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For further information, contact EnLiFT:

In Nepal

ForestAction Nepal
Dr Naya Sharma Paudel
Phone: +9779851015388
Email: naya@forestaction.org

In Australia

University of Adelaide
Dr Ian Nuberg
Phone: +61421144671
Email: ian.nuberg@adelaide.edu.au

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Our Cover: Forest farm landscape in Chautara cluster, photo by Sarada Tiwari.

Ministry of Forests & Environment Government of Nepal

Chautara Cluster Level Forest Assessment Report

Sarada Tiwari | Kapil Dahal | Madan Bashyal | Rahul Karki | Naya Sharma Paudel | Srijana Baral | Mani Ram Banjade |

ForestAction Nepal, Kathmandu, Nepal

Bishnu Hari Pandit

Nepal AgroForestry Foundation, Kathmandu, Nepal

Shambhu Prasad Dangal

Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC), Nepal

Edwin Cedamon | Ian Nuberg

University of Adelaide, Adelaide, Australia

Hemant Ojha

University of Canberra, Canberra, Australia Capital Territory, Australia

Krishna K. Shrestha

University of New South Wales, Australia

List of Acronyms

AAC	Annual Allowable Cut
ACIAR	Australian Center for International Agricultural Research
AFO	Assistant Forest Officer
CF	Community Forest
CFOP	Community Forest Operational Plan
CFUG	Community Forest User Group
COVID-19	Corona Virus Disease
DFO	Divisional Forest Office
EC	Executive Committee
EnLiFT2	Enhancing Livelihood from Improved Forest Management
FECOFUN	Federation of Community Forest Users Nepal
FGD	Focus Group Discussion
Ha	Hectare
HH	Household
I/NGO	International/Non-Governmental Organisation
LPG	Liquified Petroleum Gas
MOITFE	Ministry of Industry, Tourism, Forest and Environment
NRP	Nepalese Rupee
NTFP	Non-timber Forest Product
OP	Operational Plan
PF	Private Forest
SciFM	Scientific Forest Management
S-DFO	Sub-Division Forest Office

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Introduction

Background

The mid-term review commissioned by the ACIAR (Australian Center for International Agricultural Research) in early 2021 made a couple of recommendations among which the following were pertinent: i) re-organizing service provisioning; ii) interventions targeted towards building capacities of the stakeholders at the cluster level; iii) identify potentials for collective sale and trade of forest products, in addition to assessing collective enterprises; and iv) integration of community forests with private forests in the research sites.

This report presents the Chautara cluster level assessment and provides an analysis of opportunities and challenges for a cluster level mechanism in regards to prioritizing and planning the management of forest resources. Following the mid-term review of EnLiFT2 project (Enhancing livelihoods from improved forest management in Nepal), the cluster level assessment was felt necessary and hence builds on the past analysis of community forest user groups (CFUGs) situated in Chautara cluster.

Stepping on those recommendations, EnLiFT2 project put forth the concept of cluster level mechanism involving stakeholders including CFUGs, Divisional Forest Office (DFO), local government, Federation of Community Forest Users Nepal (FECOFUN), and the EnLiFT2 project. Considering the homogeneity of the forest patches in the project sites i.e. Sindhupalchowk and Kavre, where pine plantation conducted in the early 1980s, dominates the landscape, the concept of the cluster level forest management seems feasible. Moreover, the forest management prescriptions are largely the same. This demands for interventions to operate in clusters, comprising of several CFUGs in adjoining political boundaries (i.e., wards). Ward(s) was conceived to be the ideal scale for cluster level interventions as the entire local government (i.e., rural/municipality) would be too large, while on the other hand, CFUGs are too small for the purpose of intervention. For this purpose, ward – 8 and ward – 13 of Chautara municipality was considered as a single cluster comprising of 18 CFUGs. This report provides an overview of the Chautara cluster that also includes the municipality level data at various instances.

Objective

The primary objective of the assessment is to provide an overview of the forest management, socio-economic, and institutional dynamics and inform the most appropriate forest management interventions for the development of community and private forest in Chautara cluster. The specific objectives are;

- Assess capacity gap to design better capacity development interventions
- Understand the existing cooperation and conflicts between CFUGs to assess the prospect of cluster level mechanism.
- Scoping of forest-based enterprises and businesses to enhance income and employment for forest dependent communities.
- Assess the gap in service provisioning and explore strategies for quality, timely and accessible services.

Methodology

The report largely draws on review of the contents of community forest operational plans (CFOPs)[1], community forest Constitution, meeting minutes of CFUGs, policy and regulatory documents pertinent to community and private forestry, and municipality level database. Secondary data was drawn from annual reports, municipality profiles that were obtained from the municipality and DFO (Chautara) while certain statistics pertaining to demography and socio-economic situations were retrieved from the national census data. The review was complimented by interviews and discussions with individuals and selective groups, respectively, in the research site. About 15 key informant interviews (see annex 1) were conducted with women representatives of various CFUGs and entrepreneurs to have a better understanding of women's participation in forest management, their access to resources and their voice in decision making as well as status of enterprises respectively in the cluster. Three meetings with CFUGs at the ward level and one joint meeting with wards and CFUGs were conducted. These meetings were primarily aimed at data collection and to discuss on cluster level forest management mechanism. Likewise, four focus group discussions (FGDs) were organized with the community forest executives and women groups. The discussions primarily focused on the status of forest resources, their harvest, utilization and business potential, institutional functioning, areas of conflict and collaborations and their prospects.

Similarly, several rounds of consultation meetings were organized with the local government officials at the municipality and ward level. These meetings were centered on effective service provisioning as well as policy and regulatory space for collaborative actions at the cluster level. In addition, meetings with individual CFUGs as well as joint meetings with various CFUG members were organized at various instances to discuss their current status and issues.

EnLiFT2 researchers attended, and at instances, facilitated, the CFUG executive committee and tole level meetings, and general assemblies. This report builds on the observations and documentation by the project team, mainly looking at the issues on group governance, benefit sharing, participation, and equity and inclusion among others. Likewise, transect walk inside the forest area provided a better idea of the resource conditions and forest management practices of the CFUGs.

Data analysis and write up: The data collected were organized and has been presented in different forms – tabular, maps, graphs, charts, quotes – in the report. This report is a collective effort of the team of EnLiFT2 researchers who were also involved in the data collection process. The preliminary findings were shared with the local government officials, DFO staff, and representatives of FECOFUN, and feedback was sought on particular areas in relation to their involvement/interest. The report was finalized following the incorporation of the feedback from the stakeholders.

[1] The review mainly looked at the demand and supply of forest product, forest condition, and stock of forest resources among others.

Overview of Chautara Sangachowkgadi Municipality

Geography

Chautara Sangachowkgadhi Municipality, headquarter of Sindhupalchowk district covers an area of 165.25 sq. km. The municipality constitutes 14 wards. It is situated at an altitudinal range of 620m to 2500m above the sea level. It is surrounded by Balefi and Sunkoshi rural municipalities in the East, Indrawati rural municipality in the West, Panchpokhari and Jugal rural municipalities in the North and Kavrepalanchok district in the South. Sunkoshi, Balefi Khola, Kuvinde Khola, Indrawati, Kumbeshwor Khola, Zyadi Khola and Maguwa Khola are major rivers that flows through the municipality.

