among certain sections or for example remoteness. Good governance requires the social inclusion of these groups and equitable distribution of resources such as land and extension support. In the case of shifting cultivation land, for example, farmers should be allowed to own more land than those who have other farmland, because they require more of it to produce the same amount of food, as it is of lower quality. In fact, the customary way communities across the eastern Himalayas used to measure farmland is not by area but by how much paddy it produces.

Social equity, equality and exclusion

The way humans interact with the environment is a critical element in any natural resources management system, as well as in shifting cultivation. These interactions are ruled by socio cultural and economic dynamics. There are different groups with different interests and needs in the areas where shifting cultivation is practiced.

Equity refers to fairness which may require different treatment, or special measures, for some persons or groups. Equity is concerned with equality of outcomes. Equity means justice, and recognizing the specific conditions or characteristics of each person or human group (gender, class, religion, and age). Equity is the recognition of diversity and it leads to equality.

Equity involves the development of basic capacity. It requires eliminating all barriers to economic and political opportunities and access to education and basic services, such that people (men and women of all ages, ethnic groups, castes, conditions and positions) can enjoy these opportunities and benefit from them (Leduc, 2006).

Equality refers to the same treatment in dealings, quantities or values; treating everyone the same, regardless of outcomes. This can lead to serious inequalities, for groups that have been disadvantaged by a system. Achieving equality is not possible without transforming values and behaviours and questioning the social organization that support and reproduce inequalities.

Equality means that men and women, for all ethnic groups, castes, classes, locations, physical conditions, and so on, are:
- receiving the same treatment,
- having the same opportunities,
- having the same value in the society, and are given the same respect, and
- having the same rights

It means people should not be discriminated because they are "different". Therefore special measures or affirmative action, or positive discrimination (means to act, practice, plan, policy or some measure) need to be initiated for the purpose of equity. The aim of a special measure is not to discriminate by conferring favours, but to achieve equal outcomes for people who have encountered disadvantage in relation to those people who have not (Leduc, 2006). More encouragement and supports are required for disadvantaged people to come forward and benefits from development programmes as compared to the advantaged people in the given community.

Social exclusion is a state that limits people's capacity to access social, economic and political opportunities. It is deeply rooted in social practices and institutions that reflect the norms and values of the society. Socially excluded people have very limited access to economic resources, hardly benefit from social services, and rarely participate in political life. Beliefs, traditional /social practices, power relations, assimilation processes are all part of social exclusion processes. They are reflected in prejudices and discriminatory practices that create unequal conditions for the access to economic, social and political resources.

Social inclusion and exclusion in shifting cultivation (B. Leduc. 2006)

Shifting cultivation is a traditional agricultural method that had supported million of people's livelihoods throughout centuries. However, today, this practice has been marginalized by settled agriculture. In Asia, it is still practiced mainly by indigenous peoples and ethnic minorities and it is closely related to people's culture and a particular relationship with natural resources. Shifting cultivation reflects a way of life, a type of relationship with nature, social structures, and cultural values that is different from the main dominant group. Unfortunately shifting cultivation is a practice that is highly misunderstood. It is considered as a waste of resources, a "backward" practice, damaging forests and economically not profitable. The fact that shifting cultivation is practiced mainly by communities that are usually marginalized – like the indigenous people - also contributes to give a negative value on this practice.

What we need to understand through the study is about the land tenure system in the shifting cultivation system. To have a good understanding we need to know how people relate to land and how the land is managed by the communities, taking into account the division of labour and access and control over resources (particularly the land and other natural resources like forest and water). We also need to examine their status in the society to understand why they face so many difficulties in maintaining their way of life and keep the control and rights over their resources. Shifting cultivators often are indigenous people or ethnic minorities. They have to fight to keep their cultural identities (and avoid assimilation) and shifting cultivation is their traditional livelihood that is closely associated with their cultural identity. When the state tries to convert the shifting cultivation practice to settled agriculture, they are, somehow, challenging the cultural identify of those peoples.

Shifting cultivators are usually marginalized hence socially excluded. This exclusion is reflecting in:

- **Being economically very poor** – although they have been practicing shifting cultivation for centuries and fulfil most of their needs in term of food, today they are among the poorest because they rarely participate in and benefit from development programs. However, the products from the shifting cultivation could have a high value in the market: they are rare; many have medicinal value; and they are organic. So shifting cultivation itself is not the cause of their poverty; their exclusion from development and new opportunities is.

- **Having lack of linkage with policy makers and government organizations-** In most cases shifting cultivators are organized around customary institutions. The fact that they come from marginalized groups with a different set of rules and way of life, and even different language, keep them apart from the mainstream institutions. The issue is that they are not linked with policy makers and government institutions so they cannot voice their concerns. They are rarely consulted by development planners and policy makers for formulating policies even when they are affecting them significantly.

- **Having no legal rights and ownerships** - shifting cultivators are marginalized because their land use rights and land ownership is not recognized and their traditional institutions are often marginalized by the government organizations.
- **Having no recognition of traditional practices** – policy makers and planners think that shifting cultivators are different, but they do not acknowledged that shifting cultivation is their way of life and they need special measures for their livelihood improvement while conserving traditional rights.

Shifting cultivators are therefore, socially excluded as they hardly benefit from development interventions and rarely participate in political life and they have limited power to bargain in decision making process. They have less power to advocate for their rights and to promote their interests. This is why it is difficult for shifting cultivators to negotiate with the governments and to make the government listen to their concerns.

APPENDIX F: Shifting cultivation land and natural resource tenure

The rights that a person has in an object such as land and other natural resources are considered as property. Land tenure is described as property rights to land. It is the relationship, defined legally or customarily, among people, as individuals or groups, with respect to land. The same applies for the tenure of other natural resources such as forest, water, etc.

The shifting cultivation system harbours a host of other resources such as forest and water resources besides the land. Therefore, tenure of shifting cultivation land can be inclusive of all these resources. Where shifting cultivation land is a common property owned by a group, the tenure is the relationship among the members of the group as well as between the group and the other members of the society. Where the ownership is private, tenure is the relationship between the owner and other members of the society. Privately owned shifting cultivation land is usually governed by formal laws, while the one owned by a group or community is usually governed customary laws.

Tenure as a bundle of rights and responsibilities

The ownership guarantees "a bundle of rights" to the owners as well as a set of responsibilities to bear upon them. However, rights do not necessarily mean full ownership and complete authority to use. Based on the concept of property rights developed under the Roman law according to Gregorio *et al* (2008) these bundle of rights can be grouped as:
- Rights to use the asset (*usus*), including access and withdrawal;
- Rights to appropriate the return from the asset (*usus fructus*), including earning income from it;
- Rights to change its form, substance, and location (*abusus*), including decision-making rights such as management and exclusion; and
- Alienation rights - the right to transfer rights to other, either by inheritance, sale or gift - can be added to these rights.

Complete title is generally interpreted as holding all the four rights- **usus, usus fructus, abusus, and alienation** (Peljovich, 1990; Cooter and Ulen, 1997).

Tenure rights are often categorized as "formal" or "informal'. Formal rights are understood as those that are explicitly acknowledged by the state and which may be protected using legal means. On the contrary, informal rights are understood as those that lack explicit acknowledgement and protection of the state. In some cases, property may be "extra-legal"- not against the law, but also not recognized by the law.

To be effective, tenure needs recognition, legitimacy and enforcement, and governance structure for enforcement to ensure that tenure is respected (Gregorio, 2008). The governance structure has to be supervised to ensure that tenure is respected, compliance is enforced, and forums are provided to resolve disputes. The institutions that provide legitimacy can be diverse. In case of communally owned shifting cultivation, customary laws may suffice to provide legitimacy to tenure.

Tenure insecurity would mean depriving the shifting cultivators of their rights to use shifting cultivation land and the associated natural resources. Tenure insecurity can be caused by lack of enforcement of statutory laws or by disregarding customary laws/statutory laws governing the shifting cultivation.

Common property

Where the shifting cultivation land is owned by a group, it can be said that shifting cultivation is practiced on common property. Stevenson (1991) said: "*Common property*

is a form of resource management in which a well-delineated group of competing user participates in extraction or use of a jointly held, fugitive resource according to explicitly or implicitly understood rules about who may take how much of the resource."

