

Feasibility Study of REDD Plus in Collaborative Forest Management

विस्तृत जानकारीको लागि सम्पर्क

नेपाल सरकार

वन तथा भू - संरक्षण मन्त्रालय

रेड - फरेष्ट्री तथा जलवायु परिवर्तन इकाई

बबरमहल, काठमाडौं, नेपाल

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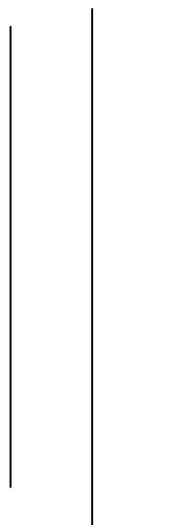
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Government of Nepal
Ministry of Forests and Soil Conservation
REDD – Forestry and Climate Change Cell
Babarmahal, Kathmandu

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ABBREVIATIONS

APP	Agriculture Perspective Plan
BISEP-ST	Biodiversity Sector Programme for Siwaliks and Terai
CC	Climate Change
CFM	Collaborative Forest Management
CFMC	Collaborative Forest Management Committee
CFMG	Collaborative Forest Management Groups
CFUG	Community Forest User Groups
DFCC	District Forest Coordination Committee
DFO	District Forest Office
DoF	Department of Forests
IEE	Initial Environment Examination
FCPF	Forest carbon Partnership Facility
NORMS	Natural and Organizational Resource Management services
REDD	Reducing Emissions from Deforestation and Degradation of land
SESA	Social Environment Standards
ToR	Terms of Reference

EXECUTIVE SUMMARY

A Feasibility study of REDD plus in collaborative forest was conducted by NORMS. The overall objectives of the study was to explore possibility of REDD plus implementation in CFM areas. Furthermore the study assessed the bio-physical potentiality of forests in line to climate change adaptation.

The consultant used both quantitative and qualitative data and information for the study. Both the primary and secondary information were used for the study. The study was conducted in a participatory way. Using the participatory methods and approaches, the team identified the feasibility of REDD Plus in collaborative forest management. Therefore the team focused on the collect information of each field site focusing on the analysis of the forest management status and drivers of deforestation and forest degradation in CFM sites.

Nepal's Forestry Sector Policy 2000 opens the door for collaborative management of forests in Terai. The policy envisioned the management of large Terai block forest with active participation of local communities. This is considered as an important milestone in Nepal's Terai forest management which has mostly been under the control of the state. The policy was further elaborated and a working directive for CFM was approved by the government in 2003. Based on the directives, concept of collaborative forest management was piloted in three central Terai districts through BISEP-ST aiming to include and increase access to forest resources of distant users.

In Nepal, drivers of deforestation and degradation are diverse, complex and different in the physiographic regions. The preliminary analysis identified a total of nine drivers: High dependency on forest and forest products (timber, firewood and other NTFPs), Illegal harvest of forest products, Unsustainable harvesting practices, Forest fire, Encroachment, Overgrazing, Infrastructure development, Resettlement, and Expansion of invasive species.

The main problem of CFM is implementation of the prepared scheme. The coordination mechanism from DFCC is initiated in the Terai districts but the role of DFCC should be strengthened for the implementation of CFM. The REDD plus is feasible in CFM sites through the implementation of CFM.

The following strategies are recommended for the future intervention.

- The government of Nepal is politically committed to a process of land reform hence this will be a timely opportunity to address the issue of deforestation due to settlement and encroachment. To address encroachment problem, the awareness programme should be designed and manage accordingly.

- For the control of illegal trading of forest products, the management of Depot to distribute the timber at different level. Prominent among these are prevalence of weak sector governance at all levels followed by weak institutional arrangements to manage the 63% of forest land under government control. Political interference in the transfer of forestry staff reduces trust among grass-roots stakeholders and lessens horizontal and downward accountability and transparency.
- For the control of over grazing, a sensitization is necessary among the people. The public land and private forestry programme should be promoted in Terai for the requirement of forage.
- The demonstration plot should be prepared near by the village for the management of forests. The role of distant users should be cleared in that piloting.
- The enrichment plantation and plantation of baren land is also important in the CFM areas. The plantation of fruit tree in some selected areas is also recommended for income generation activities.
- The income generation packages should be developed along with the protection of forests.
- The potentiality of REDD plus in CFM area is high in Nepal. The REDD piloting should be started with the support from other donors and REDD cell in the selected district.
- The piloting should be managed with the clustering of CFM more than 20,000 ha. Which may give the high potential for the benefits of local people.
- The plantation in public land and private forestry is important in Terai management. The Piloting should be linked with the increase of public and Private forestry.

Chapter 1. INTRODUCTION

1.1 Background

Different modalities of participatory forest management practices exist in Nepal. The participatory forest management practices are useful in controlling deforestation and forest degradation of Nepal. Some forest blocks of the Terai of Nepal are being managed as Collaborative Forest management (CFM) scheme in collaboration of the Government of Nepal with the local bodies and local users. Nine blocks were handed over in five districts of central region and two in western Terai. Thousands of community people are now engaged in managing these forests. The progress report of CFM management indicates that there is improvement in forest conditions in the CFM sites after the handover of forests.

Reducing Emissions from Deforestation and Forest Degradation (REDD) is emerging as a promising options to promote appropriate forest management practices to reduce carbon emission and associated problems. World Bank has established the Forest Carbon Partnership Facility (FCPF) to assist selected developing countries in their efforts to reduce their emissions from deforestation and forest degradation primarily through capacity building and institutionalizing a performance based incentive mechanism. FCPF is a global partnership of 37 forested developing countries, 14 donor countries and organizations, and civil society, indigenous peoples, private sector, and international organization observers. FCPF is working to pilot REDD-plus: reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (UNFCCC, Decision 4/CP15). FCPF's Readiness Mechanism assists countries in moving from a planning stage to a phase of REDD-plus Readiness preparation. Its Carbon Fund intends to pilot generation and payment for emission reductions from REDD-plus countries, and is expected to become operational in 2011. Among many Nepal is one of the countries selected by the FCPF for the REDD readiness. Nepal is now in the process to prepare national REDD strategy. Assessing strategic options and developing programs to address the drivers of deforestation and Forest Degradation will be a key activity for the REDD readiness phase.