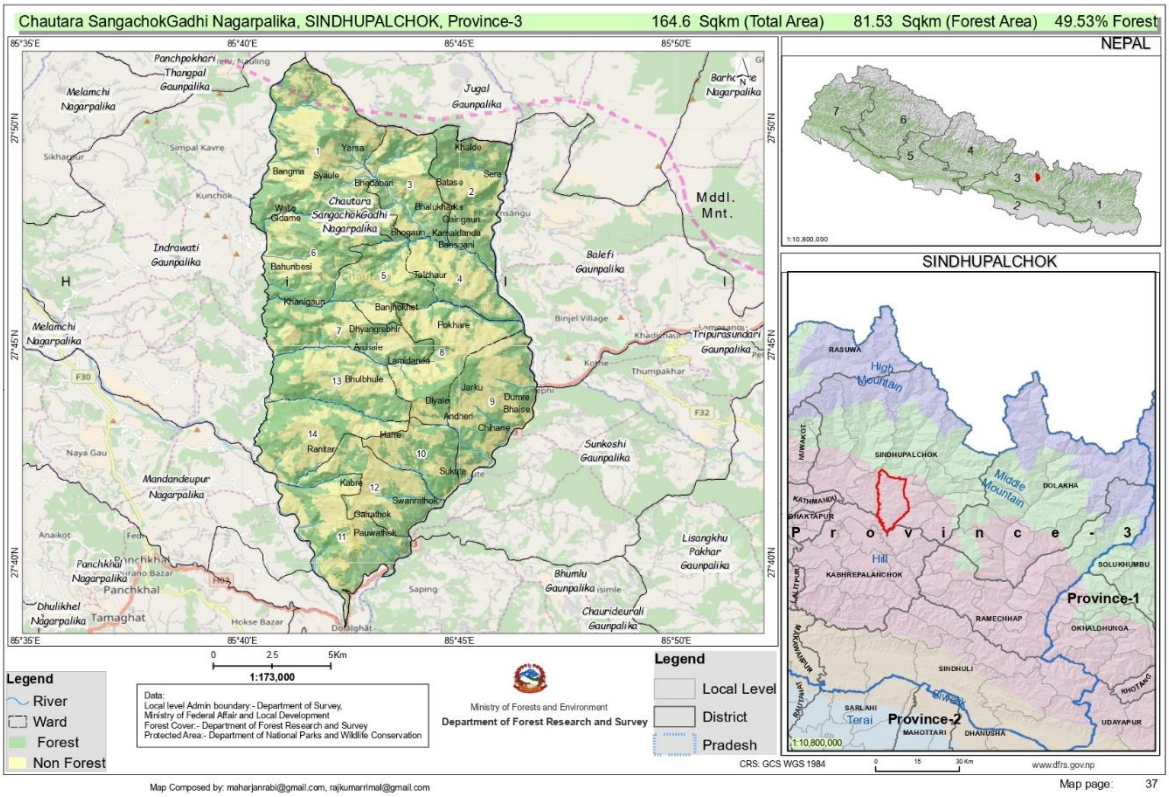

Figure 1: Map of Chautara Sangachowkgadi Municipality, Sindhupalchowk

The municipality is renowned for its religious sites. Gaurati Bhimeshwar Temple is the famous religious place of the municipality where devotees from all over the country visit at various occasions. Gaurati Jatra is specific to the municipality which is celebrated during November. Other famous temples like Sangachowkgadhi, Raktakalika temple, Bhadaure Ganesh temple, Ganesh and Bhimsen temple, etc are also located in the municipality. Mountain range, natural caves, forest as well as cultural diversities are the major tourist spots in this municipality. Chautara is one of the famous tourist destinations where both domestic and international tourists stays and enjoy the view of Jugal and Langtang peaks among others. A trekking route leading to Langtang National Park is situated in this municipality.

Climate and land use

According to the municipality profile report (GoN 2018), the mean annual rainfall in the municipality is 1615 ml and temperature ranges from minimum 5 degree to maximum 32.5 degree Celsius. On the basis of topography and soil composition, the municipality is divided as highland (above 2134m), hilly land (916-2134m) and plain land (620-915m).

Of total area of the municipality, 60.88% of the land is under agricultural use. Forest covers 21.02% of the area followed by bushes i.e. 13.01%. About 3.51% of the municipality's area is covered by grasslands while 1.56% of the land is occupied by sand and water (GoN, 2018)

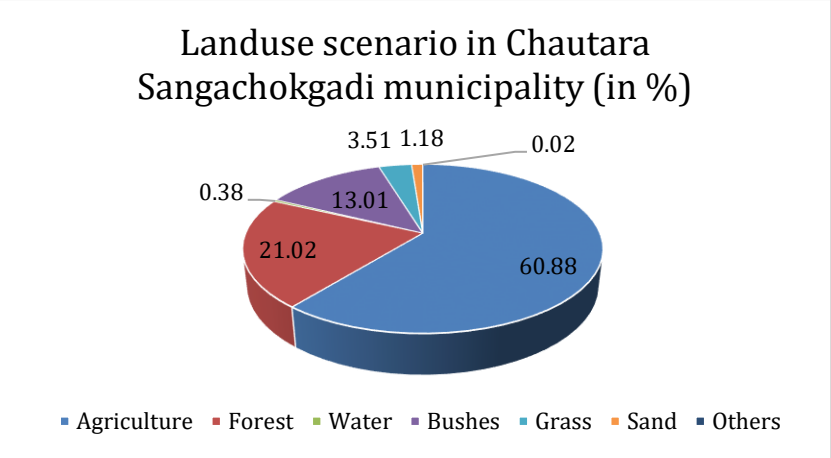

Figure 2: Landuse scenario in the municipality

Socio-economic status

According to the GoN (2018), the total population of the municipality is 51347 of which around 54% are women and 46% are men. Approximately, 5% of total population have migrated to Banepa, Kathmandu and foreign countries like Malaysia, Gulf countries, Japan, Australia, etc of which 83.7% are men and 16.3% are women. The outmigration is high from wards 7, 11 and 13 of the municipality. Tamang community dominate the region (23%) followed by Chhetri (19%), Newar (18%) and Brahmin (18%). Others ethnic groups include Ghale, Pahari, Yadhav, Sherpa, and Dalit.

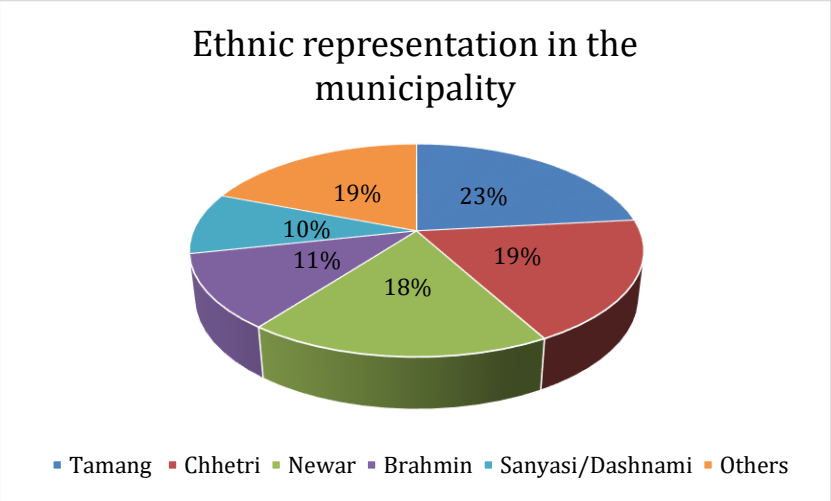

Figure 3: Ethnic representation in the municipality

Agriculture is the major source of income followed by local business, enterprises, and jobs among others. In recent times, remittance has become one of the major sources of income. People residing in the municipality are also being attracted towards off-farm-based income opportunities. There are around 21 businesses like suppliers, stationary, meat shops, beverage shops, gold/silver shops, medicals,

petrol pump, fancy stores, photo studio, grocery shop, electronic shop, beauty parlor, restaurant, and vegetable shops among others, operating in the municipality (GoN, 2018). Chautara is the major market area within the municipality and is situated around 86 Km away from Kathmandu. Around 91% of the municipality's households have water supply through tap/pipe while rest of others fetch water from public taps/ponds and around 99.07% have access to electricity. Similarly, around 82.34% households use firewood for cooking and 17.01% use LPGs (GoN, 2018).

There are seven commercial banks operating in the area and 97 cooperatives registered in the municipality. The cooperatives are providing subsidies to promote agriculture. In addition, they are supporting HHs with loans as well as maintaining the saving habits of the local people. The municipality also consists of one community forest cooperative outside the cluster (see Table 1).