According to Stevenson (1991) common property is a form of resource ownership with the following characteristics:

- The resource unit is well defined with physical, biological and social parameters
- The group of users is a well-defined, who are distinct from persons who are excluded from resource use
- Multiple included users participate in resource extraction
- Well-understood, explicit or implicit, rules exist among users regarding their risks and their duties to one another about resource extraction
- User share joint, non-exclusive entitlement to the *in situ* or fugitive resource prior to its capture or use
- User compete for the resource, and there by impose negative externalities on one another
- A well-delineated group of rights holders exist, which may not or may not coincide with the group of users

All seven characteristics constitute a set of necessary and sufficient conditions for common property. He said that these conditions are individually necessary because a resource managed under common property must merit all seven of them according to Stevenson.

Stevenson (1991) also said: "Common property indicates and institution of joint ownership. Property's existence in an object entails rights and duties for property holders and non-property holder alike. Property implies rights and duties for both participants and non-participants in resource extraction; the absence of rights and duties means that the institution of property does not exist. [...] The term 'common property' refers to social institution, not to any physical or intangible object. The resource is the physical or intangible asset that a group can own and manage by common property. The demarcation of the resource, however, must be included in the definition of the social institution of common property. The institution cannot exist without the resource that it controls."

Rights and entitlement

A right is the legal or moral entitlement to do or refrain from doing something or to obtain or refrain from obtaining an action, thing or recognition in civil society. Entitlement is a guarantee of access to benefits because of rights or by agreement through law. As a legal term, it simply denotes a right granted. A privilege is a right not enjoyed by others or by all; or a special enjoyment of a good. Generally speaking a right corresponds with a complementary obligation that others have on the same object or realm; for instance if someone has a right on a thing, simultaneously another party or parties have an obligation to do something (or to abstain from doing something) in order to respect that right or to give concrete execution to that right. Property rights provide a good example: society recognizes that individuals have title to particular property as defined by the transaction by which they acquired the property granting the individual free use and possession of the property. In many cases, the obligation depends on the legal system or on the state. A claim is a demand of ownership or right to use for (previously unowned) land.

APPENDIX G: The gender perspective in shifting cultivation and land tenure

Gender dimensions

Shifting cultivation is a land use pattern which has been practiced by the "indigenous people" in Eastern Himalayas for centuries based on their own indigenous knowledge and skills transferred and maintained from generations. In the shifting cultivation system women and men both collaborate to extract a maximum of benefits from the land. It is important to understand the gender dynamic linked with the land use pattern. In most cases, even if women are the custodian of the land, even if they are the main "users", they do not necessarily have the control over the land. An increasing number of men are adopting alternative livelihood like labour or cash crops and abandon their role in shifting cultivation. Women become main users and the ones performing most of the tasks. However, they rarely exercise a control over this land; they are not considered as the owners: in places where the government encourages people to register the land, the land is registered under the husband's name; most of the extension services aiming to improve the production of the land or to introduce new crops are targeting men. Thus women remain marginalized and they are not recognized by policy makers and development planners as farmers. In fact, in shifting cultivation, women are the primary food producers; contribute more hours of work and perform more tasks than men. Women shifting cultivators may have independent views about cultivation practices and can contribute to the improvement of the shifting cultivation system. Therefore it is important to contribute to the recognition of women as farmers for their own rights and development.

When studying land use patterns and land tenure, we need to understand how the natural resources are utilized, by whom, and who exercise the control over those resources. When we want to promote equitable land tenure system, we need to understand what is at stake for women as well. What are the benefits of being "owners" of the land? And what are the disadvantages if you do not own the land?

Here the main problem will be to conciliate the cultural values related to a traditional practice like shifting cultivation and the gender equity perspective on land tenure. Some may say that we must promote traditional system and respect cultural values of the shifting cultivators – and gender equity is not their priority. We should advocate that it is possible to safeguard traditional values and "improve" them by making sure that women – who are the main shifting cultivators – have some kind of ownership (can be a collective one – not necessary individual) over land – and this is of the best interest of the community.

Gender refers to the socially constructed roles, responsibilities and rights assigned to men and women by society. These roles, responsibilities and rights are not fixed, these can be learned, they vary between cultures and they change over time.

Involving women in the research

In recent years, an increasing number of men are adopting alternative livelihood options like cash crops and off-farm employment and abandon their participation in the shifting cultivation. Women become the main users and the ones performing most of the tasks in shifting cultivation. However, most of the extension services aiming to improve the production of the land or to introduce new crops are targeting men. Similarly, any research activities being undertaken in the communities have been consulted men only forgetting the important role of the women. This refers as conventional problem because usually "silent" members of a community like women remain excluded from the process. One of the common problems we are facing in the traditional researches is the fact that women's experiences, their contributions and issues are overlooked and unrecognized, thus the important aspects of the research remain undocumented, and underestimated

and may be misunderstood. This has been further reinforced by the fact that participation of women is not always easy because of the social, cultural and economic context. There are many constraints and obstacles associated with this problem, some of them are highlighted below:

Personal biases — It has been realized that outsiders (so called development workers) normally visit or meet better-off, educated and only men respondents while conducting research in community and forgot to visit the poorest of the poor, illiterate and women in the community. This is also called male biases and normally does by the researchers while conducting community based researches. Indigenous knowledge and information provided by marginalized people are often given less value than information provided by decision-makers and high ranking officials (Leduc B, 2009). It is therefore, important to acknowledge our own biases, our preferences, our values, and our socio-cultural background and be aware that it could influence the process of a research and its findings if we are not careful.

Social and cultural barriers - both women and men should have the opportunity to participate in the research process however, their conditions and capacities may be very different. In some cases, it is not possible for women and men to sit and discuss together due to social and cultural barriers. In most rural communities of South Asia, women are usually withdrawn from public sphere because of social and cultural barrier in dealing with their men fellows and new people.

Gender roles and power relations — It has been understood that gender, wealth, age, ethnicity all are source of power which has direct implication in the process of decision making and benefit sharing and distribution. Because of unequal power relations people are discriminated by other people. Power relations restrict certain groups mainly women from participating in the management and decision making process related to community activities. Because of power relations and social status women are rarely encouraged to speak out and voice their opinion. If women speak out it is subject of mockery, criticisms, and brutal attitudes (Leduc, B. 2006).

The ignorance and illiteracy of women — women are always less represented in research activities because they are ignorant, illiterate and shy.

Lack of self-confidence and low self-esteem - basically in men dominated societies, women are considered inferior status and subordinate to the men. They are in most cases less educated and have no access to information and resources. This has direct impacts to lack of self-confidence and low self-esteem among women than with men.

Use of general terms and concepts — another problem we are facing in research is the use of general terms and concepts that can contribute to hide gender-specific realities. For example, when we are talking about "farmers" we often assume that the farmers are men.

Language barrier — In the Himalayan mountains, very few women have access to education and their mobility is often quite limited, whereas men are travelling more, are more expose to different languages. Researchers must be aware that the official national languages may not be understood by mountain women.

Time and venue for meetings are not suitable for women — appropriate time and suitable place are crucial for the full and active participation of women in meetings and interviews. The researchers must choose a time frame and place where both men and women are available; conduct different meeting for women and men at time convenient for them.

Lack of time for women – it is obvious that women from mountain communities work more hours than men do due to their triple burden of works. This could be a limited factor to involve women in the research process.

Considering the overall limitations of patriarchal societies and above mentioned constraints, one has to be very pragmatic and careful while developing study plan to involve women in the research process. Special effort is needed to involve women in the research otherwise it will be monopolized by men. Some suggestions for making the women participation more meaningful in the research process are given in Annex 2.

II. METHODS

APPENDIX H: Institutional analysis

1. Customary institutional analysis

Both women and men shifting cultivators individually, collectively in customary groups and also other stakeholders have been and are being involved directly or indirectly in the evolution process of shifting cultivation since long which are in many communities transformed into 'institution' valued by the people for its existence.

Any institution cannot operate indefinitely without providing benefits – economic, social, political, environmental, ethical – that justify its continued existence. Due to globalization, population increase and political changes there is however, dramatic impact on the existing practices of shifting cultivation and also on the status and capacity of institutions related to shifting cultivation. Here an institutional approach is used to understand how individuals and groups construct institutions, how they are operating, and what results they have generated for transforming themselves and other stakeholders. It is therefore, important to understand the institutional context of shifting cultivation under different situations for its transformation and adaptability. To understand this, we are examining the formal and customary rules (institutions) at the regional and national levels, as well as explore both customary and formal rules experienced by individuals at the local level. While doing this, we try to analyze on the following aspects of the institutions.