As per agreement made with REDD Cell, NORMS has conducted the feasibility study of REDD Plus in collaborative forest. The study analyzed the status of forest management in collaborative forest and analyzed the drivers of deforestation and degradation of forest land

1.2 Objectives

The overall objectives of the study was to explore possibility of REDD plus implementation in CFM areas. Furthermore the study assessed the bio-physical potentiality of forests in line to climate change adaptation. The specific objectives of the study were as follows:

- To analyze forest management status in CFM sites.
- To analyze different drivers of deforestation and forest degradation in CFM sites.
- Consolidate the learning of different CFM sites for controlling deforestation, forest degradation and enhancement of forest carbons.
- Recommend REDD cell with different strategic options for REDD plus in the CFM of Terai.

1.3 Methodologies

The consultant used both quantitative and qualitative data and information for the study. Both the primary and secondary information were used for the study.

The study was conducted in a participatory way. Using the participatory methods and approaches, the team identified the feasibility of REDD Plus in collaborative forest management. Therefore the team focused on the collect information of each field site focusing on the analysis of the forest management status and drivers of deforestation and forest degradation in CFM sites.

The study tools included review, interaction and consultations, which will incorporate participatory methods on the study. The important tools included desk analysis, review of secondary information, field visits/ observation, focus group discussions, key informant's interviews and stakeholder's consultation at various levels in the program location. The following activities were used for the study of feasibility of REDD Plus in collaborative forest management.

- Familiarizing with all documents and studies including TOR of the assignment
- Desk Review of relevant materials
- Visit of two CFM sites – one in BISEP ST area and another outside BISEP-ST
- Formal and informal interviews with stakeholders
- Field information collection
- Analysis of information
- Sharing in REDD multi-stakeholder forum

Case Study Preparation:

Two CFM sites were selected for case studies. The CFM sites were selected one from BISEP-ST area and another from outside. Desk review of each sites were conducted and information of each CFM sites were collected. The field information were collected on the following issues.

- Present management issues
- Major drivers of deforestation
- Major problems for controlling deforestation and degradation of forest land.

Desk review:

The team reviewed the document of SESA, REDD + and existing government policies and payment mechanism and identify the gaps in line with REDD +. The review is based on the analysis of drivers of deforestation and forest degradation and potential interventions.

Focus Group Discussion:

The team conducted the focus group discussion with the beneficiaries of collaborative users of two CFM sites. The priority ranking matrixes were prepared by the committee members, DFO staffs involved in the management and community members.

Analysis of field study Outcomes and reporting:

The team has analyzed the field study outcomes and prepares it in the report. The team has identified the following information from the analysis.

- Strength of CFM
- Opportunities of CFM in REDD plus.
- Similarities and differences among various CFM practices.
- Drivers of Deforestation and forest degradation.
- Possible strategic options to reduce forest degradation and Deforestation.

The team drafted the report based on analysis. The report preparation/Draft report Draft report submission, Final sharing in multi-stakeholder forum, Final reporting Study team were done after the study.

1.4 Limitations

The duration of the study is very short and it is difficult to go through process in the field. The study period is busy season for farmers and officials. Besides these, people are already started community forest practices and they have some bias with CFM.

Chapter 2. Review of Existing Plans, Policies, Laws and regulations

Nepal's Forestry Sector Policy 2000 opens the door for collaborative management of forests in Terai. The policy envisioned the management of large Terai block forest with active participation of local communities. This is considered as an important milestone in Nepal's Terai forest management which has mostly been under the control of the state. The policy was further elaborated and a working directive for CFM was approved by the government in 2003. Based on the directives, concept of collaborative forest management was piloted in three central Terai districts through BISEP-ST aiming to include and increase access to forest resources of distant users. Although there was much debate at the initial of CFM piloting, which was taken as the rivalry of community forests (CF), policy analysts argue that the CFM concept is an important step towards community rights in Terai high value forests (Bampton et al, 200721). In spite of much debate and lobby against CFM, the major stakeholders in Terai including the Ministry of Forests and Soil Conservation (MFSC) consider CFM as one step towards decentralization of forestry sector and in line with the spirit of local Self Governance Act. This provision not only advocates the stake of local governments in forest resources but also ensures revenue sharing to reinvest in the development of district.

The Government of Nepal endorsed the Collaborative Forest Management Directive in 2003/2004 BS within the framework of National Forest Policy 2000. This directive is simply a management model for "Government managed model", an approach which is catered for in the 1993 Forest Act. In this perspective the following documents were reviewed.

Master Plan for forestry Sector 1989-2010 : National and leasehold forestry is one of the six prioritized programmes to be implemented following wider people's participation and decentralization principles.

Nepal Environmental Policy and Action Plan (1993): This policy stipulates that Churia hills, being a very fragile and sensitive region, should be conserved as Protection Forest, no anthropogenic disturbance should be allowed.

Revised Forestry Policy (2000): This policy deals more with the management of forests located in Terai, Inner-Terai, and Churia hills. MPFS is not explicit enough on how to manage the forests of these three regions. The policy states that big chunk of Terai forests will be managed as government-managed forest with broader partnership of local people and local level political bodies. It recommends barren land and small patches of forests in Terai to be handed over to local users as Community Forests. Churia forest will be fully conserved as protected forests to serve as water recharge of the Terai. The policy led to the design and implementation of collaborative forest

management in the Terai. This policy provides an option for the innovative management of the “Government managed” block forests of the Terai and inner Terai. The collaborative mode proposes to involve different stakeholders (the government, local government and users) in management and benefit sharing. The policy aimed to protect land from degradation by soil conservation, floods, landslides, desertification, and other ecological disturbances.

Land use Policy (2002): The Land use policy requires that all the lands of Nepal should be used based on land capability classification. Though the policy is theoretically robust, it is very difficult and challenging to implement in the field. Hence, it has not yet been implemented. The policy suggests forests of Churia hills, considering their fragility in nature, to be allocated as "Protection Forests" as their over-exploitation and degradation would lead to loss of biodiversity and soil erosion.

The Water Resources Strategy, Nepal (2002) and Water Plan (2005) guide water sector activities towards sustainable use of the resources through 5-year, 15-year and 25-year strategies under which Management of Watershed and Aquatic Ecosystems is considered as one of the key strategy outputs. The strategy and the Plan calls for conserving watersheds of Nepal based on basin approach. Linking sustainable supply of water with watershed management is one of the key recommendations of the Plan. The Department of Soil Conservation and Watershed Management is planning to reorganize its structure based on basin approach. This approach could help in better coordination between water and watershed management.