Table 1: Cooperatives operating in the municipality

S.N	Category of Cooperatives	Number of cooperatives	Remarks
1	Producer	42	Supporting in dairy, agriculture, livestock, coffee
2	Users	48	Supporting in saving habit of users and providing short term loans. One cooperative of CF (Shree Gaule Samudiyik Ban Sahakari Sanstha Limited in Chautara 14)
3	Worker	1	Cooperative of skilled worker
4	Multipurpose	6	Related to multiple business activities
	Total	**97**	

Source: GoN (2018)

Natural calamities

Chautara Sangachokgadhi municipality is vulnerable to several natural calamities and extremities. There are several notable historical incidents of natural disasters including the Jure landslide of 2014 or the massive earthquake of 2015 that has resulted in loss and damage of lives and property in a significant scale. The landslide of 2014 caused 156 human casualties and disrupted road access (Bhushal, 2020). Similarly, the devastating earthquake of 2015 severely affected houses, infrastructures and resulted in death of people and livestock as well. Since the municipality is linked with river and riverbanks, it consists of several erosion sensitive areas. The human activities like grazing, mining and extraction, and forest fire among others has increased the risk of flood and landslide in the area.

Forest Resources, Use and Management

Forest resources, cover and stock

Forest occupies 21.02% of the total area of the municipality. There are different forest management regimes in the municipality including 96 community forests occupying 5924.21 ha, 96 leasehold forest covering 311.02ha, 1 religious forest covering 3.28ha and 27 private forests. The forests of the municipality consists the dominant tree species like Sal (*Shorea robusta),* Gobre Salla *(Pinus wallichiana),* Khote Salla *(Pinus roxburghii),* Chilaune *(Schima wallichi),* Katus *(Castanopsis indica),* Uttis *(Alnus nepalensis),* Lapsi (*Choerospondias axillaris), and* Chanp *(Mikalia champaka).* Other than this, forests are equally rich in biodiversity. Different wildlife like Leopard (*Panthera pardus),* Jackal *(Canis aureus),* Clouded leopard *(Neofelis nebulosa),* Langur *(Presbytes entellus),* Pangolin *(Manis crassicaudata),* Deer *(Moschus moschiferus),* etc and birds like Dove (*Streptopelia chinensis)*, Junglefowl *(Gallus gallus),* Danphe *(Lophophorus impejans),* Crow *(Carvus macrorhynchos),* etc are found in the region. Similarly, non-timber forest product (NTFP) species like Dhasingare (*Gaultheria fragrantissima)*, Jatamasi (*Nardostachys grandiflora)*, Amla *(Phyllanthus emblica),* Majitho *(Rubia manjith),* Timur *(Zanthoxylum armatum), etc* are also found in the forests.

Photo 1: A user guiding his goats for grazing in the forest

The community forests situated in the cluster are composed of tree species like Pine (*Pinus roxburghii and Pinus patula*), Sal (*Shorea robusta),* Chilaune *(Schima wallichii),* Katus *(Castanopsis indica)*, and Kafal (*Myrica esculenta)* among others (Annex 2). In the cluster, almost all CFs (891.6ha) are composed of both pine plantations and natural broadleaf forests. Community forests including Shreechhap Deurali, Sansaridanda, Tarebhir and Bajhekapase consists of major portion of pine plantation forest while Deurali Chyandanda, Ambote Singhdevi, Bimreni, and Bhedigoth have comparatively less pine plantation and more natural broadleaf forests. Like in Bhumlu cluster, the pine plantation are already of four decades old and have been less tended than required. Grazing seems to have posed major challenges to the regeneration within the forests in the cluster. In broad leaved forests, the forest stand consists of over story of Katus (*Castanopsis indica) and* Chilaune *(Schima wallichii)*, a mid-story of Kafal (*Myrica esculenta*), Guras (*Rhododendron arboreum*) and Bhak amilo (*Tetradium daniellii*), and understory of Bhak amilo (*Tetradium daniellii)* and Guras (*Rhododendron arboreum)* saplings and Kavro (*Ficus infectoria*), Khanyu (*Ficus semicordata*), Guras (*Rhododendron arboreum)* shrubs.

The result from the review of forest management plan and rapid assessment shows that the forest stock is approximately 80 trees per ha, 579 pole per ha, 1035 sapling per ha and 4135 seedlings per ha (details in Annex 2).

In this cluster, five CFUGs have been considered as a sub-cluster for assessing the available private forest cover and timber volume. There are a total 425 private forests, of which 39 forest owners were surveyed on the basis of their business potential (Table 2). Among the CFUGs in the cluster, private forests in Shreechhap area was considered to having the highest business potential. Volume of the trees were calculated across three diameter classes (girth 6-10, 11-15 and above 15 cm). Total volume of the standing trees in the private forests of this cluster was calculated at 592245 Cfts (Table 2).

Table 2: Volume of standing trees in private forests of the cluster

CFUG area/ sub-cluster	No of PFs	Sampled PFs	No of trees/ farm	Volume of standing tree (cft)				Dominant species
				5-10	11-15	Above 15	Total	
1. Lampate	130	7	68	29982	46313	24824	101118	Chilaune
2. Banje Kapase	15	4	32	1432	2509	5124	9066	Lapsi
3. Sansari Danda	68	6	73	19448	24811	22876	67136	Chilaune & pine
4. Shreechhap	162	16	148	73500	161293	155905	390697	Chilaune & pine
5. Tagare	50	6	16	8562	7697	7968	24227	Pine & Chilaune
	425	39	90	**132925**	**242623**	**216698**	**592245**	

Changing forest-people relationship

People living in the village grow seasonal agricultural crops in addition to being involved in alternative income generating activities. Maize, millet, rice, etc are the major crops grown in the cluster. Some users even produce off-seasonal vegetables, for, example, tomato, cauliflower, etc in tunnel. In recent years, the off –farm-based activities like furniture, tea shops, grocery shops, beauty parlor, etc are also increasing in the cluster mainly in market areas like Irkhu of ward 8 and Kotdanda of ward 13.

The forest-people relationship is changing with diversification of livelihood strategies of users, primarily from subsistence based to commercial one. Results from the KIIs show that about 45% of the households in the cluster on an average have at least one member migrated outside the village. They have migrated mainly to cities like Banepa, and Kathmandu as well as foreign countries like Malaysia, Japan, Kuwait, Australia, America and Gulf countries for employment, education and better facilities. Meanwhile, the dependency of users on forest-based products have also decreased however there are still a certain share of household that rely on firewood, fodder, leaf litter, etc. Around 85% of the households in the cluster use alternative energy for cooking like LPGs and biogas along with firewood. "*The use of LPGs is efficient both in terms of time and money for small family size living in the village*."-said Purna Bahadur Shrestha, chairperson of Jhyalikhola CFUG. Tok Bahadur Shrestha from Tamakhani CFUG added-"*In short span of time, multiple food items can be cooked using LPGs*."

Users from some CFUGs like Bhedegoth community forest from ward 8 do not frequently collect firewood due to inaccessible path inside the forest which makes the firewood collection and transportation costly in comparison to the use of LPGs. The chairperson of the CFUG said-" *A cylinder of gas costs approx. Rs 2,000. If any user wants to bring firewood of the same amount, s/he has to spend around Rs 5,000 in total. Due to this, firewood often get decayed in the forest*." Users usually use firewood to prepare livestock feed and alcohol, and for the purpose of cooking during rituals like marriage and funerals. Nearly 100 households from Newar and few Chhetri community of Jhyalikhola CFUG prepare alcohol and collect firewood from both private lands and community forest.

Similarly, the trend in livestock rearing has also changed with the shifting life style of the people. People living in the cluster now a days are attracted towards keeping small size and number of livestock that engage them with easy living and certain income. One of the respondent from Tamakhani CFUG stated-"*Around 10 years ago, 50% of the households in this area had buffalo, but now only 5% of them have it. However, they are keeping minimum of 5/6 goats to the maximum 17/18 goats in their houses*." With increasing outmigration and remittance based livelihood, the investment capacity of users have increased. Due to this, the family members of such households residing in the village and having workforce have started commercial poultry farming in the cluster. There are seven poultry firms in Bajhekapase CFUG, nine in Tamakhani CFUG, and two in Deurali Chyandanda.. The increasing trend in construction of concrete houses following the earthquake in 2015 has resulted in reduction in the use of timber. In addition, furniture like bed, and cupboard among others are imported from Bhaktapur as their designs and finishing are considered better than the local products.