	Visible aspects	**Invisible aspects**
Formal institutions (National and local levels)	• Government laws, policies, written rules, regulations, legislation and acts (forestry policies, forestry acts, land tenure acts, meeting minutes), standards, mandates, strategies, functions, services	• Beliefs, norms, values, interests, assumptions, and preferences • Likes and dislikes, Dos and don'ts of social behavior and conflicts.
Customary institutions (Local level)	• Written rules and regulations (but not legal basis). • Kinship-linkages & networks • Customary positions, events, symbols, local proverbs and statements • Indigenous skills & practices, gender roles etc. • Mandates, functions and services	• Shared norms, values, customary rules, interests • Likes and dislikes of people • Dos and don'ts of social behavior • Self-esteem, indigenous knowledge, conflicts etc. • Regular behaviors
Informal institutions (National and local levels)	• Written rules and regulations (but not legally recognized) • Informal linkages, groups, events, gatherings etc. • Documented mandates, functions and services (again not recognized legally)	• Shared norms, values and interests among informal members • Likes and dislikes of people regarding shifting cultivation system • People's values and interpretations • Views about formal rules and regulations

Visible aspects – are those changes that can be perceived directly and events that can be observed, counted, measured and documented.

Invisible aspects – the most difficult problems is to identify and measure the invisible aspects of institutions. Because institutions are fundamentally shared concepts, they exist in the minds of the people and are shared as implicit knowledge rather than in an explicit and written form. The invisible aspects refer to the dos and don'ts that one learns on the ground that may not exist in any written document. In some instances, they may actually be contrary to the dos and don'ts that are written in formal documents. For example, the customary rules and norms may be quite different from the rules or policy promoted by the formal institutions.

Challenges in studying institutions

The following aspects of institutions make the study more complex and challenging.

1. Multiple definitions of institutions – people use the terms "*institution*" and "*organization*" interchangeably and this contributes to ambiguity and confusion. A major confusion exists between people who use the term to refer to an organizational entity such as government ministry, business firm, a political party, or a family and people who use the term to refer to the rules, norms, and values adopted by individuals within or across organizations. In this particular case of shifting cultivation study we will use the term institution to refer to the rules, norms, and values used by people in different situations

2. Invisibility of institutions – One of the most difficult problems to overcome the study of institution is how to identify and measure them because institutions are fundamentally shared concepts of rules, norms and values and they exist in the minds of people. In most cases they are not explicit and not in written form. The property rights systems that shifting cultivators constructed overtime looks fluid as compared to the irrigation management system proposed by a government institution.

3. Multiple interests – institutions have conflicting claims and supporting different values. They can have contrasting perceptions and viewpoints about shifting cultivation. It has also been realized that the needs of shifting cultivators are not always the same as those of national level officials. This kind of contradiction of interests are emerging in the area of shifting cultivation because it is a part of the indigenous tradition and livelihood option for many people in some part of the Eastern Himalayas, while some national governments are interested to discourage such practice to follow in future. Institutional analysis must analyze interests of different groups and ensure that concerns of shifting cultivators are considered.

4. Multiple levels – Conventional institutional analysis has tended to focus only on a single institution ignoring the importance of overall institutional arrangements. Institutional analysis must recognize that it is shaped by a number of overlapping institutions from the social, political, economic and religious spheres. Institutions are also operating at all levels from the household to the international arena and in all spheres from the most private to the most public. All institutions are interconnected with and influenced by broader institutions operating at the local, district, national, regional and international levels.

Areas of investigation

Basically, in the context of shifting cultivation, we carry out institutional analysis for two basic reasons. The first is to understand, from the perspective of shifting cultivators, ***how shifting cultivation is currently practiced and managed:*** what institutions (both formal and customary) are operating at the local level for the management of shifting cultivation? To understand the underlying and deeply held assumptions the customary institutions have about shifting cultivation in relation to their livelihood and

tradition. To analyze how the customary institutions are creating incentives or disincentives that influences the behavior of shifting cultivators and other actors. Do government's institutions and shifting cultivators have different values and norms about shifting cultivation? Do they have conflicting claims and concerns? If yes why so? Who are benefiting more from the existing set of customary rules (institutions) and who are not benefiting or how benefits are distributed among different groups including women and other vulnerable groups? In some cases it has been realized that local needs are in contradiction with national level goals for example, shifting cultivation is consider as a part of the livelihood option and cultural tradition in some part of Nepal, while government has been in position to ban this practice. Why such contradiction and different perceptions among different institutions? Understand the final outcomes in terms of equity and benefits resulted from public policy and rules, norms, values and strategies of customary institutions

The second is to secure land tenure for shifting cultivators and build capacity of local institutions for sustainable management of shifting cultivation. In this case, we have to find out how effective are customary institutions for the development and promotion of shifting cultivation? What incentives are getting from new land tenure policy to shifting cultivators? What are the reactions of shifting cultivators to the new policy executed by the government agencies? What could be the ways and means of building and maintaining relationships among local institutions (formal and customary) and with their external environment. How should these capabilities of local institutions be utilized for the design of more effective management schemes? How all relevant institutions work together for responding in better ways to the concerns and needs of shifting cultivators? Finally, what should be best institutional setting for collaboration between government agencies and shifting cultivators?

Methodologies and tools

Given the complexities and challenges in studying institutions, we cannot rely on single research method and in single source of information. Apart from quantitative data, qualitative information including sensitive issues is crucial to understand which call for participatory methodology with mix of tools and instruments. To study formal and customary institutions, we need multiple inputs and contributions from diverse disciplines and stakeholders.

Within an approach there are many individual tools which can be selected based on research context and objectives. We can employ many methods to investigate institutions. Some of the methods or tools which are useful for analysis of customary institutions may include:

(a) Review secondary information

After the objective of the study has been decided, one of the first things to be done is to review all secondary information about the area or topic which is going to be the subject of the study. Review and collect country wise secondary information related to land tenure and institutions of shifting cultivation from the following sources:
a) statistics and reports from government departments and ministries,
b) documents published by INGOs and NGOs,
c) reports and scientific articles from universities and research institutions
d) documents from service organizations and local authorities in the local area
e) web sites created by different organizations
f) policy documents, legislations and acts published by national and international agencies
g) also try to find study reports produced by individual social scientists (sociologists, anthropologists), in the project countries.

(b) Participatory method

It enables researchers, local people and related stakeholders to work together to analyze, plan, refine and implement context appropriate research and development programmes. This approach uses visual and diagrammatic methods of collecting and analyzing data which are particularly suitable for working with groups of people especially who are illiterate and try to involve all to make sure that all concerns have been participated. The approach and tools that can be followed by the researchers in the selected villages are described below in Table 1.

Table 1: Institutional analysis using a participatory approach in the study villages

Steps	Tools	Participants	Focus
0	Researchers at the village – first meeting	Villagers including village head	Present the project and make detail plan for interviews and exercises.
1	Village social maps **(Box 1)**	Key informants (Old men, young men, old women, young women, entrepreneurs, members of community groups).	Population trends Number and location of households by type (ethnic, caste, female headed, shifting cultivator).
2	Focus group interviews – land tenure policy on shifting cultivation	Villagers (old men, young men, old women, young women, social workers, members of customary groups).	Describe and analyze the contact between customary institution at the village and external institutions. Researchers can use the process and criteria given in **Box 2.**
3	Force Field Analysis – **(Box 3)** Two separate exercises (1) with villagers & (2) with representatives of institutions.	Villagers representing different strata including gender and social groups, village head and social workers. Representatives of institutions that are working in the field of shifting cultivation.	Analyze positive and negative factors governing within institutions (formal and customary) for securing land tenure for shifting cultivation.
4	Institutional analysis of shifting cultivation institutions at the village level (**Box 4**)	Key members of customary institutions of shifting cultivation (both women and men).	Identify institutions' norms, policies, regulations and strategies that influence shifting cultivation activities like land tenure decisions.
5	Semi-structured Interviews (SSIs)	• Village head • Representatives of shifting cultivators • Representatives of customary institutions • Representatives of local NGOs • Representatives of public officials	How shifting cultivation is currently practiced and managed by customary institutions? and identify best solutions for land tenure security of shifting cultivators and build capacity of local institutions for sustainable management of shifting cultivation.

Separate groups of women and men, separate groups of people from different socio-economic groups can be used for reaching all.

Box 1: Village social map prepared by shifting cultivators - for learning about the community's population, number and location of households by type (ethnicity, caste, female-headed, rich, poor, shifting cultivator etc.)