Three Year Approach Paper (2067/68-2069/70 BS): The present 3 year approach paper aims to maintain at least 40 per cent forest coverage and prioritised block forest management as a means of contributing towards poverty reduction. This approach paper also aims to apply sustainable management practices and principles in all forms of forests area.

Collaborative Forest Management Directive 2003/04: The Government of Nepal endorsed the Collaborative Forest Management Directive in 2003/2004 BS within the framework of National Forest Policy 2000. This directive is used for managing “government managed forests” of the Terai and inner Terai. CFM is simply a management model for “Government managed model”, an approach which is catered for in the 1993 Forest Act.

Nepal ranks 57th out of 88 countries on the global hunger index (Dhital, 2010). The government has predicted that food shortage will amount to 400,000 tons in 2010. Food security is a major issue in Nepal due to low agricultural productivity. Thus land reform is essential to bring about technological innovations in agriculture (Basnet, 2010). Although farms are legally under private ownership much land in the Terai is owned by absentee landlords and cultivated by tenants. This creates a principal agent problem and provides disincentives for both the principal (landlord) and the agent (tenant) to invest in productivity enhancement. Land reform alongside consolidation of smallholdings would enhance agricultural productivity and employment. Otherwise

pressure on forests for land in the Terai and Siwaliks will continue. Policies must be harmonized so that food security, forest and water conservation, and climate change are all considered together. The government of Nepal is politically committed to a process of land reform hence this will be a timely opportunity to address the issue of deforestation due to settlement and encroachment.

The budget allocated to the forestry sector has been declining for many years and most forestry projects are funded by bilateral donors. To make this more sustainable and cost-effective, a program mode of forestry development support needs to be promoted rather than a project modality. Under this most funds need to come through government (at different levels) and both government and civil society organizations need to take partnership roles for program design and implementation. The effectiveness of this approach is highly dependent on forest sector institutional reforms although the increasing interest and capacity of civil society organizations in the forestry sector will significantly contribute to this.

Multiple macro-political and economic factors and forestry related regulatory and fiscal policies drive deforestation and forest degradation. Prominent among these are prevalence of weak sector governance at all levels followed by weak institutional arrangements to manage the 63% of forest land under government control. Political interference in the transfer of forestry staff reduces trust among grass-roots stakeholders and lessens horizontal and downward accountability and transparency.

The real challenge to reducing deforestation and forest degradation is in the Terai due to the multiple complex factors operating there such as high demand across the open border, high population pressure, political instability, lawlessness and insecurity, poverty, weak governance and landlessness. A range of strategic options will be needed including sensitization of political parties, enhanced forest law enforcement and governance and a conducive environment for alternative income generation activities for poor people including ways of attractive private sector investment. Coordination mechanisms among various line agencies necessary can best be facilitated at local government level. The new constitution is likely give forest management responsibilities to the proposed federal government. If so, this will require empowered local multi-stakeholder structures to address local complexities.

The Agricultural Perspective Plan (APP) 1995 was prepared for a period of 20 years with the objective to reduce poverty by accelerating the growth rate in agriculture through increased factor productivity. Strategies have been developed to achieve higher economic growth through improved agricultural productivity and to encourage farmers to high input intensity commercialized farming operations on more environmentally robust lands. The four top priorities stated for forestry sector are: 1. Community forestry in the hills and mountains, 2. Commercial management of Terai forests, 3. Private and leasehold forestry, and 4. Training, research and development. The APP encourages private tree planting in the Terai, either in pure plantations or intermixed with agricultural crops in the form of agro forestry. In addition, intercropping of cash crops and high value non-timber forest products (NTFPs), along with plantations of tree species in the private, leasehold, or national forests have been emphasized

SESA is also reviewed during the study. The SESA has mentioned inclusive and beneficial to the community people. The document has not mentioned the distant users and their beneficiaries. CFM is not only for forest management but it has provided opportunities to take forests to people. Public and private forestry promotion has created forests with the people. SESA should mentioned such opportunities.

CFM has included local body as collaborator which is development body. This has created development efforts through the involvement of stakeholders. District Forest Coordination Committee guidelines as also mentioned CFM management and they have key role in CFM monitoring and conflict resolution roles.

District Forest Sector Plan of BISEP-ST districts is in place. The plan has mentioned CFM areas and their management strategies. The DFCC guidelines should help to make REDD plus piloting in CFM areas.

Chapter 3. PRESENT MANAGEMENT PRESCRIPTIONS

3.1 Existing CFM Practices

In 2003, BISEP-ST, Dutch government funded bilateral project, launched a piloting of CFM in three pilot areas, namely Sahajnath in Bara, Rangpur in Rautahat and Sabaiya in Parsa districts in the central Terai. This piloting intended to assess the institutional and organizational framework of CFM based on CFM directives. Based on the learning from these three piloting sites, up-scaling of CFM was targeted in other Terai districts. Initially, BISEP-ST targeted to focus mainly on these three piloting sites, new CFM areas emerged from local communities. Halkhoriya in Bara district and Banke Mahra in Mahottari are good examples of local initiation on CFM schemes and management. After nearly seven years of piloting, CFM schemes are not only limited to the central Terai districts where BISEP-ST support was channelized but have also expanded to other Terai districts such as Nawalparasi and Kailali. By date, thirteen CFM schemes have already been approved and are being implemented in eight Terai districts. These approved CFM schemes cover 22,730.21 hectares of productive forests benefiting more than 244,000 households. The trend in CFM schemes approval shows that learning from the success of three initial pilot sites were considered to approve other CFM schemes in 2008 and 2010 when 2 and 3 CFM schemes were approved by the MFSC. In spite of the present CFM schemes in place and operational, debates and discussions on CFM modalities are still going on. This is particularly on the access to forest resources of distant users who are living far way from the actual forest area. Some researchers argue that CFM is creating gap between the users of southern and northern belt (Bhattarai 200522) where as others are exactly opposite to this argument and claim that CFM is able to bring both users together for the sustainable management for forest resources (Ebregt et al, 200723 and Sigdel et al, 200524). In other way, the opponents of CFM see CFM as strategic instrument for bureaucratic extension rather than democratisation of Terai forestry (Ojha 200625).