Forest management

The current management plans of the community forests includes several forest management activities like forest cleaning, singling, pruning, thinning, etc. They also include strict provisions of penalties and punishment to control misconduct in the forest like grazing in restricted areas, forest fires, among others. However, such management activities and provisions are not placed in action in majority of CFUGs, mainly after earthquake. The underlying reason behind it is the reduced interest of users on voluntary participation in forest management activities. The increased influence of development projects on the local people through incentives during the recovery period after earthquake has slightly changed the attitude of people for voluntary participation on any social activities. The CFUGs on the other hand have low income from the community forests to pay to labor. Similarly, the increasing out migration has resulted in the reduction of forest dependent users as well as workforce in the community, thus declining people-forest relationship.

Out of 18 CFUGs in the cluster, operational plans of four CFUGs are prepared with provisions on Scientific Forest Management (SciFM) approach, one being based on Thinning guideline and remaining on the basis of community forest development (AAC) (see Annex 2). Among these, the CFOPs of two CFUGs (Shreechhap and Sansaridanda) have been amended in the facilitation of EnLiFT2. The CFUGs have also harvested timber in the technical support of the project to establish silviculture research plots in those community forests. Other than these, the amended CFOP of the Bajhekapase CFUG has been submitted to DFO for approval. In addition, the excessive harvest of pine trees for constructions after earthquake have made the forest sparse mainly in those having less pine plantation forest and more broadleaved species. Due to limited resource availability, the external timber sale is more costly to those CFUGs. Cumbersome legal procedures on the other hand have equally demotivated the potential income generating CFUGs like Shreechhap and Sansaridanda CFUG.

Box 1: Amendment of CFOP

The operational plans of Shreechhap and Sansaridanda CFUGs based on SciFM principles were approved in 2017. The implementation of the operational plan was halted due to the dilemma among CFUGs and DFOs. The dilemma was due to the ongoing investigation of SciFM in Terai, Nepal. The community forests were selected by the project to establish its silviculture research trial plots. However, it took more than two years to implement it due to the impasse. Later on, the operational plans needed amendment in order to implement the provisions. With the technical support and cooperating from EnLiFT2 project, the plans were amended through the general assembly held in 2021 in both CFUGs. The provisions regarding research trial plots in the particular blocks of the forest were included in the plans. The term "SciFM" were replaced by the "*P. patula* and *P. roxburghii* Thinning Guideline 2064 (2007)". Also, the block wise annual thinning details were added in the plans.

Forest Product Demand and Supply

The demand of users for timber was higher during the earthquake for the construction of temporary shelter. However, the demand reduced while constructing permanent houses during post-earthquake reconstruction period because majority of the houses were concrete and used alternatives to timber for instance, aluminum for windows and doors. Contrastingly, users with weak economic background including Dalits collected timber from the forests mainly for beam, doors and windows of their houses. Users usually prefer timber of pine, Sal and chilaune, firewood and leaf litter of pine and broad leaf species. While other interest groups like blacksmiths, prefer Lapsi, chilaune and painyu for making coal. The timber of lapsi and pine are also used locally to prepare furniture. The demand for timber also depends on the accessibility to the forest. The users usually prefer forest products, mainly timber, from nearby road or areas with easy access.

Table 3: Demand and Supply status of forest products within the cluster (*Source: OP revision*)

Particular	Demand	Supply	
		CF	PF
Timber (in Cft)	15028	9574.8	5453.2
Firewood (in bhari)	684822	284316	400506
Grass (in bhari)	1524940	726758	798182
Plough (#)	1760	1389	371
Coal (in bhari)	802	663	139

Despite the fact that data in the operational plan shows no disparity in the demand and supply of the forest products, in practice, users' trend in collecting forest products have decreased in post-earthquake reconstruction phase. Even the stock in the private forests are not fully utilized by the users. The changing livelihood, energy use, agricultural practices like adoption of modern tools (tractors) instead of traditional one (plough), are the basic reasons behind this.

Forest fire

Forest fire has been a serious issue for forest management in the recent years. According to the active fire data[2], higher incidences of forest fire were recorded in 2021 in the cluster accounting to a total of 30 incidences in a year (Fig 4). Forest fire have occurred in 75% of the community forests in the cluster of which some were severe to the extent that they required support of fire engine to control (eg. Shreechhap) while rest have minor effect on the forest. One of the primary reasons for increasing forest fire in the recent years can be attributed to intentional burning by the users. Other than accidental burning due to smoker's traveling by the forest area, CFUGs like Tarebhir CFUG have observed

[2] Data accessed through https://www.earthdata.nasa.gov/learn/find-data/near-real-time/firms/viirs-i-band-375-m-active-fire-data

intentional burning. '*Users intentionally put fire to satiate their ego as well as to collect firewood when trees get dry after fire, especially by Tamang community who prepare alcohol*', shared the chairperson of Tarebhir CFUG.

Moreover, provisions related to forests fire management stipulated in the CFOPs have not been adequately followed and also due to lack of coordination and social tensions observed within the CFUG members and across CFUGs. However, some CFUGs like Bimreni are taking actions against such misconducts. For example, the CFUG has banned the culprits from accessing forest products for a one year period.

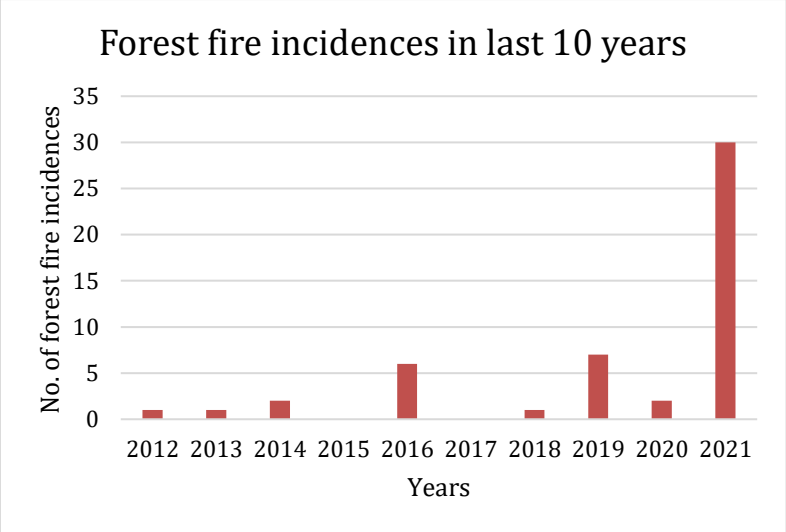

Figure 4: A decade of forest fire incidences in the cluster

Participation or involvement of CFUGs in forest fire control has declined over the past few years. The fire line have often been constructed as a forest road for easy transportation of forest products. According to the executive committee members of some community forests, only those living in proximity to the forest participate in controlling fire, as it poses threat to their. Some community forests, for instance Shreechhap, have been seeking support of concerned agencies for the use of fire brigades to put off fire, especially in areas with road access. In other cases like Bhedigoth community forests, which lack fire line and are difficult to access, makes them vulnerable to frequent fires. Amidst the increasing incidences of forest fire in the recent years, engagement of actors, for instance the local police, for forest fire control is increasing. In addition, the DFO have also mobilized 10 fire fighters since this year (2022) during fire prone seasons.

Human-wildlife conflict

Human-wildlife conflict is a serious issue in the cluster. The impact of wildlife like monkey, wild boar, deer and crow on agricultural crops and tiger and leopard on livestock is severe. Crop raiding by monkeys is common in both wards of the cluster however the severity of carnivores is comparatively higher in ward 13. The economic loss faced by the users due to wildlife attack on livestock have been an issue of concern.. "*Today only, leopard killed 2 goats that would have value of Rs 30,000 each.*" -said a respondent of Rolpakha CFUG during an interview. On the other hand, the production of agricultural crops is very low in comparison to the investment made there.

"*It costs around 2000 for oxen/day while sowing crops, Rs 700 per person as wage and at last we have to buy the crops from the market.*"- said the chairperson of Bajhekapase CFUG. He further added- " *If we could take care of crops, we could save 3/4th of it from wildlife but who has time to stay every single day in the field?"*

As per the responses of the user group members, agricultural lands are mostly associated with the settlement on the one side and forest on the other. The abandoned cultivable land as a consequence of crop raiding by monkeys have now converted into bushes. Such dense cover in the agricultural land have facilitated the access of wildlife like leopard, tiger, etc to the settlement where they attack the livestock. On the other hand, users normally keep their livestock in the tin shade constructed as temporary shelter during earthquake. Leopards can easily enter into such shades and attack the livestock.