Process - researchers play the role of facilitator but do not control the process. Key informants will lead the process of preparing the village resource map.

Village social map is a tool that helps us to learn about the social structure in the community. It shows all the household types in a community (by wealth, ethnicity, caste, religion, shifting cultivator), and their locations and it helps to ensure that people from all the different socio-economic groups are reached during programme implementation. It is also useful in discussing inequities, social problems, coping strategies and solutions.

Steps to be followed for making social maps:
- Find out appropriate key informants (women and men)
- Choose suitable place and medium
- Facilitate to draw an outline of the village (use already published maps if available)
- Let community members know that the map should include location of all households in the community.
- Let community members draw the map themselves
- After the map is prepared – assess each and every household using different criteria for example, indicate households practicing shifting cultivation, women headed households etc.

Finally, research team may want to ask participants to indicate some things they would like to see in the village that are not currently on the map for example, households practicing shifting cultivation since 20 years.

Note: work in separate groups to gain greater understanding of the issues facing by different groups e.g. men & women.

Box 2
Process and criteria for analyzing contact between the village customary institution and external institutions

Researchers can use the following process and criteria for analyzing interaction between the village customary institution and external institutions (e.g. customary institution and ministry of forestry).
- **Purpose of interaction with the institution** – securing land tenure for shifting cultivators
- **Method of interaction** – fixed, blue print, top-down, forcing the villagers, wide choice, demand driven etc.
- **Kind of goods and services received** – information, training, guidelines etc
- **Degree of satisfaction** – very satisfied, not satisfied
- **Reaction to the dissatisfaction** – we prayed to God, we are in alliance building for more voice etc
- **Desired changes** – we want to unite first and negotiate with policy makers to revisit the case and finalize policy for ensuring land tenure rights among shifting cultivators.

Box 3
Force Field Analysis - for analyzing positive and negative factors influencing shifting cultivators friendly policies and interventions

Visual analysis of a situation related to problem situation i.e. securing land tenure for shifting cultivators. It could a shared vision of an institution or a community. It helps identify and analyze forces affecting land tenure security for shifting cultivators. The problem situation is caused by two sets of opposing forces:

- forces which try to bring change: driving, facilitating or positive forces and
- forces which try to maintain the status quo: restraining, resisting or negative forces.

The analysis pinpoints the forces which need to be further strengthened and the ones which need to be weakened. The length of arrow indicates depth of importance both for driving and opposing forces.

Driving forces (Forces for Change)

Securing land tenure for shifting cultivators
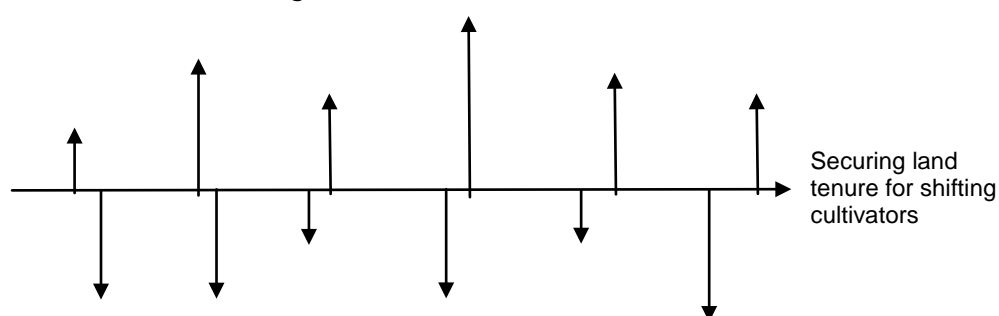
Opposing forces (Forces Against Change)

Steps to be followed:

- Find out appropriate key informants or representatives of an institution or community (4-8 people).
- Arrange necessary materials like flip chart paper, marker pens and other drawing materials.
- Understand the diagram
- Discuss and define the area of analysis, in this case 'securing land tenure for shifting cultivators'. Make sure that all members agree with this.
- Brainstorm and identify forces that are supporting or assisting to secure land tenure for shifting cultivators and write above the straight line of the diagram.
- Continue brainstorming and identify forces that restrict or oppose to secure land secure for shifting cultivators and write those forces below the straight line of the diagram.
- Finally, discuss in depth about what to build on and what to avoid or minimize the opposing forces so that the 'desired goal' will be achieved.

Box 4
Institutional analysis of shifting cultivation institutions at village level

Steps to be followed:

- Select appropriate key informants from relevant institutions for the analysis
- Brainstorm in the group to identify what norms, rules, policies, regulations (e.g. acts, legislations) or institutions that are prevalent in the area – write all those identified institutions in the first column of the institutional analysis table.
- Continue brainstorming about how do those institutions or norms, rules, values and regulations influence to secure land tenure for shifting cultivators positively or find out what we should build on – write all those strengths & opportunities in the second column of the table.
- Now, identify 'institutions' that do not work well or constraint/threaten to secure land tenure for shifting cultivators and write those constraints/threats in the third column of the table.
- Share the analysis with other groups and suggest for future actions.

Table 2: Institutional analysis table

Institutions (rules, norms, policies, regulations (acts, legislations)	Strengths/opportunities	Constraints/threads
1.		
2.		

Semi-structured interviews shifting cultivators, local NGOs, and public officials

Semi-Structured Interview (SSI) is a method that can be used at any time during study process. This is particularly useful to probe key questions and follow up on topics raised by other tools. SSI can be done with individuals (key informants) or with focus groups. Unlike formal interviews which consist of pre-established questions, the SSI starts off with a checklist of issues the researchers want to learn about. Researchers should have a list of topics and key questions prepared based on (1) main topics and sub-topics of the study subject, (2) existing information of the communities (3) key questions raised by other tools like maps, diagrams, photographs and direct observations.
Carry out semi-structured interviews with shifting cultivators, key members of customary institutions and key informants from local authorities, NGOs and government agencies covering following key areas of the study;

▪ **How shifting cultivation is currently practiced and managed by customary institutions?:** deeply held assumptions of shifting cultivation, incentives, disincentives that influence to behaviours of shifting cultivators, building relationships, functions and services of customary institutions and equity and benefits resulted from public policy and rules, values and strategies of customary institutions.

▪ **Secure land tenure for shifting cultivators and build capacity of customary institutions for sustainable management of shifting cultivation:** analyze incentives & disincentives from public land tenure policy to shifting cultivators? and their behaviour and reactions, understand the ways and means of building and maintaining relationships between formal and customary institutions and with their external environment, how the capacities of local institutions be utilized for the design of more effective management schemes?, how all relevant institutions work together for responding in better ways to the concerns and needs of shifting cultivators?, How could

we achieve the best institutional setting for collaboration between government agencies and shifting cultivators?

The methods presented under this section will pertain only to customary institutions such customary norms and rules governing the land tenure of shifting land and the associated natural resources.

2. Formal institutional analysis

For the purpose of this research formal institution is to be understood as formal policies and policy instruments. The policy analysis will focus on (i) policy analysis, and (ii) assessment of the impacts of policies on formal/informal/customary tenure and customary institutions that govern shifting cultivation. The policy analysis will concern the identification and analysis of the policies that influence the formal/ informal /customary tenures that govern shifting cultivation and the associated natural resources. The assessment of the impacts of policies will entail an analysis and assessment of the impact of those policies on the formal/informal/customary tenures and customary institutions in shifting cultivation.

A policy, usually, states a problem, spells out a rationale, vision, mission, goals, objectives and strategies. It deals with the questions of why a particular policy (and the theory and assumptions it carries) is made the way it is (process and context), and what difference it makes to local people's interactions with their natural resources (policy implementation) (Lindayati 2001).

With respect to shifting cultivation, policy analysis will involve reviewing the stated problem, rationale, vision, mission, goals, objectives and strategies and then examine their implications on the formal/informal/customary tenure and customary institutions that govern shifting cultivation and the associated natural resources. Refer Box 2 for the kind of questions to be asked as well as use the institutional analysis methodology (presented under institutional analysis methodology and tools) while analyzing the policy. In theory, from the point of view of policy formulation, policy analysis also involves analysis to recommend policy alternatives.

Usually policies are applied through policy instruments which include legislations (rules, procedures, etc.) and investment programs (research, extension and development). Sometimes, policy instruments are designed and implemented even in the absence of formal policies. Under such circumstance, policy analysis will be limited to reviewing the effects of policy instruments only.