In other hand, proponents of CFM see it as an opportunity to provide access to forest resources in the totally state controlled forests. With increasing consensus on CFM modality, though it is still in initial development stage, local stakeholders identified many other possible CFM areas during the development of district forest sector plan. The success of CFM is still early to conclude, but it can be argued that CFM encourages local communities, both distant and nearby users, in sustainable Terai forest management. With increasing local participation on CFM, there may still need work to be done on different perspectives of CFM modality to ensure maximum participation and benefits to local communities. CFM is to some extent internalized in the central Terai districts which increasingly helps to ensure local ownership in forest management and sustainable supply of forest products. Seven years of piloting can yield sufficient results for possible refinement in CFM modality but it still needs further investment to

increase local participation and ownership. In this context, a number of initiations through various organisations and projects are being implemented to make sure proposed CFM schemes are also approved in time to engage local participation.

In Terai districts, CFM were handed over to address the diverse needs of users and distant users. In Nepal, the coverage of VDCs and Municipalities is high in CFM in comparison with community forestry. Up to 40 VDCs were involved in CFM and minimum 10 VDCs were involved in Kapilvastu. The coverage of VDC is given in the Table 1.

Table 1: Coverage of VDCs and Municipalities from CFM Areas in Nepal

S.N.	District	Name of CFM	Total VDC and Municipalities Covered			OP approved
			VDC	Municipalities	Total	
1	Bara	Sahajnath	30	0	31	2061/ 62
2	Bara	Halkhoriya	25	1	26	2065/66
3	Parsa	Sabaiya	15	1	16	2061/ 62
4	Parsa	Bindabasini	34	0	34	2066/67
5	Rautahat	Rangapur	24	1	25	2061/62
6	Rautahat	Jangalsaiya	40	0	40	2066/67
7	Mahottari	Banke Mahara	35	1	36	2065/66
8	Mahottari	Tuteshwar Nath	20	0	20	2066/67
9	Mahottari	Gadhanta Bardibas	22	0	22	2067/68
10	Sarlahi	Phuljorbaba	20	0	20	2066/67
11	Kapilvastu	Tilaurakot	23	1	24	2067/68
12	Rupandehi	Lumbini	16	0	16	2067/68
13	Nawalpara si	Buddhashanti	9	1	10	2067/68
14	Kapilvastu	Gautambudhha	10	0	10	In process
15	Bara	Tamagadhi	23	0	23	In process

Likewise, the beneficiaries of the CFM is also high. The area of CFM is large in comparison to community forestry. The area, HHs covered and population benefitted from CFM is given in Table 2.

Table 2: List of CFM Areas with areas and HHs

S.N.	District	Name of CFM	Area	HHs	Pop.	Remarks
1	Bara	Sahajnath	2058	17527	110300	
2	Bara	Halkhoriya	1938	27108	176706	
3	Parsa	Sabaiya	3139	33097	197000	
4	Parsa	Bindabasini	4250	21163	126978	
5	Rautahat	Rangapur	1473	29312	162600	
6	Rautahat	Jangalsaiya	4049.6	41000	246000	
7	Mahottari	Bankemahara	2006	23075	215563	
8	Mahottari	Tuteshwarnath	1334.2	24151	141231	
9	Sarlahi	Phuljorbaba	2482.7	27953	116300	

10	Kapilvastu	Tilaurakot	2722.3	72932	-	
11	Rupandehi	Lumbini	1118.3	21874	-	
12	Nawalparasi	Buddhashanti	1778.2	10096	60578	
13	Kapilvastu	Gautambudhha	3743.4	8919		Process
14	Mahottari	Gadhanta Bardibas	1450.5	25736	154421	Process
15	Bara	Tamagadhi	2580	--	-	Process

3.2 Forest Management Status

CFM has explored a ground for involvement of different stakeholders in management of forests. The involvement of local bodies (VDC, DDC), Local users (nearby and distant users) and District Forest Office in management of forests. The role of government and users are also mentioned in the scheme. The benefit sharing mechanism is also developed among the stakeholders. 25 % income will be used by the local body and local users. The local body is taking 10% income and remaining 15 % to the local users. CFM schemes were prepared based on the involvement of stakeholders in forest management.

3.2.1 Overall management of forest:

There are 13 CFM already approved by the Ministry and two are in process. The approved operational plan is given in Table 3 and potential in Table – 4.

Table 3: Approved Operational plan

S.N.	District	No.	Status of Scheme	Area	OP approved
1	Bara, Parsa, Rautahat, Sarlahi, Mahottari	10	Approval	24180.7	
		1	Process	2556.0	
2	Bara, Rautahat, Sarlahi, Makawanpur	5	Potential	12127	
3	Nawalparasi, Rupandehi, Kapilvastu	3	Approval	5618.7	
			Process	3743.6	
4	Kailali, Kanchanpur		Potential	33,500.00	
Total	11 districts				

Source: Department of Forests, BISEP-ST Records

The proposed CFM plan is in Table 4.

Table 4: Proposed CFM in Nepal

S.N.	District	No.	Name
1	Sarlahi	2	Lalbandi, Janaki Nagar
2	Makawanpur	1	Sunachari
3	Parsa	1	Gadi Mai
4	Rautahat	1	Brindabana
5	Kailali	2	
6	Kanchanpur	1	

Source: Department of Forests, BISEP-ST Records

In two CFM, the management practices found very satisfactory. In Halkhoriya, In Terai districts, CFM were handed over to address the diverse needs of users sand distant users. In Nepal, the coverage of VDCs and Municipalities is high in CFM in comparison with community forestry. Up to 40 VDCs were involved in CFM and minimum 10 VDCs were involved in Kapilvastu.

In Halkhoriya, the total area of forest is 1938.46 ha, which is 4.11 % of district total forest area (471820 ha.). The population of Halkhoriya covers 31.62 % of district total population. The forest includes Terai sal forest along with fring area, shrubland, riverain grass land and scattered forests with Shrubs. The fring area covers 248.75 ha, which have the potentiality of plantation in future along with NTFP cultivation.