Despite some efforts by wards and cooperatives to minimize the impact of monkey on agricultural crops, its effectiveness has not been observed by the users. "*The Alopalo cooperative has provided us the powder gun. Initially, it was effective but now monkey even ignore the sound of the gun.*"- said a member of Tamakhani CFUG.

Box 2: Severity of human wildlife conflict (source: KIIs)

- Monkey destroys 70% of all the agricultural crops grown in the field. Due to this, around 40-50 ropani (2-2.5ha) of agricultural land has been left barren in Narayandevi CFUG alone.
- Monkey and wild boar are affecting around 90% of the total agricultural crops grown in the land and leopard are killing livestock, mainly goats, in Tamakhani CFUG. Even birds like crows affects maize upto 5 muri (aprox. 360 kgs) in a season.
- Since 3 years, the conflict of leopard has increased in Jhyalikhola CFUG. They have killed 5/7 oxen, 2/3 baby buffalo and many goats by now.
- Annually 20/25 goats are killed by leopard and tiger in Bimreni CFUG. On the other hand, monkey and wild boar are raiding on agricultural crops.
- There is a record of leopard killing 10-15 goats in a single day in Bhedegoth CFUG. This year (2021/22), leopard have killed around 30/35 goats in the CFUG.
- Since 10 years, monkeys have been destroying almost all crop grown in the land at Bajhekapase and Deurali chyandanda CFUGs.

Forest Governance Practices and Challenges

Stakeholder analysis

Different actors, with diverse interest and stake in forestry, are present in Chautara cluster. The roles and services range from forest management, to governance, marketing, and trade. The actors, their anticipated roles and contribution are elaborated in the table below.

Table 4: Anticipated role and contribution made by key stakeholders within the timeframe of the project

Actors	Anticipated Role	Supporting role
DFO/SDFO	Approval of CFOPs; Issuing harvesting, auctions and transportation permits	• Approved two CFOPs and their implementation (Sansari and Shreechhap) • Helped testing of portable sawmill • Support to cluster mechanism
Municipality	CFUGs status review Facilitate compliance of mandatory institutional functions	• Registered Cluster Level Forest Management Committee (CLFMC) • Endorsed municipality's Forest Act
Wards	CFUGs status review Facilitate compliance of mandatory institutional functions	• Investment on tourism activities on CFs eg. Supported financially to construct park on Tamakhani CF • Hold one-third share on cluster level mechanism
FECOFUN	Facilitating CFUGs institutional functions	• Support to cluster mechanism • Support to municipality's Forest Act
CFUGs	Improve self-governance and forest management Make forest management related decisions independently Perform mandatory institutional functions Forest management Collaborate with local government for fund mobilization	• Timber harvested from the research plots by Sansari and Shrechhap CFUGs. • Gap in GAs and meetings of the CFUGs • Hold one-third share on cluster level mechanism
Forest entrepreneurs[3]	Contribute to employment generation and local economy Affordable and uninterrupted supply of forest products Easy access to market	• Supply of finished products to users groups. • Facilitated sawn timber supply at the local level.

[3] Forest entrepreneurs are considered as the owner of forest based enterprises existing locally or nearby markets.

Traders[4]	Facilitate fair, secured and inclusive business environment Invest in improved forest management, enriched resources and efficient technologies	• Collect timber from CF/PF and sell to big traders in Banepa • Functions as local agents of big traders mainly in Banepa • Pay all the transaction costs, conceal information that results in price gap.
Tree Owners/PF	Improve and expand forest management practices Increase access to technical (including technology) and financial services (loan, insurance) Form municipality or cluster level network mechanism for exchange of knowledge and technology	• Sell the grown trees on trader's terms and conditions, low influence on timber related decisions • Play major role in supplying timber in the market • Some farmers engaged in large scale plantations • Formation of Association of PF owners in progress
EnLiFT2	Silviculture research through trial plots Capacity building of CFUGs and strengthening institutional processes Engage with DFO, Palika, FECOFUN and CFUGs for a coordinated effort to active forest management and CFUG governance	• CFOP amendment of Shreechhap and Sansari CFUG. • Established silviculture research trial plots in Shreechhap and Sansari CFs. • Hold one-third share on cluster level mechanism • Supported CLFMC on capacity building of CFUGs (Forest Fire Management Training, Women Leadership Development on Forest Management) • Testing of portable saw mill • Facilitate institutional functions of the CFUGs

Planning and decision making

The Community Forest Operational Plan (CFOP) despite of being mandatory legal document to operate technical forest management activities, their preparation have been costly to the CFUGs. CFUGs have paid upto Rs 50000 for the technical services to DFO staffs while preparing the CFOP. However, their timely renew, amendment and approval have been an issue in the cluster. On the other hand, the CFUGs and their knowledge of forest management are rarely considered in planning forest management activities. Moreover, women are often excluded in such technical jobs.

The CFUGs' meeting and General Assembly (GA) are the major planning and decision making forums. The constitution of CFUGs provision on holding monthly meetings and annual GA. However, in practice, such events have been hardly conducted by CFUGs in the last seven years. Low demand of forest products, private lands replacing community forests in fulfilling the resource needs, and passiveness among CFUGs after earthquake, and most recently, the COVID-19 lockdown, have been the major causes for gap in such events. However, the cluster still have some CFUGs where users rely on CFs one way or another and CFUGs are also having some income from them. For example, Bimreni CFUG

[4] Traders are considered as the middle man who buy timbers from CFs and PFs and supply to enterprises.

generates income by selling grass to its users and have been conducting their GA annually. However meetings in all CFUGs are conducted when necessary. More meetings are organized during the time of timber harvest and selling, for example, Sansaridanda CFUG conducted upto three meetings in a month during the time of harvesting. It is important to note that the CFUGs are centered on income generation to hold meetings, while other issues are largely sidelined.

This year (2022), the attempt of Cluster Level Forest Management Mechanism (CLFMM) have made it possible to conduct GA of majority of CFUGs. "*We conducted GA this year after five years because forest technician from cluster mechanism facilitated us to do it.*"-said the chairperson of Jhyalikhola CFUG.

The systematic approaches to conducting GAs were followed by the CFUGs. The executive committee first organize the planning meeting where agenda and decisions to discuss and endorse in the assembly along with the date and venue of the events are decided. They provide notice to users a week earlier through formal notice. They also invite the representatives from the local government (ward and municipality representatives), and S/DFO. The agenda are discussed and decisions are endorsed through the assembly. Some CFUGs with good income manage allowance to the participants, for example, Shreechhap CFUG provide Rs 200 each for the participants for attending the GA while some CFUGs like Bhedegoth manage tea and biscuit to the participants of the assembly. However, regarding meetings, the committee members are informed a day earlier when necessary.

Service provisioning

Human resource scarcity in the DFO and geographical limitations are posing difficulties in timely and effective service provision to the CFUGs in the cluster. The sub division office in Chautara comprises of one AFO, two Foresters and two Forest Guards. Chautara Municipalities have 96 CFUGs and 96 leasehold forests. Other than this, there are 27 private forests, 1 religious and remaining national forests. The sub-division staffs have to supervise all the community forests, including private forests with additional legal and administrative works in a relatively large area. Besides, AFOs and foresters have substantial roles while forest guards have limited duties to fulfill. In this context, effective service to all CFUGs and private forests from this limited human resource is hardly possible. Hence, clustering of CFUGs with similar attributes and provisioning services accordingly may be an effective way to optimize service with the given human resources. The Divisional Forest Officer of Sindhupalchowk said- *"Forest management is an urgent work needed to be done by DFO but due to lack of human resources and multiple responsibilities (technical, administration, security, semi-judicial) given to the DFO staff, it has not been possible to focus enough on community forest management. The concept of hiring a technical person through the cluster mechanism is an innovative idea."*

Forest use, distribution and sale

The Pine stands are mature and need to be timely harvested to optimize the economic benefits. However, harvest is very low in comparison to its allowable cut as per the CFOPs. Data from the last six years show that approximately more than 25,000 cft of pine timber was harvested and sold in the market from the cluster. The consumption of pine timber within the CFUG was high immediately after the earthquake, however the demand has declined in the recent times.