Policy analysis also has to examine policy community and policy making process. Policies reflect interests and values. So, finding out on whose knowledge, interest, and perspectives policies have been founded is particularly important. The review should also include the study of participation of stakeholders and space provided for stakeholders in the policy formulation. Refer the Attachment I for the kind of questions to be asked as well as use the institutional analysis methodology (presented under institutional analysis methodology and tools) while analyzing the policy instruments.

In the analysis of policy processes, the concept of actors is more appropriate, because these are individuals, groups or organisations that act within the policy environment, but may not necessarily have a stake or interest themselves. Policy actors may be the representatives of stakeholders, but there may be others too. At the same time, not all stakeholders are policy actors. Identifying the "movers and shakers" in the policy process in each of the countries is of vital importance for the success of the project (Pema Gyamtsho, ICIMOD, personal communication). These are not always high level policy makers, but can be found at all levels and come from different backgrounds. Kingdon (1984) calls them policy entrepreneurs, and recognises three critical qualities.

'First, the person has some claim to a hearing, which comes from their expertise, their ability to speak for others, or an authoritative decision-making position; second, they must have political connections or negotiating skill, and third, they are usually persistent.' (Kingdon 1984)

An important issue is whether trends and changes in shifting cultivation areas are occurring because of policy or merely because of progressive development due to other factors, including farmers' changing needs and priorities. Therefore, part of the policy analysis will be to understand the causal linkages between policy, land users, their land management strategies and the environmental and socio-economic outcomes.

Policy impact assessment

The impacts of legislations, rules, procedures and investment programs on the customary/formal tenure and the customary institutions have to be studied in the field. Evidence has to be gathered to confirm the impacts brought to bear on the customary/formal tenure and the customary institutions by the governments' enforcement of legislations, rules, and procedures, and promotion of investment programs.

Where tenure is formal, as is the case of Bhutan, the impact on the formal tenure has to be verified quantitatively; increase or decrease of shifting cultivation land holdings caused by policies can be quantified. With the customary tenure, it may not be possible to quantify the impact of policies. It would not be practical to assess how the shifting cultivation lands got affected by the policies; how shifting cultivators lost or losing their customary tenure because of certain policies can be assessed qualitatively only. So, in such cases, the impact of the policies has to be assessed qualitatively following the concept of tenure and the tenure analysis methodology (presented under tenure analysis methodology and tools). Similarly, quantitative assessment of the impact of policies on the customary institutions may not be possible. So, the qualitative assessment has to be done in keeping with the institutional analysis methodology (presented under institutional analysis methodology and tools).

Policy analysis framework
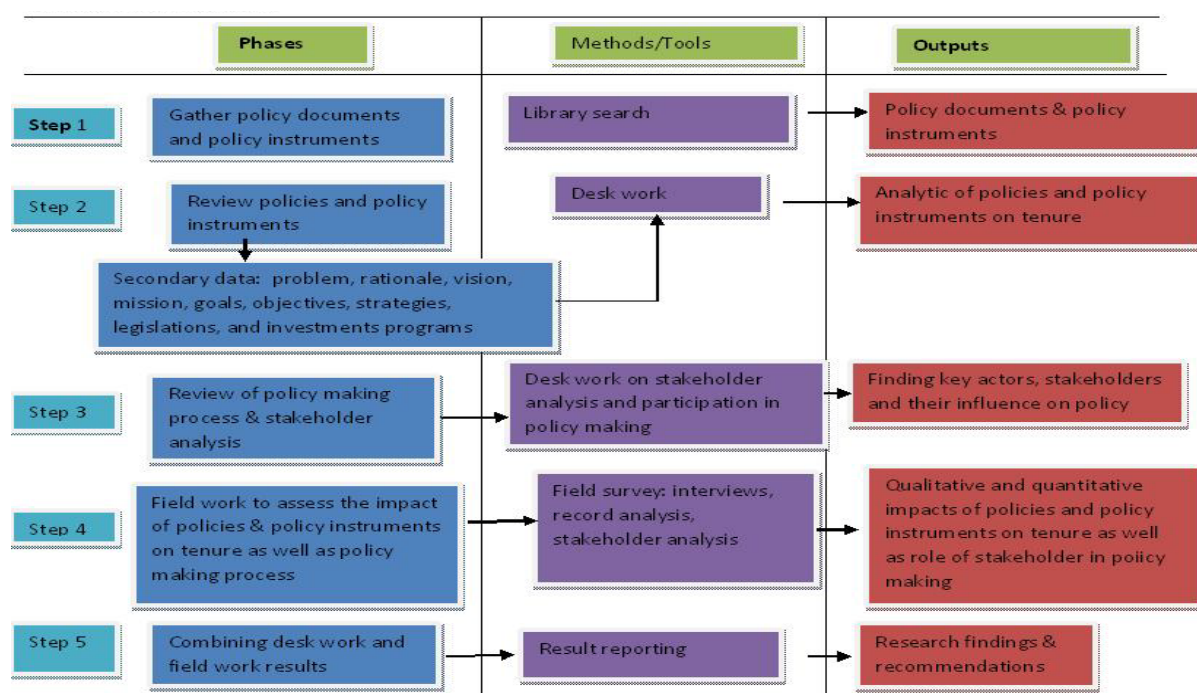
Steps in policy analysis

(a) Desk research for policy analysis

- **Gather secondary information** for identifying policies and policy instruments affecting the customary/formal tenure and the customary institutions that govern shifting cultivation land and the associated natural resources;

- **Analyse policies**: analyse problem, rationale, vision, mission, objectives and strategies and determine the potential impact on the customary/formal tenure and the customary institutions using the tenure and institutional analysis concepts and the methodologies;

- **Analyse policy instruments**: analyse legislations, regulations, procedures, investment programs and determine the potential impacts on the customary/ formal tenure and the customary institutions using the tenure and institutional analysis concept and methodologies;

- **Analyse stakeholders** and their influence on policies and policy instruments, using the concept and the stakeholder analysis methodology (presented under institutional analysis);

- **Analyse policy making processes, knowledge and perspectives** used for policy making, relevance of policy objectives, space given to stakeholders, how policy content decisions are made, etc.

(b) Field work for policy impact assessment

- **Identify policies and policy instruments** are being or have been implemented;

- **Survey the impact of policies on customary/formal tenure and the customary institutions**; carry out formal survey through questionnaires for sampled interviewees to collect quantitative and qualitative data on change in customary /formal tenures and transformation of customary institutions. Survey will involve (i) population: farmers practising shifting cultivation, (ii) sampling frame: those farmers whose shifting cultivation land tenure and institutions are changing because of policies, (iii) sampling method: simple random sampling/systematic sampling, (iv) sample size: number of communities/ households to be covered, and (v) variables: policy impact on the customary/formal tenure and institutions;

- **Analyse the survey results and assess the impacts** of policies and policy instruments on the customary/formal tenure and the customary institutions;

- **Document** the research findings.

Elements to be considered in policy analysis

> **Design**
>
> Policy analysis involves a series of decision making. It includes taking decision such as:
> - what type information to gather, how to gather, when to gather;
> - how and whose information to analyze, interpret and use;
> - what framework to be used in analyzing stated problems;
> - from whose point of view problems defined;
> - who decided and how policy objectives were decided;

- who chose and how policy options were chosen;
- who decided which of the policy instruments to be designed and employed;
- how was problem identified and defined, etc.;

Policy problem definition

Problems are different to different stakeholders. Problems are defined based on the knowledge and information which encapsulates beliefs and values. Therefore, problem definition, according to Parsons (2001), has to analyze beliefs and values that are influencing problem definition by asking the following questions:

Whose: Whose (bureaucracies, research institutes, official inquiry, policy advocacy from a think tank, etc.) knowledge is being used? Who has constructing knowledge? Who has propagated? Whose interpretation? Who were included /excluded from the policy process?, etc..

What: What kind of knowledge? Is it scientific or 'objective facts'? What kind of language was employed? Is it qualitative or quantitative knowledge? What kind of values/beliefs, ideas, ideologies underpinned or informed policy knowledge? What kinds of institutions and elites involved? *What values predominated?*

When: When did knowledge come to be produced, propagated and used/abused or ignored? When was knowledge about problem constructed? When was a problem discarded? When did the knowledge impact on policy-making? When the knowledge used influence public opinion? *When a given a set of values predominated?*

How: How was knowledge used in the policy process? How is it produced? How was it organized in policy communities/networks? How was knowledge organized in government? How was it commissioned? How was it propagated? How was knowledge used for arguments? *How did a given set of values predominate?, etc.*

Objective setting

The policy objectives are determined by the nature problems to be solved. Questions such as who defined the problem? Whose problem? How was problem defined? Who set the objectives? How was the objective set? What alternatives were suggested? Etc.