The regeneration status is different in different places. The status of regeneration is increased in five years. The present regeneration stock is 23360/ ha. The main species of the forest species are Sal (*Shorea robusta*), Sissoo (*Dalbergia sissoo*), Khayar (*Acacia catechu*), Saj (*Terminalia tomentosa*), Teak (*adinacordifolia*), Barro (*Terminalia chebula*), Barro (*Terminalia belerica*), Amala (*Phyllenthum emblica*), Tatari (*Dillenia pentagyane*), Jamun (*Eugenia jambolana*), Siris (*Albizia procera*), Dhasingar (*Anogeissus latifolia*), Simal (*Bombax ceiba*) and other tropical species.

In Tilaurakot, the total area of CFM is 9,427.48 ha. And handed over to population of 148,631. This covers 31% population of district and the forest is 24%forest area. For the management purposes, 5 blocks were dived in CFM. 13 compartments and 8 sub-compartments in each compartment. The regeneration of seedling per ha is 2877.

3.2.2 Status of Technical Management

The status of CFM has been marked improved technically. In most of the cases, fencing has been done to protect the forests. Fencing is important for controlling the grazing. The patrolling of DFO staff along with CFM guards has been managed to protect the forests. The patrolling is necessary for the control of illegal trading. Encroachment is done by the community members and this is also important threats for the technical management of CFM.

CFM has managed forest guards from their resources. In Halkhoriya, these guards are getting 25 percentages amount from the control of illegal trading.

The Community members have took part in the protection of forests. They have made committee in each VDC and took management at local level. They have made central level committee to manage the forest and make decisions for the management. They

have divided roles between VDC level committee to recommend for the demand of firewood and timber and the central level committee monitors the realistic needs of the timber demand. The VDC level committee took part for the local level protection. They are making awareness for the

In Halkhoriya, the condition of forest is improved. The chairperson expressed that the condition of forest is improved. They are working together with DFO staff for the management of forests. The regeneration status has been improved. The fencing work was started for controlling the over grazing. The condition of forest was very good while the forests was under 7 VDCs and now the no. of VDCs increased and people are not satisfied. This made adverse affect on the management of forests. The control of encroachment in the CFM is also difficult because of power relations. He has mentioned that political leaders are also motivating the encroachment.

protection and use of forest. The CFM committee is made based on the inclusion of distant users.

3.2.3 Social Benefits

CFM has positive impact on the access of forest products from distant users. The users have to apply for the demand request of forest products to CFM. VDC level representatives should assess their needs and recommend for the product. They have

to pay minimum cost for getting the products. The Community members have took part in distribution of benefits. They are making awareness for the

In Tilaurakot, the distant users are happy to get the benefits from the forests. They are happy to contribute for the management of forests. The distribution of benefits and social benefits made people working together for the management of forests.

protection and use of forest. The CFM committee is made based on the inclusion of distant users.

3.3 Strengths of CFM

CFM approach is designed in that way to ensure the stake of local governments in forest resources that has not been addressed in Nepal's very successful community forestry model. In spite of very success in CF, the issue of local government's involvement is still there. With complete implementation of CFM, local governments will continue to receive revenues from forest resources for reinvestment for overall district development initiatives. This is also in line with the spirit of local self governance and "principle of subsidiary". With this model, it is mostly expected that the ownership of local government over their forest resources is increased by which sustainable management of high value Terai forest management is possible with collective partnerships. This is even important at the present time of transition when Nepal is trying to adopt a federal state mechanism where forest resource plays pivotal role in overall development and growth.

The concept of CFM is based on the multi-stakeholders process. Within the present structure of CFMG and CFMC, a variety of stakeholders from minorities, Dalits, and distant users, are involved in transparent decision making processes. This obviously facilitates inter-sectoral coordination and creates local institutions on self help principle, also called sub groups. These inter- sectoral groups are considered as important structures at the local level to ensure equitable access and benefits sharing mechanism. The Terai forests have a long history of state control where the central government strategically keeps this asset for revenue generation. Implementation of CFM in some of Terai districts encourages local communities and stakeholders in managing forest resources for the economic opportunities and their livelihoods. This not only increases access to forest for distant users but also ensures community ownership. Increase in local ownership and responsibility clearly lead to better management and protection of forests where local communities are taking up challenges to develop CFM on their own. More importantly, CFM is much helpful in developing local leadership, ultimately taking responsibility of overall development process in the Terai districts.

The following important strengths were observed in CFM.

- The local body as a development collaborator is involved in CFM. This is very innovative process with the involvement of local body.
- DFCC is coordinating CFM with the multi-stakeholders forum.
- The CFM has potential for increase of forest area through public and private forestry promotion.
- This has a management committee and monitoring committee from all VDCs involved in CFM. This enables coordination mechanism at political level.

3.4 Weakness of CFM

The important weakness of CFM is the issue of implementation of CFM scheme. The plan is not implementing as mentioned in the scheme. The plan clearly mentioned the compartment and sub-compartment but these are not implementing as per scheme.

The fringe area is already marked in the scheme but these area are not improved as per the operational plan.

The role of stakeholder is defined in the CFM schemes but these are also not clear during the implementation. The benefit sharing mechanism is not satisfactory to the users. The contribution of local users in management is very important but they are not being satisfactory. The 25 % benefits is only remained to user accounts. This does not make creative environment to implement CFM.

The following weakness observed in CFM

- The CFM could not control the heavy grazing and encroachment in the fringe area of CFM.
- Heavy demand of forest products from the southern part of the CFM users has created issue of nearby areas.
- Lawlessness and insecurity is important problem for the implementation of CFM scheme.
- Weak governance is another important problem for governance.
- Less- opportunities of livelihoods observed in Terai area. CFM could not addressed these issues in the early stage.

Chapter 4. Major Drivers of Deforestation and forest degradation

4.1 Drivers of Deforestation and forest degradation

The forests are the most important and versatile renewable natural resources of Nepal, providing a wide range of economic, social, and environmental benefits and services. In collaborative forests, there are a number of drivers of deforestation and forest degradation including demographic changes (population growth, migration patterns, internally displaced population), economic pressures (economic growth, poverty, forest management and harvesting, fuel-wood energy), ecological pressures (land degradation and desertification, climate change, natural disasters, invasive species, biodiversity conservation) and socio-political pressures (societal transitions, decentralization and devolution, community based forest management, people's preferences and demands, governance issues, policy reforms and institutional changes).