Process of internal timber sale-The users in need of timber submit their application to the executive committee along with a fee of Rs 10. The application charge is same in almost all CFUGs in the cluster. In case of many applications, the EC usually conduct a meeting, assess the need of users and decide on allowing the release of timber. If the application are few i.e. one or two, the chairperson decides and provides a receipt for the timber sale. The price of timber varies between tree species and between CFUGs. For example, the price of Sal (*Shorea robusta*) timber is Rs 200 per cft and other species is Rs 100 per cft in Rolpakha CFUG. Similarly, the price of pine is Rs 80 per cft, Katus is Rs 30 per cft and Chilaune is Rs 60 per cft in Narayandevi CFUG whereas the price of pine in Jhyalikhola CFUG is Rs 30 per cft for internal sale. Some CFUGs collect Rs 5 per bhari of firewood.

However, the CFUGs sell the timber outside through auction process as per the guidelines provided in the "Community Forest Products Distribution and Sale Directive, 2014."

Box 3: Case of Bimreni CFUG (Chautara-13)

The primary income source of Bimreni CFUG is sale of ground grass while the CFUG derives its income through internal timber sale as well. The CF has eight plots of grass and collects and sells it annually. This year (2022), the CFUG earned Rs 46000 alone from sale of grass. The executive committee sometimes organize general meeting simply to make a decision on sale of grass. During that time, the executive committee asks the users to show present their capacity to purchase the grass during the bidding. The one who agrees to provide highest amount (margin will be the highest price of last transaction), can harvest the grass by paying the sum to the executive committee. Mainly those users who have more livestock often claim the harvest authority. Sometimes, conflict arise among the buyer too regarding the boundary of plots. In that case, the executive committee organizes a meeting among the previous buyer and the new buyer to resolve the issue.

The treasurer of Bimreni CFUG expressed his concerns "*We are unable to satisfy all the users. Being a member of the executive committee, we have to look after the income. If we try to share the resources in an equitable way, our income will get reduced. Therefore, we need to ignore the rotational method of distributing grass to the users. Only those who can pay high will be selected.*"

Fund management and governance

Timber sale is one of the major sources of income of the CFUGs in the cluster. Shreechhap Deurali and Sansaridanda are the highest income generating CFUGs from external timber sale in ward 13 and 8 respectively. However, the income have not significantly contributed the livelihoods of the users. Despite the legal provisions to spend at least 25% on forest management, 50% of remaining on community development and remaining on women and marginalized oriented income generating and livelihood activities (CF Guideline 2014 and OPs), the balance between provisions and practice is less observed. The funds are either mobilized in development priorities like infrastructures or are deposited in the banks or cooperatives, and have rarely been mobilized in livelihood development activities. Fund mobilization in some high income generating CFUGs like Shreechhap and Sansaridanda CFUGs are often decided through the general assembly. While in case of CFUGs with low income, the fund have either not been mobilized, for example in Narayandevi CFUG, or the executive committee members first spent the fund and endorse it later through the general assembly. For example in Bhedegoth CFUG, the fund spent on logistic was later endorsed through the general assembly.

Private Forest Management

In regards to the management of private forest in the cluster, farmers have expressed a number of issues including limited technical knowledge on the use of organic pesticides in coffee plantation, tree felling done without proper planning, and timber sold using a standing tree estimation system. Private forest owners complained that the legal procedures involved in harvesting and marketing of timber are very lengthy, complex and time consuming. So, some of the private forest owners leave the tree as it is because of this complex process. According to Mr. Shiva Puri, a private forest owner, it is very difficult to protect their land from fire due to its frequent occurrence in nearby community forest. Moreover, the private forest owners are not aware of forest fire control measures.

Other issues pertinent to private forest management are listed below:

- Many PFs do not have easy road access. Therefore, transportation of timber is costly.
- Human-wildlife conflict
- Low margin for the farmers due to high timber collection and harvesting costs
- Low profit to PF owner due to increasing role of contractor in harvesting and supplying timbers.
- Fees to be paid to the visiting officials of the survey department are very high. This payment is based on the size of parcels, not based on the number of trees to be measured. Sometimes, royalty is more than the value of timber itself.

Inter- CFUG and CFUGs-local government relations

The CFUGs in Chautara cluster have been cooperative and maintain good relationships with each other. However, the affiliation of users with multiple CFUGs provides grounds for both cooperation and conflict, particularly in regards to forest resource use and benefit sharing. The forest network[5] of ward 8 and 13 already existing in the cluster explains the potentiality of inter CFUGs collaboration. The network in its initial stage tried to provide administrative services to the CFUGs to improve their governance by mobilizing a local youth who was paid for managing CFUGs administrative and financial documents for audit. But the network could not continue his contract as the CFUGs could not engage him for long time because they had no harvesting, no income and no need of audit. Even the income generating CFUGs could not continue the timber harvesting.

The CFUGs and the local government in Chautara cluster have remained to each other. The ward chairs, who have long experience in forestry sector are showing their concerns regarding the changing forest-people relation and increasing passiveness within CFUGs. The CFUGs and local government share a common interest of community and livelihood development in the area. This provides a huge space and opportunity to CFUGs and the local government to plan actions and implement joint activities. However, the difference in the planning period of CFUGs (within three months of new fiscal year) and local governments (by the end of the fiscal year) has created a gap in collaboration and planning between the two institutions. In addition, uncertainty in community forestry income has also posed challenge towards collaborative investment with the local government on community and livelihood development activities. Nevertheless, the CLFMC formed in joint collaboration among the forest stakeholders like both wards, FECOFUN, CFUGs and project in the cluster have been in place where local governments, CFUGs and project hold equal shares of the investment on service provisioning. The local governments have also endorsed its own Forest Act. This shows the fact that the local government will be managing forests within their jurisdiction through their own Acts, and is a testimony of exhibiting interest towards forest management. However, the municipality level Forest Act in contrary to The Forest Act, 2019, has vested the right, including registration of community forests, to the municipality. This might result in conflicting roles between the local government and DFOs, especially during implementation of activities.

[5] Forest network is the pre-existing network of five income generating CFUGs i.e. Tarebhir, Bajhbisauna, Sansaridanda, Shreechhap and Ranupokhari (whose OPs were thus prepared on the basis of SciFM) of Ward 8 and 13 but has not been legalized. The OPs of Shreechhap and Sansaridanda CFUGs have been amended in 2021.

Gender Equality and Social Inclusion

Representation and participation

Women have been interacting with forests in various ways including their participation in plantation or weeding and taking care of seedlings or daily basis direct and indirect monitoring while collecting grass, fodder or leaf litter. However, their participation in decision making in timber business is low both in terms of harvesting and selling. The societal stereotypes that women are not meant for heavy duties have hindered their participation in forestry jobs in the cluster. The disparity in regards to women participation and benefits from timber harvesting is presented in table 4..

Table 5: Gender representation in forest management activities

Name of CFUG	Men			Women		
	Participation (%)	Activities involved	Wage received (Rs. Per person)	Participation (%)	Activities involved	Wage received (Rs. Per person)
Sansaridanda CFUG	75	Tree harvesting, piling, estimation	1250	25	Note keeping, snacks delivery	700
Shreechhap CFUG	65	Tree harvesting, piling, estimation	1250	45	Log measurement, tree verification, marking and chopping branches	700
Bajhekapase CFUG	60	Tree harvesting, piling, estimation	1000	40	Snack and water delivery, cleaning, chopping branches	500

The Community Forestry Guideline 2014 requires 50% women representation in the executive committee. Against that provision, only 46% representation of women exists in the CFUGs in Chautara cluster. There are a few exceptional cases however, like Deurali Thulichaur Mahila CFUG which have 100% women representation. In contrast, CFUGs like Ambote have only 36% representation of women in the executive committee. Shreechhap Deurali CFUG, Ambote CFUG and Deurali Thulichaur Mahila CFUG are the women led CFUGs in the cluster.

Women usually attend the general assemblies, and sign the documents with decisions. However, there are very rare cases where women put forth their voice and speak in such forums. In addition, there are

cases where despite being a member of the executive committee, female members have remained hesitant in speaking in front of the mass. For instance, the treasurer (female) of Sansaridanda CFUG, in the latest general assembly requested the secretary (male) to present their financial report, though it was her job to do. . However, women leadership and participation are usually encouraged with an effort especially in women-led CFUG like Shreechhap Deurali CFUG. Engaging women in technical forestry jobs, providing them skill development trainings to empower them economically are some of the attempts made by the CFUG. The chair of Shreechhap represent herself in the local FECOFUN as a secretary and several other forums at the regional and national level.