APPENDIX J: Tenure analysis

Tenure Analysis Framework

Inputs/	Phase	Outputs/
Step 1 Gather documents	Gather information	Tenure documents
Step 2 Review tenure documents	Desk work	Synthesis of tenure regime
Step 3 Field surveys	Field work to assess tenure change	Change in tenure regime assessed
Step 4 Result reporting	Combining desk work and field work results	Research findings
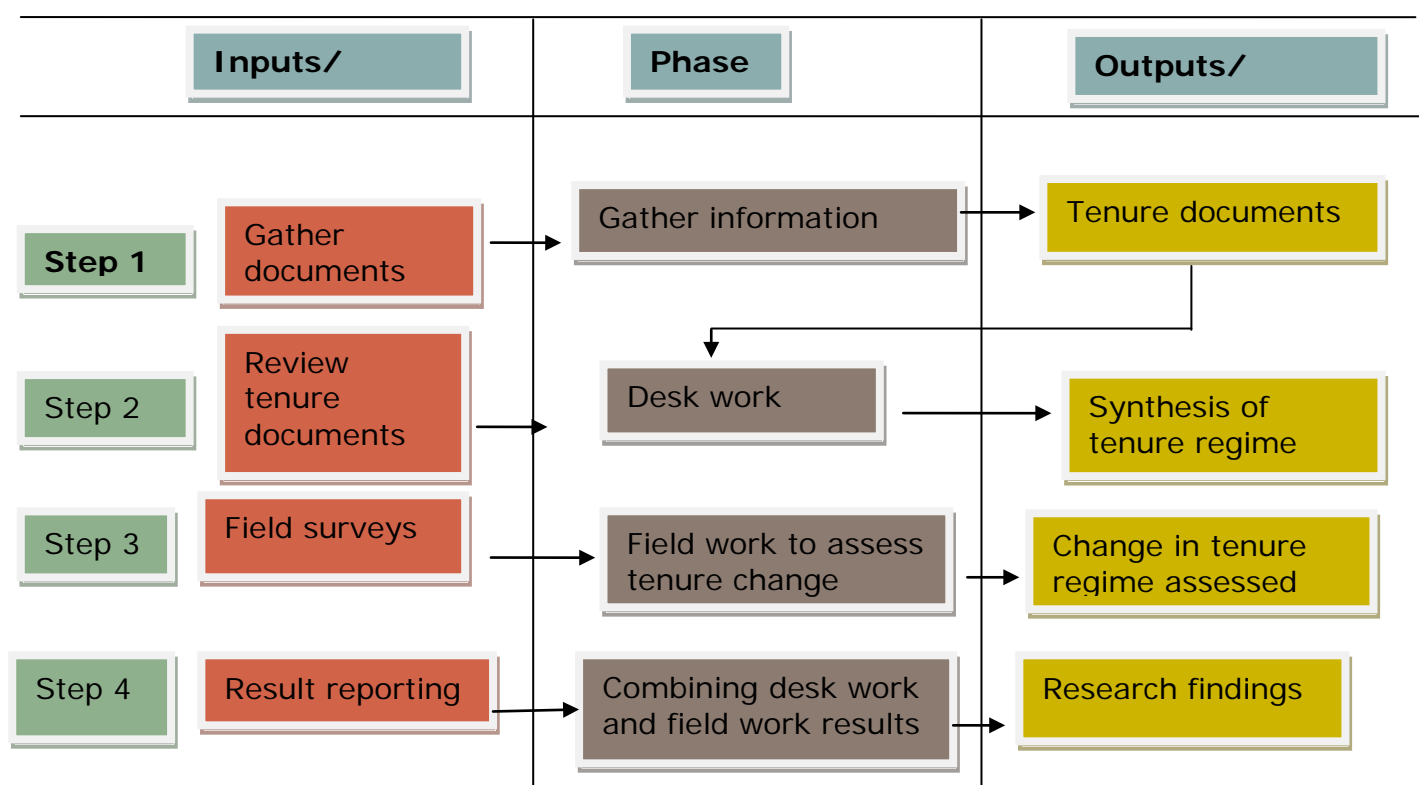
Steps in tenure analysis

(a) Desk research for policy analysis

- **Gather secondary information** related to tenure of shifting cultivation land and the associated natural resources; tenure may be different kinds of rights – rights to use the resources, rights to appropriate the return from the asset, rights to change the form of asset, and transfer rights – and entitlements;

- **Analyse tenure**: analyse types of tenure governing shifting cultivation and the associated natural resources;

(b) Field work for assessing tenure change

- **Survey the tenure change:** carry out formal survey through questionnaires for sampled interviewees to collect quantitative and qualitative data on change in tenure; survey will involve (i) population: farmers practising shifting cultivation, (ii) sampling frame: those farmers whose shifting cultivation land tenure has been affected; (iii) sampling method: simple random sampling/systematic sampling, (iv) sample size: number of communities/ households to be covered, and (v) variables: policy impact on the customary/formal tenure and institutions;

- **Survey result analysis:** analyse the survey results and assess the tenure change;

- **Document** the research findings.

APPENDIX K: Social and gender analysis

We know that women and men are using natural resources differently; they have different roles in shifting cultivation – and often women are doing most of the work but their contribution is not acknowledged; they have different capacities to access to information, training and extension services, financial resources, etc. and they have less connections and networking with different programs and services. So the main question is to know how the policies are taking into account the differential roles and different needs of women and men. How the policies were developed? By whom? Was there any gender specialist involved? How the policies are implemented? Are there women staffs to work with women shifting cultivators? Are the land tenure system promoted by the government gender-sensitive?

Checklist for gender sensitive participatory approach

- What are the respective knowledge, skills and experience of women and men related to the topic you need to discuss? (think about which activities are carried by women and men)
- Do women usually participate in public meeting discussion?
- What are the potential obstacles to women's participation in public meeting?
- What can be done to overcome those obstacles?
- Why women do not want to participate? What can be done to accommodate them?
- When women participate in a meeting, how men regard their participation? How do they react when a woman express her view when it is discordant with theirs?
- Are there women who are more vocal? Seem more confident? Can influence men's decision? Which ones? Why are they more vocal? (age, education, marital status, etc.)
- How much time women are free enough to participate in a meeting?
- What time during the day is more suited for women to meet?
- Where is it more suitable to meet for women?
- In which setting is it easier for women to participate? What are the conditions to make the participation of women easier (women-only group? group discussion facilitated by a woman? other conditions?)
- What is the level of education of the women? Would they be able to understand written material?
- In which language women speak? Can they understand and speak the language you use?
- Do women and men have the same point of view about the issue?

APPENDIX L: Stakeholder analysis

What is Stakeholder Analysis?

A stakeholder analysis is a process of gathering and analyzing information systematically to determine whose interests should be taken into account when developing and/or implementing a project and find ways to engage stakeholders in the process. The stakeholder analysis also contributes to identify what obstacles could limit some people's participation in a project and the factors that would enhance their participation.

Who are Stakeholders?

Stakeholders are actors (individuals, groups or institutions) with a vested interest in the project being promoted. Usually, stakeholders can be categorized into the following categories:
- Users/consumers
- General public
- Civil society organizations
- Commercial/private for-profit, non-profit organizations
- Labour unions and associations
- Local government/authorities
- Public (government ministries)
- National political (legislators, governors)
- International/donors

Why Stakeholder Analysis is Important?

Participation and support of key actors are crucial to the success of the project being promoted. A stakeholder analysis can help a project to identify:
- the interests of all stakeholders who may affect or be affected by the project
- potential conflicts or risks that could jeopardize the project
- Opportunities and relationships that can be built on during the implementation of the project
- Appropriate strategies and approaches for stakeholder engagement
- Ways to build capacity and reduce negative impacts on vulnerable and disadvantaged groups

How to use Stakeholder Analysis

There are number of ways of undertaking a stakeholder analysis. ***Workshops, focus groups, semi-structured interviews, and PRA tools*** (such as oral story telling or case studies?, matrices, preference ranking, mapping etc) can be used for stakeholder analysis. Strategies to involve stakeholders are likely to vary between different types of stakeholders. We can use different approaches and methods depending upon the context and objectives of the analysis. Whatever method is used, there are mainly three steps in stakeholder analysis which are described below.