Deforestation (changing forests into other land use) and forest degradation (deteriorating in quality of forests) are among the major problems and of serious concerns in Nepal. In the Terai and Siwalik deforestation is wide spread due to government resettlement programs in the past and current illegal clearing of forests for agriculture. In general, main causes of deforestation are agricultural production, need of firewood, forage for livestock as well as local unemployment and insufficient management by the government. There are also other reasons which include political instability, politician's attitude, forest fire, shifting cultivation, natural process, forest rewards, attitude of individuals, donor's role and government policy (Joshi *et.al*, 2000). Land degradation is identified as one of the major environmental problems in Terai requiring urgent action while desertification has been noticed in geologically and ecologically vulnerable ecosystems. About 28.24 percent of the total land (about 3.2 million ha) is under the process of desertification. Of the total forest area of the Terai districts about 1.3 million hectare is degraded.

Forest encroachment is identified as one of the main causes of deforestation in Nepal. The continuous vicious cycle of forest encroachment have been identified as the main obstacles for the sustainable forest development in the Terai, inner Terai and Churia forests of Nepal. According to a study based on the result of national forest inventories, in between the period of 27 years between 1964 and 1991, Nepal lost 0.57 million ha forest area (Adhikari, 2002). Out of which, 0.38 million ha of forests has been converted into agricultural land. The rest 0.19 million ha has been used for used for the various infrastructure development purposes such as roads,urban development, irrigation canals, and to establish educational institutions.

In Nepal, drivers of deforestation and degradation are diverse, complex and different in the physiographic regions. The preliminary analysis identified a total of nine drivers: High dependency on forest and forest products (timber, firewood and other NTFPs), Illegal harvest of forest products, Unsustainable harvesting practices, Forest fire, Encroachment, Overgrazing, Infrastructure development, Resettlement, and Expansion of invasive species.

Forests of the Terai and Siwaliks are declining both in area and quality, due to inappropriate policies, weak governance, weak forest law enforcement, limited technical capacity and high demand for timber and firewood both within the country and across the Indian border. Although the government owns a major part of the forest estate to protect and manage it, in reality such forests are highly prone to deforestation and forest degradation due to illegal harvesting and forest encroachment. Furthermore, recurrent fires and unregulated grazing further retard regeneration and growth and encourage invasive species. The opportunity cost of retaining these areas as forests in the Terai is high as the land is potentially highly productive for agriculture and because household reliance on agriculture is high whereas commercial productivity of forests is low.

Underlying causes

Among the many underlying causes of deforestation and forest degradation many are not due to the internal factors directly under the control of the MoFSC. Many are a result of a combination of internal factors and those beyond the jurisdiction of the MoFSC. Some of the underlying causes are very broad and include factors such as population increase and its distribution, poverty, land scarcity and the status of Nepal's level of economic growth and commercial development. Governance and cultural factors are both cross-cutting and also underlie a number of the direct drivers for deforestation and forest degradation. This indicates that strong coordination and collaboration across sectors and with multiple stakeholders is needed for the development and implementation of programs to combat deforestation and forest degradation. Unclear land tenure, use rights, and policy and planning are an important contributor to deforestation and forest degradation in Nepal. 63% of all forests and shrub-land, although officially government-managed are *de-facto* open access resources with limited control over their use.

Existing mechanisms for forest product marketing lead to market failure. The government fixes administrative rates (royalties) for the sale of forest products that do not reflect market prices. Various government and quasi-government organizations e.g. Timber Corporation of Nepal as well as forest products supply committee, forest product development board are involved in timber and forest product harvesting and trade whilst the private sector is not encouraged. As a result, formal and informal taxes proliferate in the timber trade and in transportation of forest products. An illustration of this market failure is the price difference between the stumpage and end user prices for timber, which were US\$ 4 and 30 per cubic foot, respectively, in 2009.

Insufficient technical inputs for sustainable management of forests have created an imbalance in the supply of forest products. Most of the government managed forests are not optimally managed thus contributing to widening gap between forest products

demand and supply. Forest handed over under participatory mechanisms such as community forestry are primarily managed for the subsistence needs of the community, although these forests too have high potential to provide surplus products for the market if managed scientifically and if markets are deregulated, thus contributing to demands in other areas where there are shortages of forest products - especially timber.

4.2 Prioritization of drivers of deforestation and land degradation in CFM sites

Deforestation is another important issue in CFM sites. The drivers of deforestation are illegal Harvesting of timber, over grazing, encroachment. Illegal cutting of firewood is one of the important drivers of deforestation. In CFM sites, the illegal trading of timber is important drivers of deforestation. The demand of timber is high for the users of CFM (4113 cu.m. per year in Halkhoriya), but the operational plan provides only 402.06 cu.m. per year.

Encroachment of forests in the Terai region is a long existing problem since the last several decades in Nepal. Nepal has lost significant area of forest to encroachment in the Terai region over the decades. Although encroachment is posing serious threat to forest, there is lack of concrete policy, strategy and plan to deal with this problem. Therefore, forest encroachment has become a chronic problem in natural resources management regime in Nepal's Terai. In the past, illegal forest squatters were managed in an ad-hoc basis. The problem of encroachment keeps on escalating during the period of political unrest and political fluidity in the country. In Bara district, the encroachment is important issues in forest management. The encroachment is important in the government managed forests.

Encroachment is a social and political issue in Nepal. People migrate from northern hills to southern Terai in search of better opportunities and easier lifestyle. The major drivers of migration of the people from the mountains are: poverty, natural calamities, large family size and less employment opportunities and low production capacity of the land. When people move from their ancestral homes, they tend to stay where majority from their communities are already there. In the past, such fluxes of the hill migrants were managed by the government by allocating land to them in the forest. So, the encroachers believe that if they occupy the forest land forcefully, eventually government will allocate land for them. Due to the involvement of land mafias and concessionaires encroachment is ever increasing problem in the Terai forests.

The Drivers and their causes were analyzed with the CFM users, committee and staff in two selected CFM.