Forest dependent poor and their inclusion

Majority of CFUGs, mainly those having internal sale of forest products as major income source, do not have any special provisions for forest dependent poor groups. However, every users are provided with firewood during funeral and calamities at free of cost. During marriage and other celebrations, users have to pay a certain amount to the CFUG. Rolpakha CFUG allows harvesting of trees in special occasions with the estimation of one tree equals to 20 bharis of firewood equal 2000 per tree. Contrastingly, some CFUGs like Narayandevi even have prohibited the forest dependent Dalits from harvesting trees despite of their demand.

"*Some dalit groups have complained us several times for not getting timber. I have said them that you can collect the fallen timber but I won't allow you to harvest standing tree since there is no more trees in the forest. The forest on the other hand do not have good quality fallen timbers.*"-said the executive member of Narayandevi CFUG.

On the other hand, the dependency of blacksmiths on community forests, who traditionally prepares the iron tools using coal, have reduced in the recent years despite of easy access in some CFUGs. Such groups in Shreechhap Deurali CFUG have found the collection of coal from the forest more costly. Instead, they have started buying coal from the household who prepare alcohol in low price.

Forest Based Trade and Enterprise

The cluster having diverse tradable species, be it timber products or NTFPs, demonstrate the huge potential for promoting forest-based enterprises. Different individually owned furniture, Lapsi candy, saw mill, aaran (Blacksmith's workshop) exist in the CFUGs. In addition, there has been huge investment from the DFO, Sindhupalchowk to operate the forest based enterprises with capacity building of users in the municipality of which cluster have received a significant portion. They have supported machine to prepare leaf plates (*duna tapari*), Lapsi processing machine, and Lapsi boiling machine to the users. However, those services have not effectively been implemented by the users. "*There has been investment of more than 2 crore to promote forest-based enterprises but we don't know where they exist now.*"- said the Divisional Forest Officer of Sindhupalchowk.

Box 4: Case of Sindhu Lapsi enterprise, Chautara 8

Mr. Jit Bahadur Giri is an owner of Sindhu Lapsi Candy enterprise and locally renowned as "Candy Baaje" among children. He earns approximately Rs 45,000 per months in a season if there are no extremes like Earthquake and COVID. The main season for the Lapsi business is Oct/Nov till May/Jun. The enterprise was established on 2065 BS (2008 AD) with the support of MEDEP (Micro-Enterprise Development Programme) on skill development and in-kind. The support was provided initially for a 5 membered group including Mr. Giri. They had a five years agreement with MEDEP to operate the business. They initially collected Rs 7,000 in total abd bought Lapsi (raw materials) of it. Gradually conflict started arising since the beginning among the team members. Not all the members could equally contributed in the business and they also lacked proper market during that time. After that all other four decided to terminate from the enterprise. During that time, MEDEP supported Mr. Giri the loan of Rs 5,000 from which he cleared the investment of all four members and individually continued the business for five years in the pseudo representation of all five members as per the agreement with MEDEP. He neither shared profit to any other members. During 2070 BS, MEDEP handed over him the enterprise with the in-kinds to continue it. By the time, he had various outdoor exposures in the support of MEDEP due to which he received idea on marketing as well. He also received training on packaging from the Department of Small and Cottage Industry (DSCI), Sindhupalchowk. The DFO has also supported him the processing machine, boiling machine and other utensils worth nearly Rs 2 lakhs. Lack of workforce in the family, skilled manpower in the village and increasing interference of local traders are the challenges he is facing in his business.

Reinvigorating forest management

Governance reform

Poor governance of the community forestry system, within and outside CFUGs, appears to be the major factor for poor forest management in this cluster. Demanding regulatory requirements, and administrative instruments and weak technical support have proven bottlenecks in expediting forest management. In this context, governance improvement is at the core of materialising this huge potential of timber management.

Internal readiness and external support in maintaining the basic institutional functions of CFUGs such as regularising executive committee meetings, general assemblies, and preparation of basic documents to DFO and local government can be a starting point. However, the top-down approach should be complemented by bottom-up approach of organising and capacitating community forest members, particularly the marginalised groups who can raise their voice and effectively engage in the overall planning process. A practical and accessible evidence base on biophysical features of forest and socio-institutional conditions that feed into the planning and management of institution and resources should be adopted. DFO, local government and other stakeholders can monitor and support in CFUG efforts towards improving governance at different levels.

Business potential and economy of scale

With the monitisation of local economy and increasing interface of community forest with the market, forest management and timber sale must be economically viable and profitable business. However, given the small operating unit and high transaction costs involved in timber harvest and sale, this has not been appealing to the CFUG members[6]. This is a very critical finding that compels us to develop strong economic rationale for forest management for timber. There needs a serious rethinking on increasing the economy of scale and reducing transaction costs. Clustering of CFUGs without compromising their institutional integrity may help increase scale of operation, reduce transaction costs, design and enforce their own service provisioning system, new community-private-public partnership models, and increased bargaining power in the market among others. It needs a well thought out process to explore and pilot innovative alternatives with adequate legal space for experimentation. CFUGs and stakeholders should appreciate this gap, demonstrate readiness and develop trust for such innovation and experimentation.

Effective and accessible service provisioning

The sub-division and DFO in Chautara have faced challenges to respond to the increasing support needed for CFUGs and private forest owners in the cluster. The S-DFO and DFO has limited human

[6] A survey of 600 households of Kavre and Sindhupalchowk shows that people are not enthusiastic of timber-based revenue and instead prefer other products that they benefit directly.

resources which has already stretched against demand of 95+ CFUGs, and hundreds of tree owners in the area. On the contrary, the regulatory provisions demand that they physically present in every institutional event (general assemblies, executive committee meetings, and annual planning), planning (annual plan or operational plan revision) and silvicultural operations and planning (forest inventory, tree marking, harvesting, timber auction etc.). It is less likely that the DFO human resources will be substantially increased to meet these demands in the near future.

In this context, alternative arrangements for service provisioning needs to be explored, piloted and adopted. These can be either CFUG-led (CFUG clustering, collective fund raising and hiring services), local government led (local government providing such services) or private sector (from current individual consultant-based services to more institutionalised system of service provision financed by CFUGs or different levels of government). As local government is going to enjoy additional revenue from timber sale, local government led service provisioning sounds rational.

Collaborative initiative

Weak governance, poor forest management and little benefits from timber sale/trade despite huge potential cannot be improved by sole attempts of CFUGs and private forest owners. This requires coordinated efforts from DFO, local government, FECOFUN and other actors (e.g. EnLiFT2). DFO/sub-division can take a lead role in coordinating this function and creating a favourable environment. Similarly, at the local level, local government can play an important role by supporting financial and human resources, mobilising CFUGs using their political influence, and coordinating with other agencies. Improved governance of the forest management and trade may lead to increased harvest and sale thereby increased revenue for local government. Also, it has interest in mobilisation of another 50% of community forestry funds in community development. This justifies the facilitation of local government towards improved institutional governance and forest management.

Capacity building

Most of the CFUGs here are endowed with mature, ready to harvest forest after four decades of plantation and protection. Unlike sole protection measures, harvesting, sale and mobilisation of revenue require fundamentally different sets of skills. As discussed, CFUGs in this cluster are in need of additional skills and expertise in organising events (executive committee meetings, general assemblies), maintaining records, various silvicultural operations, developing operational plans, furnishing several technical/administrative documents, dealing with market, planning and fund mobilisation.

Similar to rest of the CFUGs across the country, CFUGs and private forest owners in the cluster are left on their own in managing their institutions and their forests. They need intensive support through training, exposure visits, backstopping, and on the job coaching among others. Most of these activities can be financed through their own funds. Additional support can be arranged through local government and from EnLiFT2 (at least in the short term). FECOFUN can take a lead in designing and implementing various capacity development activities using above potential financing options.

Annexes

Annex 1: Details of respondents during KIIs

S.N	Name of Respondents	Affiliation
1	Ramsharan Gautam	Ward chairperson (Chautara 13)
2	Rana Bahadur Puri	Bhedegoth CFUG
3	Debaki Bhandari Giri	Bimreni CFUG
4	Surya Narayan Giri	Bajhekapase CFUG
5	Prem Bahadur Shrestha	Deurali Chyandanda CFUG
6	Bhoj Bahadur Karki	Ranipokhari CFUG
7	Sher Bahadur Thakuri	Tarebhir CFUG
8	Purna Bahadur Shrestha	Jhyalikhola CFUG
9	Tok Bahadur Shrestha	Tamakhani CFUG
10	Sukaram Tamang	Narayandevi CFUG
11	Tanka Prasad Gautam	Rolpakha CFUG
12	Dayalaxmi Shrestha	Shreechhap Deurali CFUG
13	Ramesh Tamang	Sansaridanda CFUG
14	Sukabir Shrestha	Sansaridanda CFUG
15	Jit Bahadur Giri	Sindhu Lapsi Candy enterprise

Annex 2: Forest cover and stock in the CFUGs of the cluster (Source: OP revision and rapid assessment)

SN	Ward no	Name of CFUG	Major Species	Stock						AAC (cft per ha)	
				Tree (no/ha)	Tree (cft/ha)	Pole (no/ha)	Pole (cft/ha)	Sapling (no/ha)	Seedling (no/ha)	Tree	Pole
1	13	Mahakal	Sal, Chilaune, Salla	80	95	210	52	830	3240	1.14	0.62
2		Jhyalikhola	Chilaune Salla	60	62	350	62	710	3300	0.74	0.74
3		Dhappakha	Salla, Chilaune Saj	27	23	726	133	3000	6300	0.28	1.60
4		Chyandanda Narayandevi	Katus Chilaune	38	30	565	75	1200	4600	0.36	0.90
5		Rolpakha	Salla, Sal, Chilaune	78	54	585	90	900	4400	0.65	1.08
6		Bimreni	Sal, Salla, Chilaune, Saj	77	67	455	75	1838	3500	0.80	0.90
7		Shreechhap Deurali	Sal, Salla, Chilaune	172	187	1425	123	992	4200	2.24	1.48
8		Bhedigoth Dandapakha	Salla, Sal, Chilaune	87	72	920	95	8CF50	5320	0.86	1.14
9		Tamakhani	Sal, Salla, Chilaune	45	56	780	86	1400	8500	0.67	1.03
10		Deurali Thulichaur Mahila	Sal. Salla, Chilaune, Katus	76	53	480	75	1200	5300	0.64	0.90
11	8	Bajhekapase	Salla, chilaune Katus	94	89	380	78	700	2500	1.07	0.94
12		Banjhbisauna	Salla Chilaune	88	78	340	97	610	2300	0.94	1.16
13		Sansaridanda	Salla Chilaune	126	124	314	61	979	810	1.49	0.73

14		Deurali Chayandanda	Chilaune, Salla, Sal, Katus	81	55	538	83	450	6611	0.66	1.00
15		Ranipokhari Banjhbisauna	Salla Chilaune	87	65	710	110	320	3400	0.78	1.32
16		Tarebhir	Salla Chilaune	95	82	620	71	810	2455	0.98	0.85
17		Ambote Singhdevi	Chilaune. Salla, Sal	38	24	470	61	1200	4300	0.29	0.73
18		Kamalamai	Sal. Salla, Chilaune, Katus	89	76	560	72	640	3400	0.91	0.86
Total				**1438**	**1292**	**10428**	**1499**	**18629**	**74436**	**15.5**	**17.988**
Stock/ha				**80**	**72**	**579**	**83**	**1035**	**4135**		

Annex 3: Details of CFUGs of the cluster (Source: OP and DFO's publications)

SN	Ward no	Name of CFUG	Area (ha)	HHs	Total Population			Executive committee			Status of OPs	Remarks
					Female	Male	Total	Female	Male	Total		
1	13	Mahakal	14	101	296	295	591	5	6	11	Renew	
2		Jhyalikhola	12.62	85	172	153	325	5	8	13	Renew	
3		Dhappakha	4.04	61	195	183	378	6	7	13	Renew	
4		Chyandanda Narayandevi	9.06	85	230	247	477	5	6	11	Renew	
5		Rolpakha	81.74	277	978	952	1930	5	8	13	Renew	
6		Bimreni	35.27	94	313	345	658	1	8	9	Renew	
7		Shreechhap Deurali	79.13	238	1020	835	1855	6	9	15	Renew	
8		Bhedigoth Dandapakha	78.66	149	468	465	933	7	6	13	Renew	Scientific
9		Tamakhani	105.8	185	508	579	1087	7	6	13	Renew	
10		Deurali Thulichaur	8.59	67	170	190	360	11	0	11	Renew	
11	8	Bajhekapase	60.15	167	462	475	937	5	6	11	Renew	Scientific
12		Banjhbisauna	78.22	139	368	465	833	4	5	9	Renew	Scientific
13		Sansaridanda	91.68	183	580	559	1139	4	7	11	Renew	Thinning guideline
14		Deurali Chayandanda	39.08	125	351	376	727	4	5	9	Renew	
15		Ranipokhari Banjhbisauna	74.49	114	264	235	499	4	5	9	Renew	
16		Tarebhir	52.43	103	144	125	269	5	6	11	Renew	Scientific
17		Ambote Singhdevi	50.13	93	235	232	467	4	7	11	Renew	
18		Kamalamai	16.5	116	116	279	395	4	5	9	Renew	
		Total	891.6	2382	6870	6990	13860	92	110	202		

Annex 4: Details of leasehold forests of the cluster

SN	Ward no	Name of the LHF	Major species	Area (ha)	HH	
					Female	Male
1	13	Jungalchhap	salla chilaune katus	2	2	3
2		Singhdevi	Amriso uttis	2.52	0	5
3		Panichaur Dhungare Pakha	Amriso uttis	2	3	2
4		Kalimati Harrepakha	Amriso uttis	3.5	5	2
5		Jugetindhade	Chilaune Nigalo	3	4	2
6		Jamane Birauta	Chilaune Nigalo	5	2	3
1	8	Patalpakha 1	Uttis chilaune kagati, timur, bamboo, kurilo	2.89	5	4
2		Patalpakha 2	Uttis chilaune kagati, timur, bamboo, kurilo	5.06	0	6
3		Patalpakha 3	Uttis chilaune kagati, timur, bamboo, kurilo	5.54	10	0
4		Kamle	Uttis chilaune kagati, timur, bamboo, kurilo	2.27	2	8
5		Jangarepakha	Uttis chilaune kagati, timur, bamboo, kurilo	4.12	0	9
6		Baisang 1	Uttis chilaune kagati, timur, bamboo, kurilo	2	1	5
7		Baisang 2	Uttis chilaune kagati, timur, bamboo, kurilo	1.78	7	0
8		Pipaldanda 1	Uttis chilaune kagati, timur, bamboo, kurilo	1.71	4	6
9		Harre Bar	Uttis chilaune kagati, timur, bamboo, kurilo	3.25	6	1
10		Pandramure	Uttis chilaune kagati, timur, bamboo, kurilo	1.78	9	0
11		Jyamirepakha	Uttis chilaune kagati, timur, bamboo, kurilo	5	6	1
12		Mausamipakha	Uttis chilaune kagati, timur, bamboo, kurilo	4	7	1
13		Kalupate	Uttis chilaune kagati, timur, bamboo, kurilo	4	5	1
14		Kalimati	Uttis chilaune kagati, timur, bamboo, kurilo	5	6	4

15		Kuwapakha 1	Uttis chilaune kagati, timur, bamboo, kurilo	6	6	6
16		Kuwapakha 2	Uttis chilaune kagati, timur, bamboo, kurilo	5	5	5
17		Simpakah	Uttis chilaune kagati, timur, bamboo, kurilo	7	6	5
18		Golmadevi 1	Uttis chilaune kagati, timur, bamboo, kurilo	5	7	3
19		Golmadevi 2	Uttis chilaune kagati, timur, bamboo, kurilo	4	7	1
20		Pipalbotpakha	Uttis chilaune kagati, timur, bamboo, kurilo	5	8	2
21		Manedanda	Uttis chilaune kagati, timur, bamboo, kurilo	4	6	4
Total				**102.42**	**129**	**89**

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