Step 1: Identifying the key stakeholders and their interests and conflicts between stakeholders in the project

The selection of appropriate stakeholders is critical because it has a direct influence on making the project successful by providing relevant information and opinions about the project. It is useful to apply more than one criterion or procedures during the initial selection of stakeholders in order to ensure that all relevant stakeholders are involved. The initial list of the stakeholders needs to be verified later by asking each of the stakeholders whom they consider to be the main stakeholders.

Some of the key questions to be asked at this step include:

Who practice shifting cultivation? (ethnic groups, social status, gender, land tenure position, etc.).
Is there any formal regulation related to shifting cultivation? Which institutions impose, implement and monitor the application of the regulations? Which are the informal rules regulating the practice?
Who is most dependent on shifting cultivation?, What are the main advantages of shifting cultivation? - Livelihood, environment or economic advantages.
Who possesses claims (customary uses) over the shifting cultivation practices and resources? How about the involvement of government departments and international bodies? – what are their claims or interpretations?
Who are the people, groups, organizations most knowledgeable about, and capable of dealing about issues related shifting cultivation?, Are there major factors or initiatives currently affecting the stakeholders? (like population growth, climate change, privatization, land use changes, policy interventions and political changes)
Has there been a similar initiative or other projects in the region? If so what is impact?
Who/which has interest –or are in favor of - in pursuing shifting cultivation? Or, who benefit from shifting cultivation? and Why?
Which institutions or group oppose to shifting cultivation? and Why? or who may be negatively affected by shifting cultivation? and why?
Who would benefit from the elimination of shifting cultivation practices? What benefit would they have?

A useful tool for identifying the key stakeholders and their interests is given in the table below. Organize brainstorming session involving in different groups of having similar interest first using the above questions as a guide. Discuss with various stakeholders, and ask them who they would see as potential stakeholders for promoting shifting cultivation system. The list of stakeholders may grow or shrink as analysis progresses and the team understanding deepens. Try to learn about each stakeholder as much depth as possible.

Table 1: Stakeholder Analysis Matrix (for Nepal case)

Stakeholders	Stake/Mandate	Potential Role in the Project	Marginalized?	Key Stakeholders	Stakeholder types (Active, Passive & Neutral)
Shifting cultivators (Women)					
Shifting cultivators (men)					
Customary institutions??					
Local people – non-shifting cultivators					
VDCs					
DDCs					
LiBIRDS, Pokhara					
S AWTEE, Nepal					
NCA, Nepal					
MoAC, Nepal					
MoFSC, Nepal					
ILO, Nepal					
ICIMOD, Nepal					

First Column – List the stakeholders in relation to the above questions (see list of stakeholders in the above matrix).

Second Column – The mandate of the stakeholder refers to the nature and limits of each stakeholder's stake on the topic (e.g. livelihoods, environment improvement, cultural values, lifestyles and profits etc) and the basis of that stake (e.g. customary rights, ownership, legal responsibilities, intellectual rights etc).

Third Column – Potential role of each stakeholder in the project (how different stakeholders are going to contribute in achieving the project objectives)

Fourth Column – Identify marginalized stakeholders (.e.g. women, ethnic minorities, youth etc).
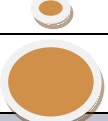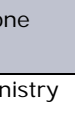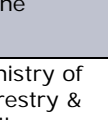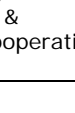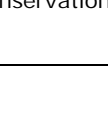
Fifth Column – Identify the key stakeholders – direct dependence, their power, authority or responsibility – their participation is critical.

Sixth Column – Types of stakeholder based on the level of participation and position such as "Active" – supporting the project concept strongly, "Passive" – opposing the project concept strongly, and "Neutral" – No viewpoints.

Conflicts of interests

We know that there are many stakeholders with different conflicts of interests for promoting shifting cultivation practices. For example, government bodies may have different interpretations regarding usefulness of shifting cultivation as compared to the claims made by the communities whose livelihood relies on shifting cultivation. Government bodies may have negative interpretations of shifting cultivation practice where as the customary institutions have entirely different viewpoints. There could be conflicts of interests within government's departments as well. With this in mind, we can use the matrix tool as presented below for identifying and assessing the conflicts of interests and further cooperation between different stakeholders.

Figure 1: Matrix showing degree of conflicts between stakeholders in promoting shifting cultivation practice in Nepal. (This is a hypothetical case from Nepal).

	Ministry of Agriculture & Cooperative	Ministry of Forestry & Soil Conservation	Local Authorities	Nepal Chepang Association	Local NGOs	Shifting Cultivators	Non-shifting cultivators
Ministry of Agriculture & Cooperative							
Ministry of Forestry & Soil Conservation							
Local Authorities							
Nepal Chepang Association							
Local NGOs							
Shifting Cultivators				None	None		
Non-shifting cultivators	None	None	None		None		

Represents the conflicts status, the size of the symbol indicates its degree of significance

It is necessary to find out the reasons of having conflicts of interest between the stakeholders involving themselves.

Step 2: Assessing the Influence and Importance of each stakeholder as well as the potential impact of the project upon each stakeholder.

The following questions would help to assess the influence, importance, and level of impact upon each stakeholder:

- Who is directly responsible for decisions on shifting cultivation project?
- Who is influential in the project area (both thematic and geographic areas)?
- Who will be affected the most by the project?
- Who will support/promote the project?
- Who will obstruct/hinder the project if they are not involved?
- Who has been involved in the similar project before?

For assessing the influence, importance, and level of impact upon each stakeholder – one can use a simple grid as shown in Figure 2 below. This is helpful for thinking through how different types of stakeholders might be engaged in the project management and implementation process.

Figure 2: Stakeholder Analysis Grid – based on their degree of importance and influence to the project.
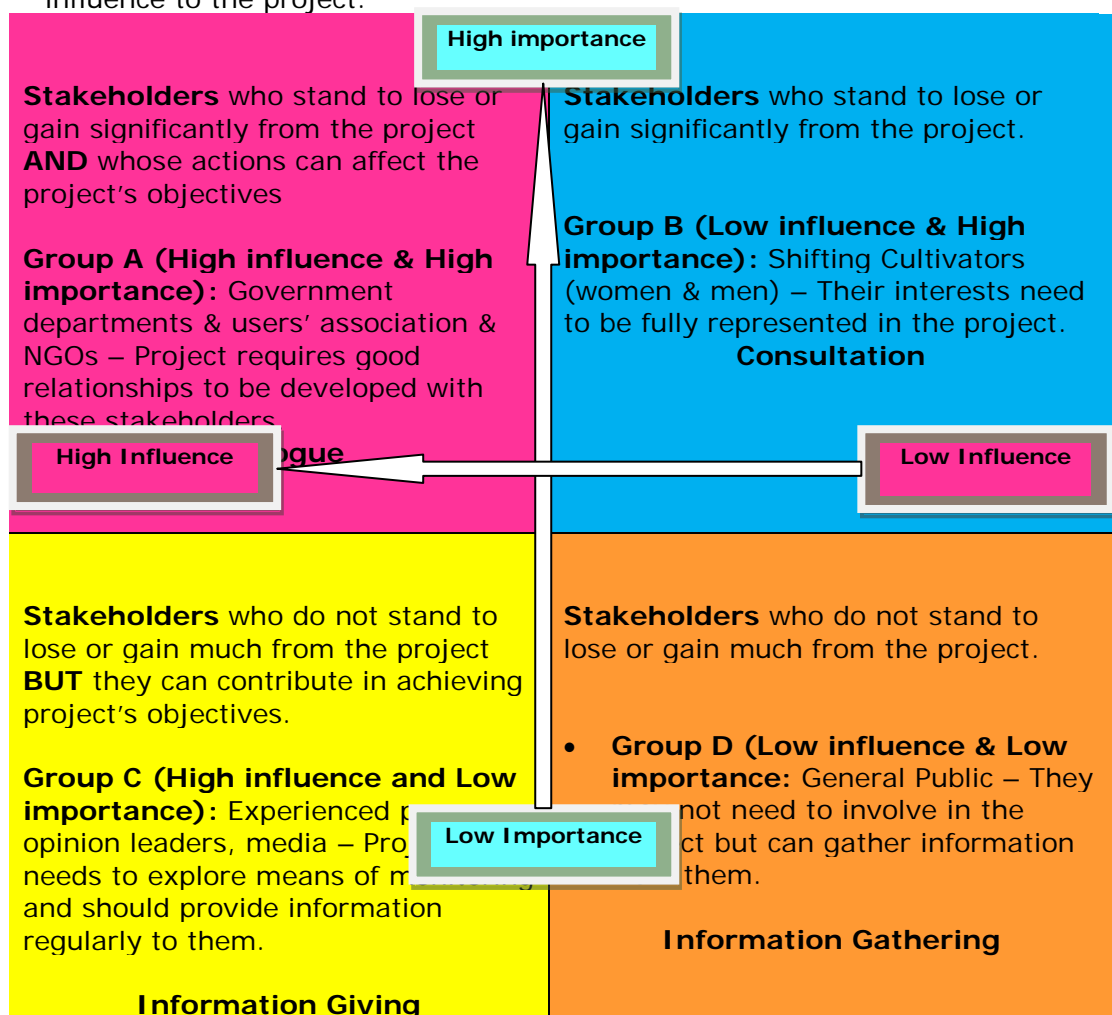
Step 3:   Identifying how best to engage stakeholders

The final step involves identifying how to involve the different stakeholders in the partnership process of the project. Determining who needs to be involved, and when and how that involvement can be achieved is important because it provides the basis for developing collaborations. Using an inclusive and transparent approach during the project development and implementation will help build ownership and commitment. An example of stakeholders' engagement from Nepal is illustrated below in Table 2.

Table 2: Country stakeholders and their role in the project

Partners from Nepal	Field based research	Policy analysis and dialogue	Sharing, Networking & Communication	Technical backstopping & coordination
Shifting cultivators	√		√	
NCA, Nepal		√	√	√
LiBIRD, Nepal	√			
SAWTEE, Nepal		√	√	
VDCs	√			
DDCs				
DFOs				
MoFSC, Nepal		√	√	√
MoAC, Nepal		√		

Assessment of power and importance of stakeholders

Power and priorities of different stakeholders are likely to vary widely. Stakeholders have very different degrees of power to control decisions that have effects on the project's policies and interventions. It is also the real fact that different stakeholders have different degrees of 'importance' to achieving the project's objectives. Questions for assessing the power and importance with respect to the project might include:
- Who is dependent on whom?
- Which stakeholders are organized? And they can be influenced?
- Who has control over resources and information?
- Which problems affecting which stakeholders?
- Which stakeholders' needs, interests and expectations should be given priority attention?

The information gather from above questions/discussion can be combined in a diagram (Figure 3) to see the positions in the project and develop strategy for their engagement.

Figure 3: Four strategies for stakeholder engagement in the project.

Stakeholder power/importance	High importance	Low importance
High power	**Group A:** Government department, policy makers & users' association **Strategy:** Dialogue & partnership	**Group C:** Opinion leaders, media people & experienced persons. **Strategy:** Keep informing about progress of the project.
Low power	**Group B:** Shifting cultivators (groups) **Strategy:** Build capacity, involve and secure interests	**Group D:** General public – Non-shifting cultivators **Strategy:** Get their responses or ignore them.

Capacity building of marginalized stakeholders

Identification and recognition of marginalized stakeholders is important because they lack the capacity to participate in the development process on an equal basis. In the case of this research initiative, it may be relevant to underline that shifting cultivators and Chepang are already considered as marginalized groups and are very often socially excluded. But even among shifting cultivators and Chepang, other people could be even more discriminated such as the poorer, women, or landless people. Therefore, particular effort must be made to enable their participation. This is quite essential in this project where stakeholders like shifting cultivators need to build their capacity so that they can initiate dialogue with other influential stakeholders like government departments and policy makers. For this, a capacity building program need to be developed to enhance the capacity of marginalized and vulnerable groups so that they will be able to participate in the implementation process of the project on an equal basis. Areas of strengthening the capacity of stakeholders should be identified in consultation with stakeholders. The following steps are suggested to follow after identifying key stakeholders of the project.

- Assess the capacity and needs of institutions and individuals to integrate a gender perspective within their interventions.
- Identify key issues related to governance among key stakeholders associated with shifting cultivation.
- Plan and implement capacity building measures for the marginalized stakeholders (for example land rights, environmental rights, citizenship rights, etc).
- Build the capacity of institutional stakeholders to mainstream gender equity and social inclusion in their programs.

APPENDIX M: Participatory Rural Appraisal (PRA)

Complementary methods derived from the Participatory Rural Appraisal (PRA) will be applied to assess the impacts of climate change on the local livelihoods of mountain communities as well was to identify possible options for increasing their resilience to environmental change. PRA is a methodology which aims to enable local people to conduct their own appraisal and analysis. Methods of PRA are used to analyse the current situation of a community, their knowledge, potentials and problems and their causes in order to find solutions. Following Chambers (1994) PRA emerged from Rapid Rural Appraisal (RRA) which was developed as a response to the in the 1970s and 1980s common *"rural development tourism' (the brief rural visit by the urban-based professional)"* (Chambers 1994:1254). Chambers crystallized out the following main principles which are shared by both RRA and PRA: *A reversal of learning* (the investigator learns from local people directly), *learning rapidly and progressively* (a flexible use and combination of methods allows the local community and the investigator to be adaptable and open during the learning process), *offsetting biases* (biases, especially those caused by the above described rural development tourism can be avoided by scheduling more time, listening and observing instead of rushing to the next place and topic), *optimising tradeoffs* (between quantity, relevance, accuracy and timeliness); *triangulating* (comparing data gathered from different methods, places, individuals or groups of analysis, etc.) and *seeking diversity* (being open for the unexpected and maximise the diversity and richness of information). The methods of PRA which will be used for this study include seasonal calendars to assess perceived changes in; participatory mapping, time lines and village walks to investigate major events, e.g. landslides, forest fires, floods and droughts over the course of history of the analyzed village, the Venn diagram will be used to identify institutions which might be crucial for identifying strategies and measures to adapt and increase resilience.

APPENDIX N: Guidelines for involving women in the research

- **Formulate gender-sensitive questions** – the research questions should cover the gender perspective like how men and women are currently affected by the new land tenure policy of shifting cultivation? And how are they involving in this issue?

- **Analyze the gender dimensions of institutions** (formal & informal/customary) at all levels in the society (within household, community-based organizations, users associations, local governments, government agencies etc.)

- **Focus on gender relations, not just women –** better to see in terms of "who does what?", "who benefits what?", who control what resources? And what are the outcomes?

- **Try to create relaxed and lively environment** – people feel comfortable and are more likely to participate in such environment. Ice breaking sessions and the seating plan are important for setting relaxed environment in which women feel confident.

- **Take help from local motivators** – they can be used to initiate discussion and provoke other people to participate. Women catalyst may help better to facilitate women.

- **Special measures for the purpose of equality of participation** – if special consideration is not given to women then there is always tendency of low participation of women. At the same time women are in difficult position to manage both household core activities and participate in meetings and interviews, therefore affirmative action may require to bring more women in the research process.

- **Avoid male biases and generalizations** – avoid using general concepts and languages like "farmers", "traders" etc instead it is suggested to be precise "who" we are talking about: "women farmers", "men traders", "wealthy women" etc.

- **Be aware of gender roles and power relations -** we should always try to highlight differences and similarities of opinions, viewpoints, experiences and expectations of women and men. And see how these differences can affect the issue we want to address and its outcomes?

- **People from all social-economic groups should participate -** we need to make sure that both men and women of every socio-economic groups, different age groups, ethnicity and religion are participated in the research.

- **Set time and place suitable for women -** interviews and group discussions need to be carried out in places and time suitable for women. This has to be decided in consultation with women based on their convenient.

- **Avoid language barrier** - meetings and interviews have to be conducted in the local language to enhance the participation of women in the research. Use gender sensitive languages and terms while communicating and reporting.

- **Build a gender balanced research team –** as far as possible try to have a multidisciplinary research team to capture people's perspective and diversity of viewpoints. Try to consult or involve organizations working for women if women specific organizations or individuals are not available.

- **Increase the number of women participation in the meetings and interactions –** it builds confidence for women to express their opinions and concerns.

- **Collect sex-disaggregated data –** not only quantitative data we should give value to both's women's and men's experiences and aspirations.

- **Separate women and men groups** – one way to encourage women participation is to let men and women discuss issues in separate groups in the beginning. This can create better forum for women to prepare themselves and then they can join with men colleagues to discuss further at the later stage.

APPENDIX O

III. Country work plans

3.1 Bangladesh
3.2 Bhutan
3.3 Nepal

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