Drivers 1 High Dependence on forest products

Causes:

- Inefficient use of forest products
- No alternate for fire wood

- Less opportunities of livelihoods

Strategic Options:

- Promotion and expansion Bio-gas
- Alternative for forest products
- Avoid unnecessary use of forest products
- Forest based enterprise

Driver 2 Illegal cutting of timber

Causes:

- Failure of Market
- High demand of forest products in Terai and boarder
- No Governance
- No implementation of forest law
- No management of forest product distribution

Strategic Options:

- No syndicate and carterling for timber
- Develop product competitive
- Governance in product distribution
- Facilitate to implement the rules formed by jointly

Driver 3. Unsustainable harvesting

Causes:

- No governance
- No research and development for sustainable harvesting

Strategic Options:

- Permanent Depot management
- Harvesting through low carbon techniques
- Management of harvesting through private company/ enterprises

Driver 4. Forest Fire

Causes:

- No awareness
- No management for Forest fire

Strategic Options:

- Transfer of fire fighting
- Fire detection watch tower
- Develop and promote fire resistance species

Driver 5. Encroachment

Causes:

- Expansion of agricultural land
- Poverty
- Political reason

- No clear Land ownership policy and plan

Strategic Options:

- Land use planning
- Clear define the roles and responsibilities of local bodies and institutions
- Plantation of carbon stock increment

Driver 6. Over Grazing

Causes:

- No alternative for fodder
- Unproductive livestock rearing
- No alternative income

Strategic Options:

- Management of rotational grazing
- Promotion of grazing disliked species
- Manage livestock registration and stall feeding
- Carbon stock through increasing number of trees as per livestock

Driver 7. Development Infrastructure

Causes:

- Conflict between Forest policy and other policies
- No clear provision of IEE and EIA
- No proper planning for development structure

Strategic Options:

- Develop a fund from the carbon estimation from priority national infrastructures development

Driver 8. Resettlement

Causes:

- Increasing demand for settlement
- New infrastructure development

Strategic Options:

- Delineate industry/ settlement

Driver 9. Expansion of Invasive species

Causes:

- No technology for removal of invasive species
- Forest fire
- Over grazing
- Plantation of new species

Strategic Options:

- Promotion of native species
- Alternative use of invasive species like bio-briquette
- Plantation of carbon stock species

The prioritization of drivers were done with CFM in Halkhoriya and Tilaurakot. In both sites, illegal harvesting of timber is under priority one. The second priority was on the overgrazing and fire. In Halkhoriya, encroachment is also valuable in the fringe area.

Table 5: Priority ranking in Halkhoriya

Drivers	1	2	3	4	5	6	7	8	9	
1		2	1	1	1	6	1	1	1	6
2	2		2	2	2	2	2	2	2	8
3	1	2		4	5	6	3	3	3	3
4	1	2	4		5	6	4	4	4	4
5	1	2	5	5		6	5	5	5	5
6	6	2	6	6	6		6	6	6	7
7	1	2	3	4	5	6		7	7	2
8	1	2	3	4	5	6	7		9	0
9	1	2	3	4	5	6	7	9		1
	6	8	3	4	5	7	2	0	1	

The driver 2 is in high priority 6 in second, 1 in third, 5 in 4th, 4 in 5th as per priority ranking.

Chapter 5. Lessons Learned for Controlling deforestation and Forest Degradation

Experience in Nepal so far has shown that a top down approach to policy and planning has had little success. A decentralization/localization approach to forest governance has been the key to controlling forest degradation and deforestation by creating more downwardly and horizontally accountable structures which empower local stakeholders who have better 'time and space' knowledge of local conditions to resolve their collective problems in the forestry sector through consensus. However, no single solution or model fits all physiographic regions with the example already given of community forestry being a success story in the Mid-hills but still being contested in the Terai.

Learning has also shown that cross-sectoral solutions must be sought and negotiated – for example those relating to land-use and the desired extent of forests and protected areas alongside other pressures for land allocation to landless people and agricultural production. There have been positive experiences with multi-stakeholder bodies at district and community levels as a means for addressing local issues and resource conflicts. These bodies have provided synergy and increased effectiveness by increasing collaboration between and among government and non-governmental organizations, grass-root institutions, and private sector as well as ensuring democratic and transparent decision-making. Forestry programs need to contribute to all aspects people's wider livelihoods including food security. This allows local people to own the programs and feel committed to them. Many poor and excluded groups are highly forest dependent and must be properly represented in forest management and forest resource utilization decision-making at all levels. Forestry programs must be consistent with the national strategy on poverty reduction, contributing to peace and security and Nepal's inclusive economic growth.

5.1 Problems for controlling CFM:

The following problems observed in CFM sites.

- Demand of timber and firewood is high in the first and second year of implementation.
- Heavy grazing is one of the important problem for CFM.
- Encroachment in the fringe area is another important problem of CFM.
- Heavy demand from the southern part of the CFM users.
- Lawlessness and insecurity is important problem for the implementation of CFM scheme.
- Weak governance is another important problem for governance.
- The role of stakeholders is not districted in the management of forests.
- Inefficient use of forest products is in the CFM area.

- No alternate for fire wood for the local people.
- Less opportunities of livelihoods in Terai area.
- High demand of forest products in Terai and boarder
- No Governance and no implementation of forest law
- No management for Forest fire
- Expansion of agricultural land
- No clear Land ownership policy and plan
- Unproductive livestock rearing
- Conflict between Forest policy and other policies
- No clear provision of IEE and EIA
- No proper planning for development structure
- Increasing demand for settlement
- No technology for removal of invasive species
- Siltation from forest materials
- Flooding
- Diseases and insects in trees and plants
- Increased dryness in forest

5.2 Potentiality for future implementation:

In CFM areas, the following lessons learnt for controlling deforestation and degradation of land.

- The role of local VDC level committee in CFM should be increased and empowered for the protection of forests.
- The nearby community members are keeping more stock of timber and distant users are also trying to get more timber. The awareness to both users is necessary for the management of forests.
- Over grazing is still important problem in CFM. The control of grazing mechanism should be developed in CFM sites.
- Forest fire is also important driver of deforestation and degradation. Awareness campaign and fire line should be constructed in the CFM.
- Depot has played an important role in distribution of forest products.
- The piloting of REDD plus from the networking of CFM.

Chapter 6. Strategic Options for Controlling deforestation and Forest Degradation

Nepal faces huge challenges to combat deforestation and forest degradation. The real challenge to reducing deforestation and forest degradation is in the Terai due to the multiple complex factors operating there such as high demand across the open border, high population pressure, political instability, lawlessness and insecurity, poverty, weak governance and landlessness. A range of strategic options will be needed including sensitization of political parties, enhanced forest law enforcement and governance and a conducive environment for alternative income generation activities for poor people including ways of attractive private sector investment. Coordination mechanisms among various line agencies necessary can best be facilitated at local government level. The following strategies are recommended for the future intervention.

6.1 Implementation of CFM schemes

The following strategies are recommended for implementation of CFM.

- Initiate to implement the operational plan from the first year.
- Start the work from compartment and sub-compartment to initiate the plan implementation.
- Start the joint monitoring from the stakeholders.
- Strengthen DFCC to implement the CFM schemes.

6.2 Capacity Enhancement and Awareness

The following strategies are recommended for capacity enhancement and awareness to CFM users and stakeholders.

- The government of Nepal is politically committed to a process of land reform hence this will be a timely opportunity to address the issue of deforestation due to settlement and encroachment. To address encroachment problem, the awareness programme should be designed and manage accordingly.
- For the control of over grazing, a sensitization is necessary among the people. The public land and private forestry programme should be promoted in Terai for the requirement of forage.
- The demonstration plot should be prepared near by the village for the management of forests. The role of distant users should be cleared in that piloting.
- The enrichment plantation and plantation of baren land is also important in the CFM areas. The plantation of fruit tree in some selected areas is also recommended for income generation activities.
- The income generation packages should be developed along with the protection of forests.
- Sensitization of political parties is important for the management of CFM.

- Further study on drivers of churia and low land is necessary for the CFM deforestation.
- Develop a mechanism for the Forest law enforcement
- Initiate a Private sector investment in CFM.

6.3 Control of deforestation and forest degradation

The following strategies are recommended for control of deforestation and forest degradation.

- Promotion and expansion Bio-gas and reduce pressure on forest dependence.
- Provide alternatives for forest products to reduce the pressure.
- Avoid unnecessary use of forest products in the CFM area.
- Establish Forest based enterprises for betterment of livelihoods of people.
- Disable syndicate and carterling for timber.
- Develop product competitive for the marketing efficiency of products.
- Establish strong mechanism for governance in product distribution
- Facilitate to implement the rules formed by jointly.
- Establish and function Permanent Depot management
- Manage Harvesting through low carbon techniques
- Give alternatives for the management of harvesting through private company/ enterprises
- Transfer of fire fighting tools to CFM.
- Establish Fire detection watch tower.
- Develop and promote fire resistance species.
- Manage Land use planning.
- Clear define the roles and responsibilities of local bodies and institutions.
- Plantation of carbon stock increment.
- Management of rotational grazing.
- Promotion of grazing disliked species.
- Manage livestock registration and stall feeding
- Carbon stock through increasing number of trees as per livestock.
- Develop a fund from the carbon estimation from priority national infrastructures development.
- Promotion of native species.
- Alternative use of invasive species like bio-briquette.
- Plantation of carbon stock species.

6.4 Piloting REDD plus in CFM of Terai

The following strategies are recommended for implementation of CFM.

- The potentiality of REDD plus in CFM area is high in Nepal. The REDD piloting should be started with the support from other donors and REDD cell in the selected district.
- The piloting should be managed with the clustering of CFM more than 20,000 ha. Which may give the high potential for the benefits of local people.
- The plantation in public land and private forestry is important in Terai management. The Piloting should be linked with the increase of public and Private forestry.

Annexes

Checklist for field:

Interview with CFM Groups (Case study for 2 sites) :

- When started the management of CFM
- What is the status of CFM
- Are you satisfied with this management
- What is the strength of CFM
- What are the weakness of CFM
- What is the status of deforestation and forest degradation
- What are the major drivers of deforestation and forest degradation
- What are the causes of forest deforestation
- What lessons learnt for controlling the deforestation and forest degradation
- What lessons learnt for enhancement of carbons
- What are the major strategic options for controlling deforestation and forest degradation
- Contribution to policy and strategy development in REDD plus in Nepal.
- What are the opportunities of CFM in REDD plus.
- What are the similarities and differences among various CFM practices.
- To analyze different drivers of deforestation and forest degradation in CFM sites.
- What are the different strategic options for REDD plus in the CFM of Terai.

Interview with CFM Committee members:

- When started the management of CFM
- What is the status of CFM
- Are you satisfied with this management
- What is the strength of CFM
- What are the weakness of CFM
- What is the status of deforestation and forest degradation
- What are the major drivers of deforestation and forest degradation
- What are the causes of forest deforestation
- What lessons learnt for controlling the deforestation and forest degradation
- What lessons learnt for enhancement of carbons
- What are the major strategic options for controlling deforestation and forest degradation
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- What are the similarities and differences among various CFM practices.
- To analyze different drivers of deforestation and forest degradation in CFM sites.
- What are the different strategic options for REDD plus in the CFM of Terai.

Interview with Key informants

- What are the present management practices of CFM
- What is the status of forest management of CFM
- What is the strength of CFM

- What is the status of deforestation and forest degradation
- What are the major drivers of deforestation and forest degradation
- What are the causes of forest deforestation
- What lessons learnt for controlling the deforestation and forest degradation
- What lessons learnt for enhancement of carbons
- What are the major strategic options for controlling deforestation and forest degradation
- Contribution to policy and strategy development in REDD plus in Nepal.
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- What are the similarities and differences among various CFM practices.
- To analyze different drivers of deforestation and forest degradation in CFM sites.
- What are the different strategic options for REDD plus in the CFM of Terai.

Interview with DFO

- What are the present management practices of CFM
- What is the status of forest management of CFM
- What is the strength of CFM with other management modalities
- What is the status of deforestation and forest degradation
- What are the major drivers of deforestation and forest degradation
- What are the causes of forest deforestation
- What lessons learnt for controlling the deforestation and forest degradation
- What lessons learnt for enhancement of carbons
- What are the major strategic options for controlling deforestation and forest degradation
- Contribution to policy and strategy development in REDD plus in Nepal.
- What are the opportunities of CFM in REDD plus.
- What are the similarities and differences among various CFM practices.
- To analyze different drivers of deforestation and forest degradation in CFM sites.
- What are the different strategic options for REDD plus in the CFM of Terai.

List of participants of workshop: