

# **A Feasibility Study Report on Wood Seasoning and Treatment Plant Establishment Surkhet, Karnali Province**



**Submitted to**

Forest Research and Training Center

Birendranagar, Surkhet,

Ministry of Industry , Tourism , Forests and environmental

Karnali Province

**Submitted By**

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## **A Feasibility Study Report on**

### **Wood Seasoning and Treatment Plant Establishment, Surkhet, Karnali Province**

Forest Research and Training Center Birendranagar, Surkhet,

Ministry of Industry, Tourism , Forests and environmental

Karnali Province,2024

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#### **Cover photo credits**

Maps Websites and

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## Summary Report

Items	Summary
Project	Feasibility Study on Establishing a Wood Seasoning Plant in Karnali Province, Nepal
Proponent	Forest Research and Training Center Ministry of Industry, Tourism, Forests and Environment
Locations	Surkhet, Karnali Province
Main Objectives	To conduct the feasibility study on Establishing a Wood Seasoning Plant in Karnali Province, Nepal .
Site selection for plant	Chhinchu, or Birendra Municipality Surkhet
Establishment cost / Operating cost a year	Rs. 39,750,000 / Rs. <b>218,143,433</b>
Financial Findings	<p><b>Payback Period</b> The investment is projected to recover its initial costs within approximately 4.79 years. Further, the investment is expected to recover its initial costs within approximately in 6.51 years on a discounted basis.</p> <p><b>Internal Rate of Return (IRR)</b> The Internal Rate of Return (IRR) of the given project is 18.86%.</p> <p><b>Net Present Value (NPV)</b> At discounted rate of 10% applied over 10 years, Net Present Value (NPV) of the given project is Rs. 18,552,196.61.</p> <p><b>Cost Benefit Ratio:</b> At discount rate of 10% applied over 10 years, Cost Benefit Ratio for the given project 1.46.</p> <p><b>Break Even Analysis:</b> Break Even Points (in Cubic Feet) 33620</p>
Major conclusion	In conclusion, the feasibility study thoroughly examined critical aspects essential for the sustainability of the wood seasoning and treatment plant in Surkhet, Karnali Providence, and found positive results for the establishment of the plant
Recommendation	<ul style="list-style-type: none"> <li>• Encouraged private sector investment, it is recommended that the government should facilitate the policy reform by providing soft loans and subsidies.</li> <li>• It is recommended that the government allocate adequate budget and human resources to the DFOs for the timely review of operational plans.</li> <li>• It is recommended that the government revisit the gap in the existing policy and legal guidelines to overcome the complications of private forest harvest, collection trading, and transportation.</li> <li>• Capacity enhancement activities such as training, workshops, learning-sharing visits, sustainable forest management, and harvesting, forest fire management should be launched</li> <li>• It is recommended that the government revisit the gap in the existing policy and legal guidelines to overcome the complications of private forest harvest, collection trading, and transportation.</li> </ul>

## **Acknowledgement**

The Study Team would like to express a deep sense of gratitude to the Forest Research and Training Center Birendranagar, Surkhet, especially to Director Mr. Rajendra Kumar Basukala and his team, for entrusting us with the important assignment of the "Feasibility Study on Establishing a Wood Seasoning Plant in Karnali Province, Nepal."

We thank Dr. Kedar Baral, Secretary of the Ministry of Industry, Tourism, Forests, and Environment, Karnali Province, for providing valuable suggestions and feedback to accomplish the work. Likewise, we extend our gratitude to Mr. Sher Bahadur Shrestha, Joint Secretary of the Ministry of Industry, Tourism, Forests, and Environment, for supporting the fieldwork and providing valuable insights.

Similarly, the valuable inputs from the Forest Directorate Office (Karnali Province), Division Forest Offices (Surkhet), Federation of Community Forest Users, Nepal (FECOFUN), Community Forestry Users Groups (CFUGs), Forest-based Industry and Trade, Nepal (FENFIT) of Surkhet, and individual timber traders and entrepreneurs, including Mount Everest Ud PVT. LTD, played crucial roles in the study.

Without the support of the community and local people, it would not have been possible to accomplish the assignment successfully.

## **Team Leader**

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## **Executive Summary**

The feasibility study conducted in Surkhet, Karnali Province, aimed to assess the potential for establishing a wood seasoning and treatment plant, focusing on various critical objectives. Firstly, it analyzed the market dynamics for seasoned wood products in Karnali Province, noting a current low demand due to limited consumer awareness but recognizing potential growth opportunities by reducing reliance on costly imports. The study evaluated the availability and sustainability of raw materials within the region, emphasizing the importance of securing a consistent supply of quality timber to sustain operations.

Technically, the study conducted an analysis to determine the necessary infrastructure and technology required for an efficient wood seasoning plant. It also performed a detailed financial viability assessment through cost-benefit analysis, indicating a positive financial outlook with potential profitability despite initial investment challenges. Regulatory and environmental considerations were thoroughly examined to ensure compliance with local laws and sustainable practices. The study identified that establishing such a plant could align with existing Forest Regulations of Karnali Province, which support value addition, local employment generation, and the responsible use of forest resources.

Surkhet District emerged as a significant market due to its active furniture and sawmill industries managed by the private sector. This local demand, coupled with potential markets in neighboring districts like Nepalgunj, underscores the strategic importance of Surkhet as a hub for wood processing activities.

The Division Forest Office Surkhet oversees a larger number of community forests (271) covering an area of 51,432.29 hectares, while the Division Forest Office Bheri manages 173 community forests over 35,356.54 hectares. In terms of religious forests, there are a total of 7, with the Bheri office managing 3 (22.75 ha) and the Surkhet office managing 4 (46.42 ha). The Surkhet office also oversees a forest conservation area of 175.50 hectares and 66 private forests covering 41.94 hectares. Additionally, government-managed forests span 56,009.71 hectares under the Bheri office and 29,134.85 hectares under the Surkhet office.

The demand and supply dynamics of timber over five years. The overall demand for wood is 2,060,316 cubic feet (cft), while the supply scenario shows a significantly higher figure of 5,177,251.95 cft. This indicates that the timber supply far exceeds the demand, with the supply being approximately 2.51 times the demand (5,177,251.95 cft supply vs. 2,060,316 cft demand). This surplus could also indicate potential for pricing adjustments, investment in value-added products, or diversification of timber products to better align with market needs.

The concerned stakeholders concluded private-public partnership (PPP) operating model is the best and most viable rather than other models such as the cooperative model, leasehold model, and Community model.

The existing Forest Act, and Regulation, of Karnali are creating a supportive and conducive environment for enterprises promotion such as wood seasoning and treatment plants, ensuring alignment with sustainable forestry practices and economic viability.

Operational plans for community forests to maintain a consistent timber supply. It also suggests improvements in marketing strategies to promote the use of seasoned and treated wood, potentially mandating their use in government construction projects to stimulate demand.

Overall, the feasibility study supports the establishment of wood seasoning and treatment plants in Surkhet as a means to foster local economic development, promote sustainable forestry practices, and enhance the region's capacity for value-added wood products.

## Abbreviation

AAH	Annual Allowable Harvest
AC	Accounts Committee
BEP	Break Even Point
CCA	Copper Chrome Arsenic
<b>CB Ratio</b>	<b>Cost Benefit Ratio</b>
CFUG	Community Forest User Group
Cft	Cubic Feet
DFO	Division Forest Office
DoF	Department of Forest and soil conservation
EC	Executive Committee
FENFIT	Forest-based Industry and Trade, Nepal
FECOFUN	Federation of Community Forest Users Nepal
IEE	Initial Environmental Examination
IRR	Internal rate of Return
m <sup>3</sup>	Cubic meter
MoFSC	Ministry of Forest and Environment
<b>(NPV)</b>	<b>Net Present Value</b>
NS	Nepal Quality Certification Mark
PAN	Permanent Account Number
VDC	Village Development Committee

## Chapter 1

### 1. Introduction

#### 1.1 Project Background

Forests constitute a significant portion of land use in Nepal, encompassing 44.74% of the country's total land area (MoFE, 2024)). These forests play a vital role in sustaining rural livelihoods, particularly for Indigenous Peoples (IPs) and local communities, by providing essential inputs like nutrients, minerals, and water to agricultural and livestock systems. As of 2018/2019, the agriculture and forest sectors collectively engaged over 60.4% of the population and contributed more than 27% to the national gross domestic product (GDP) (MoF, 2020).

The economic significance of forests in Nepal is evident through the diverse range of forest products they provide: timber for construction, poles for agricultural implements, fuel wood for energy, fodder, grass, and leaf litter for livestock care and compost preparation, bamboo and thatching for roofing, medicinal plants for pesticides, and Bherious non-timber forest products (NTFPs) contributing to income and employment generation. Beyond direct economic benefits, forests fulfill crucial ecological functions, including biodiversity conservation, water regulation, erosion control, and provision of clean air, support for wilderness activities, carbon dioxide absorption, and spiritual solace (FAO, 2009).

Timber and fuel wood represent two pivotal forest products in Nepal, serving as essential sources of income and contributing to the enhancement of local livelihoods. According to estimates, a sustainable annual harvest and sale of a total volume of 1.66 million m<sup>3</sup> (58.64 million cubic feet) of timber could yield Nepalese Rupees (NPR) 55 billion, generating over 200,000 sustainable, full-time equivalent jobs under the conservation scenario (Subedi et al., 2014). Bherious forest products, including timber, poles, fodder, fuelwood, and non-timber items, are derived for both subsistence and commercial purposes.

In Nepal, timber production originates from three primary sources: (a) government-managed forests, including collaborative forests, (b) community forests, and (c) private land, encompassing trees on farmland and private forests (MoF, 2020). Private land contributes approximately 86.6% of the country's timber production, followed by government-managed forests (7.7%) and community forests (5.5%) (Basnyat et al., 2020).

Recognizing the pivotal role of the wood industry in driving regional economic growth through the provision of raw materials for construction, furniture, and Bherious applications, the Forest Research and Training Centre (FRTC) in Karnali proposed a comprehensive feasibility study for establishing a wood seasoning and treatment plant in Karnali Province, Nepal. This region boasts a wealth of forest resources, offering a prime opportunity for sustainable timber utilization. The increasing demand for seasoned wood products, valued for their enhanced durability and stability, both in local and international markets, underscores the significance of exploring the viability of introducing a wood seasoning plant.

The long-term goal of this feasibility study is to assess the economic potential of seasoned wood in Karnali Province, driving sustainable local development and international market participation. The project aims to benefit investors, entrepreneurs, and local communities by fostering economic growth, enhancing skill development, and promoting environmentally conscious practices.

Ultimately, it seeks to establish a sustainable timber industry that supports Karnali Province's economic resilience and ecological balance.

## **1.2 Rationale for the Establishment of a Wood Seasoning and Treatment Plant**

Karnali Province is rich in forest resources, particularly softwood species like pines, which are abundant and can be sustainably harvested. Utilizing these local resources efficiently ensures a steady supply of raw materials for the plant. Softwoods such as pines are highly valued for their versatility and suitability in construction, furniture making, and Bherious manufacturing applications. There is a significant global demand for seasoned wood products, which are preferred for their enhanced durability, stability, and resistance to decay and pests. Establishing a seasoning plant in Surkhet can meet this demand and open up opportunities for both local use and exports, adding significant value to the raw materials.

Processing softwoods locally can create numerous jobs, from plant operations to transportation and related industries, stimulating economic activity in Surkhet and surrounding areas. This can significantly contribute to the local economy by generating employment and providing livelihood opportunities. Softwoods generally have properties that make them easier to machine and process compared to hardwoods. This characteristic facilitates efficient operations in a wood seasoning and treatment plant, reducing processing costs and time, and improving overall productivity.

Establishing a wood seasoning plant promotes sustainable forest management practices. By focusing on responsible harvesting, reforestation, and proper utilization of forest resources, the plant can ensure the long-term viability of softwood species in Nepal. This aligns with global environmental conservation goals and contributes to the ecological health of the region. The introduction of modern wood processing technologies will foster skill development among the local workforce. Training programs associated with the plant can enhance technical expertise in wood seasoning and treatment techniques, benefiting the local community and enhancing productivity.

The establishment of a wood seasoning plant will necessitate the development of associated infrastructure such as transportation networks and utilities, which can further spur regional development. Improved infrastructure will facilitate better connectivity and access to markets, benefiting the broader economy of Karnali Province. The project holds significance for potential investors and entrepreneurs by presenting a viable business opportunity. For local communities, it promises economic growth, skill development, and the promotion of environmentally conscious practices within the wood industry.

In summary, the rationale for establishing a wood seasoning and treatment plant in Surkhet is multifaceted, highlighting the potential for economic development, sustainable resource utilization, environmental conservation, and social benefits. This project presents a strategic opportunity to leverage local resources, meet market demands, and foster holistic regional growth in Karnali Province.

## **1.3 Objectives of the Feasibility Study:**

The general objective of the assignment was to conduct a feasibility study for the establishment of a wood seasoning and treatment plant in Surkhet. The specific objectives of the assignment were:

- Assessing the market dynamics for seasoned wood products in Karnali Province.
- Evaluating the availability and sustainability of raw materials within the region.

- Conducting a technical analysis to determine the infrastructure and technology required for an efficient wood seasoning plant.
- Performing a financial viability assessment through cost-benefit analysis.
- Prepare Detailed Engineering Design
- Identifying regulatory requirements and environmental considerations to ensure compliance.

## Chapter 2

### 2.1 Study area

The study, conducted as a pilot scheme in Surkhet, Karnali Province, reflects the ground reality and viability of promoting wood seasoning and treatment plants in the region. It reveals that wood consumers have limited knowledge of seasoned wood and its benefits, resulting in nominal demand. Despite this, consumers are using seasoned furniture and materials imported at high costs. The study expects that establishing local plants and their production will change consumer mindsets and increase demand. Although the feasibility study is based on the Surkhet market, it provides insights that could help promote wood seasoning and treatment plants in other districts of Karnali Province.

The total area of the province is 27,984 Sqkm where Surkhet covers only 2,476 s Sqkm. According to the latest census of 2021, the total population of Karnali province is 16,88,412 among which 48.8% were males and 51.2% are females.

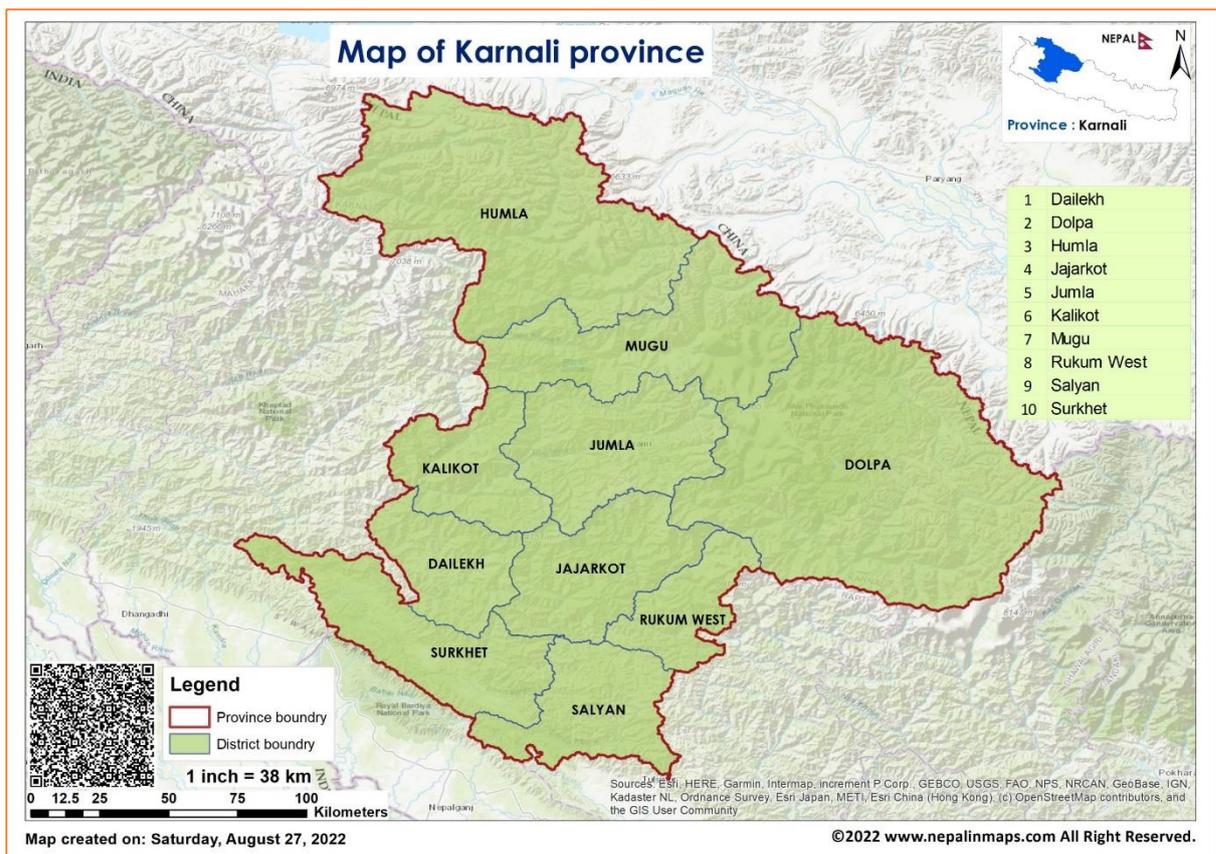


Figure 1: Map of study area showing Karnali province

Geographically, it lies between 80°58'58" & 83°40'57" East longitude and 28°10'7" & 30°26'50" North latitude. It is surrounded by Gandaki Province in east, Lumbini Province in south-east and south, Sudurpashchim Province in the west and Tibet Autonomous Region of China in north. The total forest area of Karnali Province is 41% including 12.8% of graze land and 3.2% bush area. Topographically, the province is divided into four main regions starting from the high Himalayan region, Mahabharat region, mid mountains, valleys, and Chure in the south. Administratively, there are 10 districts in Karnali province. As per the new constitutional provision, there are 79 local governments composed of 25 municipalities and 54 rural-municipalities with 718 wards.

Karnali province has climatic variations, which is associated with the diverse nature of its topography and altitude. Climatic zone of Karnali province starts from High Himal in the north, above 7000m with tundra and arctic climate to Chure region in the south with sub-tropical climatic zone. The average annual precipitation of the province is 1479mm. According to studies, Karnali Province is facing decrease in annual precipitation by 4.91mm yearly. Average annual temperature of the province is 26.1°C. The maximum and minimum temperature of the province is increasing yearly by 0.05 (maximum) and 0.01 (minimum).

Surkhet District, located in Karnali Province, Nepal, spans an area of 2,476 square kilometers and is administratively divided into two forest blocks: the Surkhet Division Forest Office and the Bheri Ganga Division Forest Office. As the provincial headquarters, Surkhet anchors a population of 415,126 residents, with women comprising 215,386 of the total population. The district plays a central role in the governance and socio-economic dynamics of Karnali Province and boasts significant natural resources managed through its forest offices.

## **2.2 Study Methodologies**

The successful establishment and operation of a wood seasoning and treatment plant require the involvement of various stakeholders from governmental, non-governmental, and private sectors. To gather stakeholders' ideas, knowledge, and aspirations, participatory approaches such as desk reviews, interaction meetings, group discussions, key informant interviews and field observations were utilized. Major stakeholders included the Ministry of Industries, Tourism, Forest, and Environment (Karnali Province), Forest Directorate Office (Karnali Province), Research and Training Center (Karnali Province), Division Forest Offices (Surkhet), Federation of Community Forest Users, Nepal (FECOFUN), Community Forestry Users Group (CFUGs), Forest-based Industry and Trade, Nepal (FENFIT), of Surkhet, and individual timber traders and entrepreneurs. These stakeholders played crucial roles in the study (see annex3 list of participants)

### **2.2.1 Literature Review**

Secondary information was gathered through the review of policies, strategies, laws, bylaws, guidelines, and frameworks related to forestry and industry, as well as the Forest Management Action Plans of DFOs. These include, but are not limited to, the following:

- Fifteenth Five-Year Plan of Nepal (FY 2019/20-2023/24)
- Forest Act, 2019
- Forest Regulation, 2022
- Forest Product Auction Procedure Directives, 2003
- Directives for Collection and Sale of Timber/Fuelwood from Community Forests, 2014
- National Forest Policy, 2019
- Forest Sector Strategy, 2016-2025
- Community Forest Development Program Guideline, 2014
- Community Forestry Economic Directive, 2017
- Industrial Enterprises Act, 2020
- Industrial Policy, 2011
- Federal and Provincial Government Sectorial Policies, Laws, Guidelines, and Standards
- Inter-Governmental Fiscal Management Act, 2017
- National Natural Resource and Fiscal Commission Act, 2017
- Inter-Governmental Fiscal Transfer Procedure and Fiscal Transfer of GoN and Provincial Governments
- Five-Year Forest Management Action Plan, 2081 ( FMAP,2081 (DFO, Surkhet and Bheri)

## **2.2.2 Primary Information Gathered.**

The following were the key tools adopted in collecting both qualitative and quantitative Information.

### **Focus Group Discussion (FGD)**

Focus group discussions were conducted in different layers with Community Forest User Groups (CFUGs), the Federation of Community Forestry Users, Nepal (FECOFUN), and a network of private-sector timber business companies. These discussions helped to gain a better understanding of wood seasoning and treatment plants, their implications for the sustainable utilization of softwood, and the sustainable management of forests, as well as the policy and legal constraints involved. The FGDs also provided insights into the roles and responsibilities of different stakeholders in plant establishment and operations See check lists used in (FGD).

### **Consultation Meetings**

A series of consultation meetings were conducted and brought together experts from Bherious entities, including the Ministry of Industry, Tourism, Forest, and Environment, the Forest Directorate, and the Division Forest Office Research and Training Center of Karnali Province. The primary objective was to gather comprehensive insights into policies, technical aspects, and financial considerations related to wood seasoning and treatment plant establishment. During the interaction meeting, experts from Mount Everest Agro Wood PVT.LTD shared their practical experiences, offering valuable information on the technical and financial conditions necessary for successful plant setup. The consultation proved invaluable in addressing key issues, understanding challenges, exploring policy incentives, and establishing effective institutional arrangements. Furthermore, government actions aimed at tackling regional concerns were discussed, emphasizing the importance of verifying information during these meetings to enhance the overall quality of work.

### **Conduct Key Informant Interviews (KIIs)**

Key Informant Interviews (KIS) was a valuable approach for delving into the intricacies of the forest and timber industries in Karnali Province. These interviews were guided by a structured checklist (check listsannex-1). The key informants, including timber industry business owners and experts were engaged in this.

The insights gathered from these interviews provided diverse perspectives, shedding light on the constraints, opportunities, and challenges associated with Timber Marketing and the establishment of wood seasoning and treatment plants. Through this method, a comprehensive understanding of the industry dynamics and potential pathways for sustainable practices was achieved.

### **Field visit & Site observation**

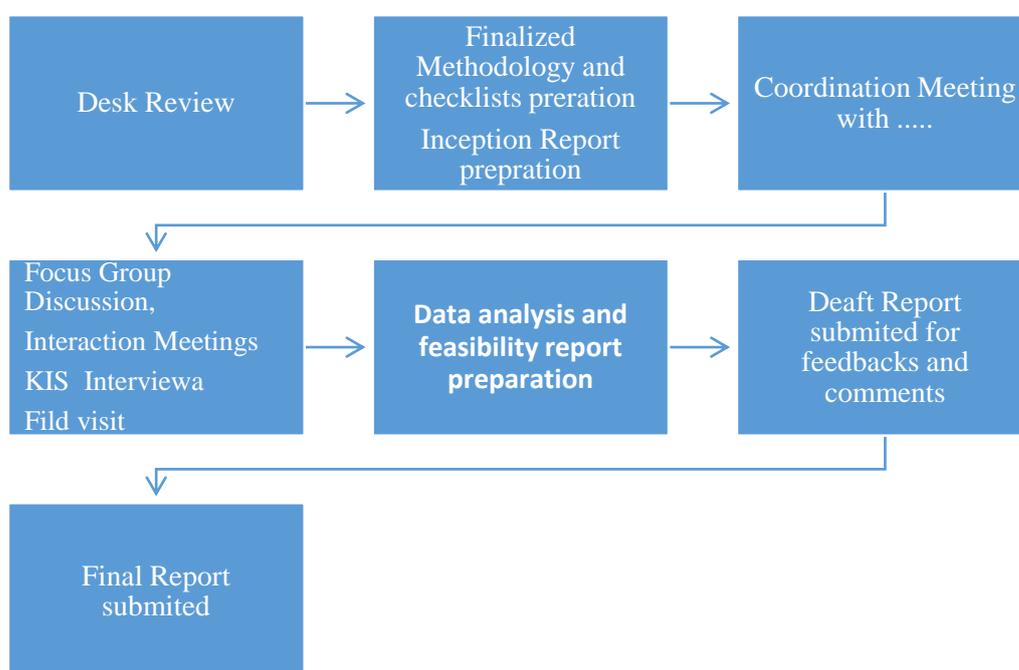
The field visit to Chhinchu and the industrial areas of Surkhet, along with interactions with the local community, focused on exploring the potential for establishing wood seasoning and treatment plants. Additionally, experts visited Siddhartha Wood Industry in Birendranagar and Mount Everest Agro Wood Private Limited in Tilottama-16, Rupandehi. These visits facilitated discussions on Bherious aspects of plant establishment.

Through this on-site exploration, experts were able to triangulate data and assess the feasibility of setting up a wood seasoning and treatment plant. The emphasis was on ensuring the proposed plant aligns with environmental sustainability while meeting the requirements.

## Data analysis and report writing

**Data analysis and feasibility report preparation:** The collected data was processed and analyzed manually. Necessary maps, tables, charts, and figures were produced, and some necessary photos were drawn from websites also. No statistical tests were applied in data analysis. The information collected from different sources were compiled and systematically analyzed for deriving meaningful inferences. Information was constantly cross-checked to maintain consistency in both the quality and procedure of investigation.

**Report submission:** The final draft report was shared to the Research and Training Center (Karnali Province) for getting feedback and comments. Incorporating received valuable inputs, comments and feedback the final reports was produced and submitted to Forest Research and Training Center, Karnali Province.



A conceptual framework of methodology

### 3.1 Findings of Study

#### 3.1.1 Forest in Surkhet

Surkhet District, located in Karnali Province, Nepal, spans an area of 2,476 square kilometers and is administratively divided into two forest blocks: the Surkhet Division Forest Office and the Bheri Division Forest Office. As the provincial headquarters, Surkhet anchors a population of 415,126 residents, with women comprising 215,386 of the total population. The district plays a central role in the governance and socio-economic dynamics of Karnali Province and boasts significant natural resources managed through its forest offices ( FMAP,2081 (DFO, Surkhet and Bheri).

The total forest area in Surkhet encompasses about 173,327.3 hectares. Within this area, 85,498.52 hectares are attributed to community forests (CF), 55.30 hectares to religious forests, 42.34 hectares to private forests, and the remaining to government-managed forests. Community forestry dominates about 49.32% of the forested land. Surkhet is rich in forest resources, including Shorea robusta forests, Acacia-Dalbergia forests, Terminalia-Anogeissus forests, Pinus roxburghii forests, and Castanopsis-Shima-Quercus-Alnus forests. Major species found in Surkhet include Shorea robusta, Terminalia tomentosa, Pinus roxburghii, Adina cordifolia, Dalbergia sissoo, Lagerstroemia parviflora, Syzygium cumini, Quercus spp., and Rhododendron arboreum ( FMAP,2081 (DFO, Surkhet and Bheri).

#### 3.1.2 Forest Management in Surkhet.

Surkhet district's forest administration is divided between the Division Forest Office Bheri and the Division Forest Office Surkhet. The Division Forest Office Surkhet oversees a larger number of community forests (271) covering an area of 51,432.29 hectares, while the Division Forest Office Bheri manages 173 community forests over 35,356.54 hectares. In terms of religious forests, there are a total of 7, with the Bheri office managing 3 (22.75 ha) and the Surkhet office managing 4 (46.42 ha). The Surkhet office also oversees a forest conservation area of 175.50 hectares and 66 private forests covering 41.94 hectares. Additionally, government-managed forests span 56,009.71 hectares under the Bheri office and 29,134.85 hectares under the Surkhet office. In total, the Surkhet office manages a broader varieties of forest types, while the Bheri office focuses on community and government-managed forests (See detail in Table 3.1) Overall, the combined forest area managed by both divisions in Surkhet district is 85,144.56 hectares see chart 1

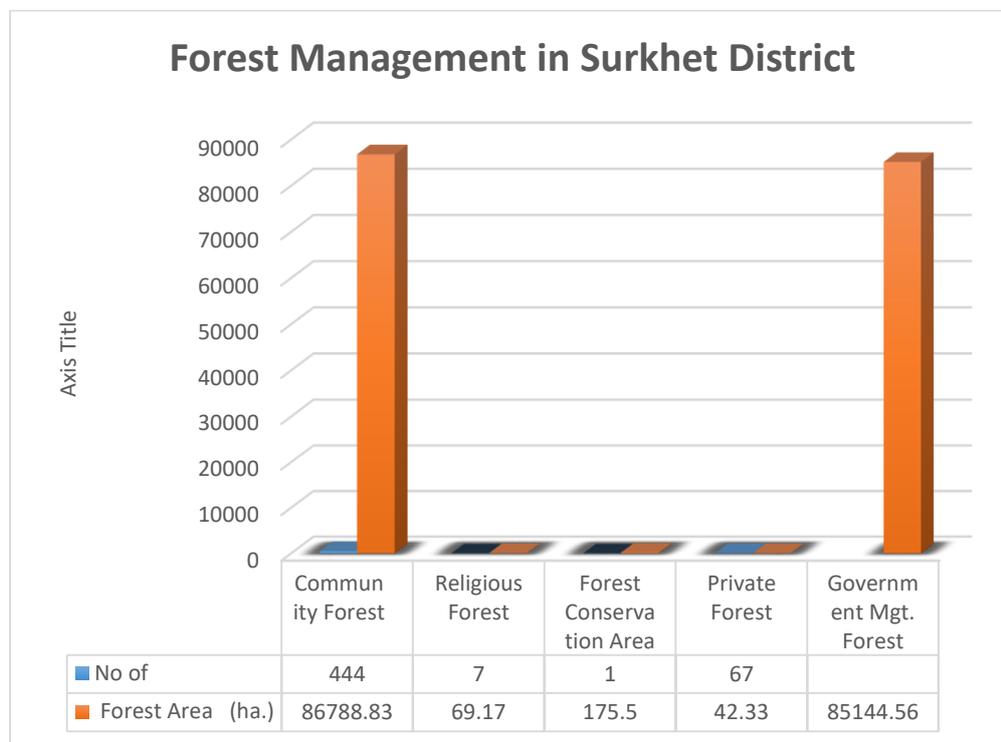
**Table: 3.1 Forest Management in Both Surkhet and Bheri Forest Division**

Sn	Management	Division forest office Bheri		Division forest Office Surkhet		Total	
		No	Area ha	No	Area ha.	No	Area ha
1	Community Forest	173	35356.54	271	514332.29	444	86788.83
2	Religious Forest	3	22.75	4	46.42	7	69.17
3	Forest Conservation Area			1	175.50	1	175.5
4	Private Forest	1	0.39	66	41.94	67	42.33

5	Government Forest	Manage		56009.71		29134.85		85144.56
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Source; ( FMAP,2081 (DFO, Surkhet and Bheri )

Figure 1



### 3.1.3 Estimated Timber Wood Demand for five years

The total demand for timber over the five years is 2,060,316 cubic feet, with a consistent year-over-year increase. The average annual increase in demand is approximately 24,076 cubic feet. This increasing demand for timber reflects continuously rising construction activities and economic development (Table 3.2. Estimated Timber Wood Demand for five years)

Table 3.2. Estimated Timber Wood Demand for five years

Sn	Physical Year	Annual Demand Timber (cft)
1	2080/081	365000
2	2081/082	387000
3	2082/083	410475
4	2083/084	435536
5	2084/085	462305
6	Total Demand in cft	2060316

source: FMAP,2081 (DFO, Surkhet and Bheri)

### 3.1.4 Estimated Timber Production in a Year

The timber management and production data from the Division Forest Offices in Surkhet and Beri reveal a robust system supported by community, private, and government-managed forests. Surkhet and Beri collectively produce 1,035,450.39 cubic feet (cft) of timber annually, with Surkhet contributing 628,235.8 cft and Beri 407,214.59 cft. Over five years, the total estimated timber

production is 5,177,251.95 cft, with community forests contributing 2,362,855 cft (45.65%), private forests 750,000 cft (14.49%), and government-managed forests 2,064,396.95 cft (39.86%). This distribution underscores effective and sustainable management practices, ensuring a steady and substantial timber supply from all forest types.

This analysis highlights the significant role of community and government-managed forests in timber production, while also suggesting potential for growth in private forestry to meet increasing demand. Understanding these contributions is essential for strategic planning to ensure sustainable timber seasoning and treatment plant establishment in the Surkhet District (Table 3.3 Estimated Timber Production in a Year)

Table 3.3 Estimated Timber Production in a Year

sn	Management	Division Forest Office Surkhet	Division Forest Office Bheri	Total cft	Estimated timber production in 5 yers cft
1	Community Forest	362571	110000	472571	2362855
2	Private Forest	100000	50,000	150000	750000
3	Government Manage Forest	165664.8	247214.59	412879.39	2064396.95
3	Timber Production per year (cft)	628235.8	407214.59	1035450.39	5177251.95

source : FMAP,2081 (DFO, Surkhet and Bheri )

### 3.1.5 Demand and supply scenario for five years

The data from Table 3.2 and Table 3.3 illustrate the demand and supply dynamics of timber over five years. The overall demand for wood is 2,060,316 cubic feet (cft), while the supply scenario shows a significantly higher figure of 5,177,251.95 cft. This indicates that the timber supply far exceeds the demand, with the supply being approximately 2.51 times the demand (5,177,251.95 cft supply vs. 2,060,316 cft demand).

Such a surplus suggests that the timber production capacity is robust and well above the market needs, ensuring that there will be ample timber availability to meet future demands and potentially allowing for export opportunities or stockpiling for future use.

This surplus could also indicate potential for pricing adjustments, investment in value-added products, or diversification of timber products to better align with market needs.

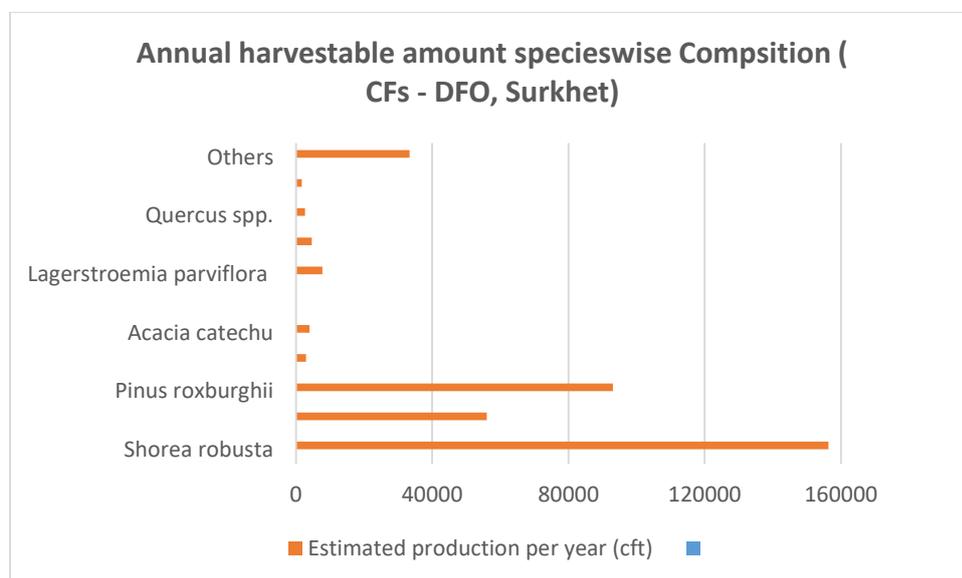
### 3.1.6 Annual harvestable amount according to species composition

The table provided represents the estimated annual timber production for various tree species managed by Community Forestry User groups in community forests under the Division Forest Office, Surkhet which totals 362,570.61 cubic feet (cft).

*Shorea robusta* (Sal) is the leading species, contributing 156,343.85 cft, which constitutes approximately 43.13% of the total production. *Pinus roxburghii* (Chir Pine) follows with a significant 93,048.54 cft (25.67%), while *Terminelia tomentosa* (Indian Laurel) adds 56,081.5 cft, making up 15.47% of the overall production. Other species such as *Lagerstroemia parviflora* (Crepe Myrtle) contribute 7,723.25 cft (2.13%). Minor contributions come from *Adina cordifolia* (Kadam) with

2,922.74 cft (0.81%), *Syzzygium cumini* (Jamun) with 4,631.33 cft (1.28%), and *Quercus* spp. (Oak) with 2,674.38 cft (0.74%). *Rhododendron arboreum* (Rhododendron) provides 1,763.03 cft (0.49%), while the "Others" category collectively adds 33,345.74 cft (9.20%). This analysis highlights the dominance of *Shorea robusta* and *Pinus roxburghii* in timber production within the Division Forest Office Surkhet (FMAP,2081 (DFO, Surkhet and Bheri).

Figure 2



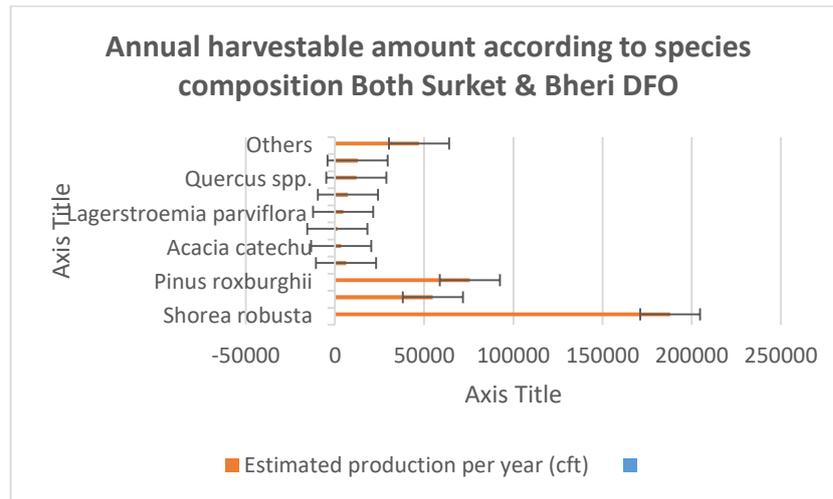
### 3.1.7 Annual harvestable amount according to species composition ( Government managed Forest)

The table detailing estimated annual timber production highlights the significant contributions of Various tree species which specially further gave insight into the soft wood for value-added through the seasoning and treatment. *Shorea robusta* (Sal) leads with 187,922.03 cft, comprising approximately 45.52% of the total production, underscoring its dominance in the timber industry. *Pinus roxburghii* (Chir Pine) and *Terminelia tomentose* (Indian Laurel) follow, contributing 75,599.99 cft (18.31%) and 54,846.77 cft (13.28%) respectively, importance in timber supply ( FMAP,2081 (DFO, Surkhet and Bheri).

Other notable species include *Quercus* spp. (Oak) with 11,956.67 cft (2.90%) and *Rhododendron arboreum* (Rhododendron) with 12,689.14 cft (3.07%). Minor contributors like *Adina cordifolia* (Kadamba), *Acacia catechu* (Khair), and *Dalbergia sissoo* (Indian Rosewood) collectively contribute to timber resources.

The category labeled "Others" aggregates various species, contributing 47,085.97 cft (11.41%), reflecting the diverse nature of timber production. These species are crucial for the sustainability of seasoning and treatment plant establishment and operations.

**Figure 3**



The total annual harvestable quantity across all species is precisely 1891886.52 cubic feet's harmonizing with the regulated harvesting guidelines, the framework, and the five-year Forest Management Action Plans of Division Forest Office Surkhet and Bheri.

### **3.2 Market and Marketing**

Surkhet is a prominent district in Karnali Province, where the provincial headquarters is located. In Surkhet, under the Surkhet and Bheri Division Forest Offices, there are a total of 263 furniture enterprises and 16 sawmills managed by the private sector (Province Forest Directorate of Karnali, 2079/080). These sawmills and furniture enterprises are actively engaged in the production and supply of various wooden products, including furniture, door/window frames, trusses, parquets, and wall paneling. Therefore, Surkhet itself is a significant market for seasoned and treated wood.

Market analysis also indicates that Nepalgunj is a potential market for both seasoned and treated saw timber and furniture. Similarly, municipalities and rural municipalities in Surkhet, as well as the adjoining districts of Dailekh, Jajarkot, Kalikot, and other districts in Karnali Province, have substantial market potential for seasoned and treated wood products (FMAP,2081 (DFO, Surkhet and Bheri)

## Chapter 4

### 4.1 Technical Details of the Plant

In Nepal, various wood treatment methods are practiced, and this enterprise focuses on biological seasoning combined with chemical treatment for both softwood and hardwood. Nepal Ban Nigam and Mount Everest Agro Wood Private Limited are notable examples, of operating treatment facilities in Chitwan and Rupendehi,

#### Construction shade for plant

The structural design for construction necessitates both closed and open sheds for various purposes. The shed is essential for piling, debarking, and seasoning fresh logs and storing treated wood for at least 48 hours. An additional open shed is required to cover the trolley. The plan also includes a closed, well-ventilated shed for machine installation and handling, an office building, a store, toilets, and a guardhouse. Adequate space for maneuvering large Lorries during the loading and unloading of poles is crucial. Considering all these requirements, a minimum of 5 Ropani respectively treating wood species such as Sal and Pine. The best practices and experiences of these wood seasoning and treatment plants have been carefully considered in the selection process. Additionally, several critical factors have been meticulously weighed:

Cost-effectiveness plays a pivotal role, ensuring that chosen methods strike a balance between effectiveness and affordability. Environmental impact is equally crucial, prompting a shift towards sustainable and eco-friendly practices amidst concerns over chemical risks.

The availability of treatment materials and facilities is also pivotal in decision-making, alongside adherence to regulatory standards governing chemical use and environmental protection. Operational considerations, such as ease of application, treatment duration, and storage requirements, further guide the selection process.

#### 4.1.1 Seasoning and Treatment Process:

##### Collecting and transporting timber:

Collecting and transporting timber to an enterprise involves careful sourcing from forests or suppliers, followed by safe transportation using trucks or specialized vehicles. Upon arrival, timber is unloaded and stored in designated areas to protect it from environmental factors while ensuring proper air circulation. Inspection and documentation verify quality and compliance with standards, ensuring the timber is ready for further processing within the enterprise. The moisture level of Timber is very.

##### Storing sawn timber under the shade:

Timber or lumber being stored under shade with adequate ventilation. This method is commonly used to protect wood from direct sunlight and excessive moisture while allowing air circulation. Proper shading helps prevent rapid drying, which can lead to cracking or warping in the wood. Good ventilation ensures that moisture levels remain balanced, contributing to the overall quality and durability of the sawn timber. At that Phase moisture contain is reaming more than more than 40%.

##### Seasoning and Treatment

After a few days of storage, woods are placed into a seasoning chamber, either metal or brick, for efficient drying. A thermal seasoning chamber uses controlled heat to quickly and evenly reduce

moisture content, enhancing wood stability and durability by preventing warping, cracking, and fungal growth. It features a heating system, ventilation for air circulation, and humidity control, with monitoring equipment to ensure precise conditions. This setup significantly reduces drying time compared to traditional methods and produces high-quality timber. Depending on the species, wood needs to remain in the chamber average 25 days up to 45 days. It depends on the variety of wood species.

The requirement of 60,000 cft of wood seasoning annually is effectively met with the use of 2 Hot Air Timber Dryer Chambers, each capable of handling 30,000 cft per year through 15 rotations. The chambers are designed to industry standards with high-quality components, ensuring reliability and the ability to withstand high temperatures. This setup provides an optimal solution for the project's wood seasoning needs.



### **Treatment chamber**

Following storage, the seasoned wood is placed into a treatment chamber made of metal. Various chemicals are employed for wood treatment based on specific requirements, availability, and affordability. At Mount Everest Agro Wood Private Limited in Rupendehi, Boric and Borax are commonly used. The treated wood is extracted from the chamber after up to 24 hours.

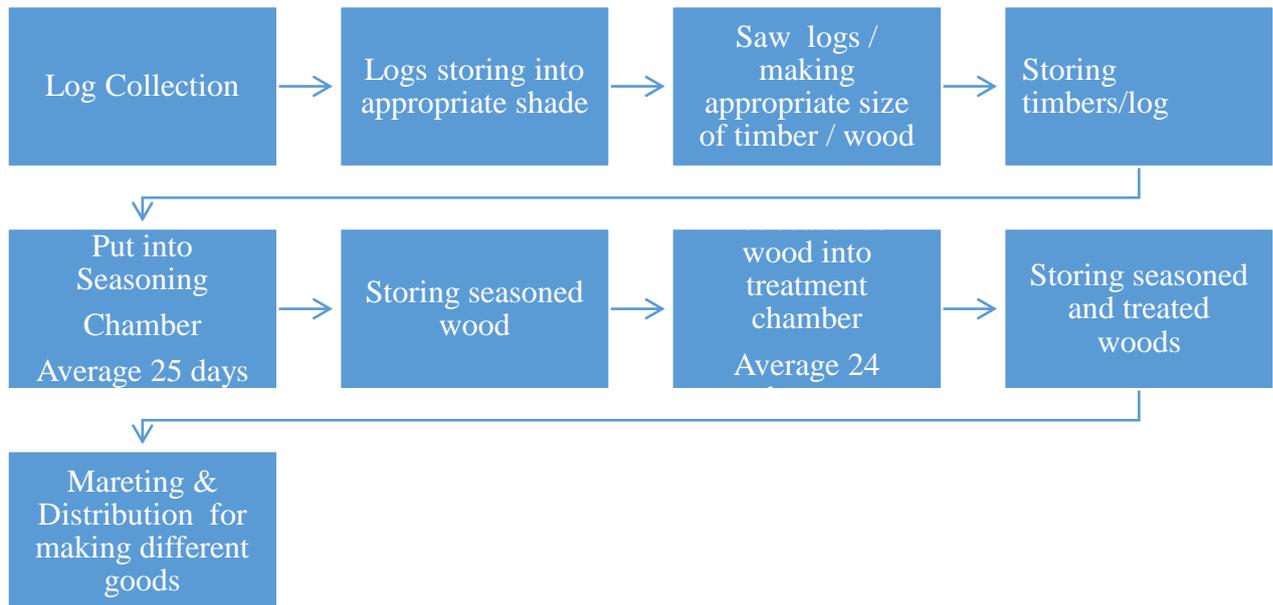
The requirement of treating 60,000 cft of wood annually is effectively met with the use of one Wood Treatment Chamber capable of handling 500 cft per rotation across 120 rotations per year. This chamber is designed to industry standards with high-quality components, ensuring reliability and the ability to withstand high temperatures. This setup provides an optimal solution for the project's wood treatment needs, ensuring efficiency and cost-effectiveness.



## Storing the seasoned woods

After seasoning treatment woods are placed into air dry shade for few days.

### Steps of wood seasoning and treatment



- **Logs** are raw, unprocessed tree trunks or large branches.
- **Timber** is processed wood that is ready for construction or manufacturing.

## Waste Management

The waste management plan for wood seasoning and treatment aims to effectively manage and minimize waste generated while ensuring environmental compliance and sustainability. Waste types include wood waste (such as bark, sawdust, and offcuts), chemical waste (including residual chemicals and contaminated containers), and general waste (like packaging materials and office waste). Strategies should focus on waste reduction through efficient resource use and precise chemical management. Segregation and storage practices are necessary for designated areas for wood and chemical waste including recycling and repurposing efforts also consider for sawdust and offcuts. Compliance with environmental regulations is paramount through the capacity enhancement of employees to improve waste management and a sustainable operational environment.

## Chapter 5

### 5.1 Policy and plant management

#### 5.1.1 Legal and Policy Consideration

Policy and legal provisions are foundational in establishing a wood seasoning and treatment plan, influencing every aspect from environmental impact to market competitiveness. The policy and legal matters are very big concerns for regular timber supply, sustainable management of forests, and establishment of Enterprise and marketing of forest products. These regulations ensure adherence to environmental standards and maintain ecological balance while promoting sustainable practices.

Quality assurance measures mandated by legal frameworks guarantee that treated wood meets specified standards, enhancing its durability and reliability in various applications. Efficient resource management practices enforced by these provisions optimize water and energy usage during the seasoning and treatment processes, supporting cost-effectiveness and environmental stewardship. Ultimately, policy and legal provisions play a pivotal role in ensuring the sustainability, safety, quality, and ethical operation of wood seasoning and treatment activities, driving long-term industry viability and responsible business practices (Annex-4 **Legal and Policy Consideration**)

#### 5.1.2 Management Modality and Stakeholders Involvement

A series of interaction meetings and individual discussions were held in the Ministry of Industry, Tourism and Forest and Environment, Provincial Forest Directorate, Division Forest Office (DFOs) Surkhet, and Bheri. Likewise, crucial discussions were held with different stakeholders such as Community Forest Users Groups (CFUGs), the Federation of Community Forest Users, Nepal (FECOFUN), the Federation of Forest-based Industry and Trade, Nepal (FENFIT), and traders. In addition, conducting a comprehensive analysis of various forest-based enterprises, the Public-Private Partnership (PPP) model has emerged as the most suitable choice.

Community Forest User Groups (CFUGs) are pivotal in managing forests sustainably and ensuring a consistent supply of high-quality forest products. In Nepal, CFUGs have empowered local communities to participate actively in forest governance and benefit from sustainable resource use. Additionally, the private sector, including entrepreneurs and traders involved in forest-related activities, are viable investors. Their involvement can enhance economic opportunities while contributing to the sustainable management and commercialization of forest resources, fostering a balanced approach to forest conservation and economic development.

The public sector is crucial for facilitating policies regarding forest product supply. As well as it has pivotal roles in capacity enhancement and mobilization of financial institutions in favor of traders and businesses on the way of wood seasoning and treatment plant establishment, operations, and marketing.

Based on these arguments, the concerned stakeholders concluded private-public partnership (PPP) operating model is the best and most viable rather than other models such as the cooperative model, leasehold model, and Community model.

### 5.1.3 Roles of Stakeholders

Wood seasoning and treatment plant establishment and operation needs a coordinated effort among various stakeholders. The following roles were defined during the different layers of interaction meetings and discussions among the stakeholders.

**Table: 5.2 Roles of Stakeholders**

Institutions/organizations	Roles and responsibility
<b>Ministry of Industry, Tourism and Forest and Environment</b>	<ul style="list-style-type: none"> <li>• Legal and policy formation and facilitation</li> <li>• Investment policy formation</li> <li>• quality control and monitoring</li> <li>• Management plan for action</li> <li>• Multi- sectoral coordination</li> </ul>
<b>Forest Directorate</b>	<ul style="list-style-type: none"> <li>• Legal and policy formation and facilitation</li> <li>• Quality control and monitoring</li> <li>• Management plan for action</li> <li>• Multi- sectoral coordination</li> </ul>
<b>Forest Research and Training Center</b>	<ul style="list-style-type: none"> <li>• Research and action plan</li> <li>• Case study</li> <li>• Capacity enhancement</li> <li>• Public awareness and documentation</li> <li>• Policy Feedbacks</li> </ul>
<b>Division Forest Office</b>	<ul style="list-style-type: none"> <li>• Legal and policy facilitation</li> <li>• Facilitations of regular timber supply</li> <li>• Quality control</li> <li>• Monitoring</li> <li>• Capacity enhancement</li> <li>• Multi- sectoral coordination</li> </ul>
<b>FENFIT</b>	<ul style="list-style-type: none"> <li>• Investment</li> <li>• Plant Establishment Technologies import</li> <li>• Policy advocacy</li> <li>• Quality control</li> <li>• Coordination and collaboration among multi-stakeholders</li> <li>• Public awareness</li> </ul>
<b>CFUG/ FECOFUN</b>	<ul style="list-style-type: none"> <li>• Sustainable managing of forest</li> <li>• Quality Productions of timbers</li> <li>• Quality timber supply</li> <li>• Policy advocacy</li> <li>• Monitoring of seasoning and treatment plant</li> <li>• Public awareness</li> </ul>
<b>Family and Private forest</b>	<ul style="list-style-type: none"> <li>• Sustainable managing of forest.</li> <li>• Quality Productions of timbers</li> <li>• Sustainable and quality timber supply</li> <li>• Policy advocacy</li> <li>• Public awareness</li> </ul>

### **5.1.3 The Potential Site for the Plant establishment**

Site selection for establishing the proposed treatment plant is crucial for ensuring effective and efficient operations. Two sites one Chhincchu and another Birendranagar were proposed for plant establishment during the interaction meetings. To finalize the site selection, further discussion among the investors and stakeholders is needed. However, availability and affordability of land, availability of electricity, availability of Water and sanitation, accessibility, and marketing are the major factors that have been considered to identify the potential site.

## Chapter 6

### 6.1 Financial Aspects

#### 6.1.1 The Capital Investment

The total capital investment for establishing the seasoning and treatment plant is Rs. 39,750,000. The largest expenditure is land purchase, amounting to Rs. 20,000,000, which constitutes half of the total investment. Significant funds are allocated for building and shade construction (Rs. 5,000,000) and the purchase and installation of the treatment plant (Rs. 4,800,000). The portable metal seasoning chamber also represents a major expense at Rs. 3,000,000. Essential equipment costs include a trolley saw and a band saw, each at Rs. 500,000, and a blade grinding machine at Rs. 50,000. Infrastructure investments for water supply, electricity, and a generator total Rs. 1,500,000. Additionally, transportation needs are covered with the purchase of a truck (Rs. 4,000,000) and a motorbike (Rs.300,000). The office setup costs are relatively minor at Rs. 100,000. This comprehensive capital investment ensures the plant is well-prepared with the necessary land, infrastructure, and equipment for efficient operations.

Table 6.1.1 The Capital Investment

S.N	Particular	Unit	Quantity	Rate @ Rs	Amount
1	Land purchase				20,000,000
2	Portable Metal Seasoning Chamber Purchasing and Installed	No.	1	3,000,000	3,000,000
3	Treatment Plant purchase and stalled	No.	2	2,400,000	4,800,000
4	Trolley saw	No.	1	500,000	500,000
5	Band saw	No.	1	500,000	500,000
6	Blade Grinding Machine	No.	1	50,000	50,000
7	Other Cost (Water Supply System, Electricity, Generator)				1,500,000
8	Building Construction/ shade construction				5,000,000
9	Office Set Up				100,000
10	Vehicle Purchase (Truck)	No.	1		4,000,000
11	Vehicle Purchase (Motor Bike)	No.	1		300,000
	<b>Total Establishment Cost</b>				<b>39,750,000</b>

Machinery source: Mount Everest Agro Ud p PVT.LTD.

### **6.1.2 Registration Cost:**

In addition to capital investment as discussed above, additional cost for Registration (Rs. 200,000) needs to be made.

### **6.1.3 Operating cost**

The total operating cost for the seasoning and treatment plant is Rs. 2,708,308,448. The most significant expense is raw materials, which account for Rs. 2,324,394,541 or 85.82% of the total cost. Seasoning cost of Rs. 188,668,388 (6.97%) and chemical cost of Rs. 94,334,194 (3.48%) will be incurred.

This analysis highlights the significant investments required in raw materials to ensure the plant operates efficiently.

Other details of operating cost are given in the below table:

Table 6.1.3 Operating cost

<b>Particulars</b>	<b>YEAR 1</b>	<b>YEAR 2</b>	<b>YEAR 3</b>	<b>YEAR 4</b>	<b>YEAR 5</b>	<b>YEAR 6</b>	<b>YEAR 7</b>	<b>YEAR 8</b>	<b>YEAR 9</b>	<b>YEAR 10</b>
Timber Purchase	184,800,000	194,040,000	203,742,000	213,929,100	224,625,555	235,856,833	247,649,674	260,032,158	273,033,766	286,685,454
Seasoning Cost	15,000,000	15,750,000	16,537,500	17,364,375	18,232,594	19,144,223	20,101,435	21,106,506	22,161,832	23,269,923
Chemical Cost	7,500,000	7,875,000	8,268,750	8,682,188	9,116,297	9,572,112	10,050,717	10,553,253	11,080,916	11,634,962
Direct Labour	1,260,000	1,323,000	1,389,150	1,458,608	1,531,538	1,608,115	1,688,521	1,772,947	1,861,594	1,954,674
Utilities	360,000	378,000	396,900	416,745	437,582	459,461	482,434	506,556	531,884	558,478
Electricity	1,200,000	1,260,000	1,323,000	1,389,150	1,458,608	1,531,538	1,608,115	1,688,521	1,772,947	1,861,594
Repair and maintainance	50,000	52,500	55,125	57,881	60,775	63,814	67,005	70,355	73,873	77,566
Insurance	100,000	105,000	110,250	115,763	121,551	127,628	134,010	140,710	147,746	155,133
Deppreciation	2,737,500	2,301,375	1,939,894	1,639,733	1,390,028	1,181,900	1,008,090	862,647	740,689	638,206
Office and Admin Expense	2,589,000	2,718,450	2,854,373	2,997,091	3,146,946	3,304,293	3,469,508	3,642,983	3,825,132	4,016,389
Marketing and Promotional Expenses	120,000	126,000	132,300	138,915	145,861	153,154	160,811	168,852	177,295	186,159
Interest Expense	2,426,933	2,285,227	2,124,835	1,943,295	1,737,818	1,505,248	1,242,012	944,067	606,836	225,139
<b>Total Operating Cost</b>	<b>218,143,433</b>	<b>228,214,552</b>	<b>238,874,076</b>	<b>250,132,844</b>	<b>262,005,152</b>	<b>274,508,319</b>	<b>287,662,331</b>	<b>301,489,555</b>	<b>316,014,508</b>	<b>331,263,678</b>

### 6.1.4 Revenue

The primary source of income comes from different types of timber sales i.e Sal, Asna, Sallo and soft woods. This is based on selling 60,000 cubic feet of timber. This income analysis highlights the substantial revenue generated from timber sales, significantly boosted by the price increase providing a strong financial foundation for the plant's operations. In the first year of operation, Sal would be sold at Rs.5500 per cubic foot, Asna would be sold at Rs.3300 per cubic foot and sallo and soft woods would be sold at Rs. 2200 per cubic foot. In the further years, the selling rate is increasing by 5% annually. Given table shows the revenue streams for next 10 years.

Table 6.1.4 Revenue Streams

Revenue Streams	Sal	Asna	Sallo and soft woods
Year 1	132,000,000.00	39,600,000.00	52,800,000.00
Year 2	138,600,000.00	41,580,000.00	55,440,000.00
Year 3	145,530,000.00	43,659,000.00	58,212,000.00
Year 4	152,806,500.00	45,841,950.00	61,122,600.00
Year 5	160,446,825.00	48,134,047.50	64,178,730.00
Year 6	168,469,166.25	50,540,749.88	67,387,666.50
Year 7	176,892,624.56	53,067,787.37	70,757,049.83
Year 8	185,737,255.79	55,721,176.74	74,294,902.32
Year 9	195,024,118.58	58,507,235.57	78,009,647.43
Year 10	204,775,324.51	61,432,597.35	81,910,129.80
<b>Sub- Total</b>	<b>1,660,281,814.69</b>	<b>498,084,544.41</b>	<b>664,112,725.88</b>
<b>Total</b>			<b>2,822,479,084.98</b>

### 6.1.5 Profit Analysis:

The below table gives a detailed snapshot of the business's performance. With a total capital investment of 39,950,000, the business incurred operational costs amounting to Rs.2,708,308,448, the project will give total profit (after tax) of Rs. 85,627,977.77 over 10 years, translating to a roughly 2.14 times profit amount margin. The business demonstrates a positive financial outlook. To sustain and enhance profitability, focusing on optimizing operational efficiency and potentially increasing revenue streams could be strategic priorities. Evaluating return on investment (ROI) against the initial capital investment would further illuminate the business's financial health and effectiveness of its operational strategies.

Table 6.1.5 Net Profit After Tax

<b>Particulars</b>	<b>YEAR 1</b>	<b>YEAR 2</b>	<b>YEAR 3</b>	<b>YEAR 4</b>	<b>YEAR 5</b>	<b>YEAR 6</b>	<b>YEAR 7</b>	<b>YEAR 8</b>	<b>YEAR 9</b>	<b>YEAR 10</b>
<b>Sales</b>										
Sal	132,000,000	138,600,000	145,530,000	152,806,500	160,446,825	168,469,166	176,892,625	185,737,256	195,024,119	204,775,325
Asna	39,600,000	41,580,000	43,659,000	45,841,950	48,134,048	50,540,750	53,067,787	55,721,177	58,507,236	61,432,597
Sallo and soft woods	52,800,000	55,440,000	58,212,000	61,122,600	64,178,730	67,387,667	70,757,050	74,294,902	78,009,647	81,910,130
<b>Total Sales</b>	<b>224,400,000</b>	<b>235,620,000</b>	<b>247,401,000</b>	<b>259,771,050</b>	<b>272,759,603</b>	<b>286,397,583</b>	<b>300,717,462</b>	<b>315,753,335</b>	<b>331,541,002</b>	<b>348,118,052</b>
<b>Other Cost</b>										
Depreciation	2,737,500	2,301,375	1,939,894	1,639,733	1,390,028	1,181,900	1,008,090	862,647	740,689	638,206
Insurance	100,000	105,000	110,250	115,763	121,551	127,628	134,010	140,710	147,746	155,133
Office and Admin Expense	2,589,000	2,718,450	2,854,373	2,997,091	3,146,946	3,304,293	3,469,508	3,642,983	3,825,132	4,016,389
Marketing and Promotional Expenses	120,000	126,000	132,300	138,915	145,861	153,154	160,811	168,852	177,295	186,159
Interest Expense	2,426,933	2,285,227	2,124,835	1,943,295	1,737,818	1,505,248	1,242,012	944,067	606,836	225,139
<b>Total Fixed Cost</b>	<b>7,973,433</b>	<b>7,536,052</b>	<b>7,161,651</b>	<b>6,834,797</b>	<b>6,542,203</b>	<b>6,272,224</b>	<b>6,014,431</b>	<b>5,759,259</b>	<b>5,497,698</b>	<b>5,221,026</b>
<b>Variable Expenses</b>										

<b><u>Cost of materials</u></b>										
Sal	115,200,000	120,960,000	127,008,000	133,358,400	140,026,320	147,027,636	154,379,018	162,097,969	170,202,867	178,713,010
Asna	33,600,000	35,280,000	37,044,000	38,896,200	40,841,010	42,883,061	45,027,214	47,278,574	49,642,503	52,124,628
Sallo and soft Woods	36,000,000	37,800,000	39,690,000	41,674,500	43,758,225	45,946,136	48,243,443	50,655,615	53,188,396	55,847,816
<b><u>Cost of seasoning</u></b>										
Sal	6,000,000	6,300,000	6,615,000	6,945,750	7,293,038	7,657,689	8,040,574	8,442,603	8,864,733	9,307,969
Asna	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519	3,828,845	4,020,287	4,221,301	4,432,366	4,653,985
Sallo and soft Woods	6,000,000	6,300,000	6,615,000	6,945,750	7,293,038	7,657,689	8,040,574	8,442,603	8,864,733	9,307,969
Chemical	7,500,000	7,875,000	8,268,750	8,682,188	9,116,297	9,572,112	10,050,717	10,553,253	11,080,916	11,634,962
<b><u>Labour Cost</u></b>										
Direct Labour	1,260,000	1,323,000	1,389,150	1,458,608	1,531,538	1,608,115	1,688,521	1,772,947	1,861,594	1,954,674
Utilities	360,000	378,000	396,900	416,745	437,582	459,461	482,434	506,556	531,884	558,478
Electricity	1,200,000	1,260,000	1,323,000	1,389,150	1,458,608	1,531,538	1,608,115	1,688,521	1,772,947	1,861,594
Repair and maintainance	50,000	52,500	55,125	57,881	60,775	63,814	67,005	70,355	73,873	77,566
<b>Total Varaible Cost</b>	<b>210,170,000</b>	<b>220,678,500</b>	<b>231,712,425</b>	<b>243,298,046</b>	<b>255,462,949</b>	<b>268,236,096</b>	<b>281,647,901</b>	<b>295,730,296</b>	<b>310,516,811</b>	<b>326,042,651</b>

<b>Net Profit Before Tax</b>	<b>6,256,567</b>	<b>7,405,448</b>	<b>8,526,924</b>	<b>9,638,206</b>	<b>10,754,451</b>	<b>11,889,263</b>	<b>13,055,130</b>	<b>14,263,780</b>	<b>15,526,493</b>	<b>16,854,374</b>
<b>Tax (25%)</b>	<b>1,564,142</b>	<b>1,851,362</b>	<b>2,131,731</b>	<b>2,409,552</b>	<b>2,688,613</b>	<b>2,972,316</b>	<b>3,263,783</b>	<b>3,565,945</b>	<b>3,881,623</b>	<b>4,213,594</b>
<b>Net Profit Before Tax</b>	<b>4,692,425</b>	<b>5,554,086</b>	<b>6,395,193</b>	<b>7,228,655</b>	<b>8,065,838</b>	<b>8,916,947</b>	<b>9,791,348</b>	<b>10,697,835</b>	<b>11,644,870</b>	<b>12,640,781</b>

## 6.2 Sources and Utilization of the Funds:

It is considered that the capital fund requirement of the project is done through Debt and Equity financing. The Debt Equity ratio would be 50:50 for the capital fund. This is a scenario made for the analyzing the project. The government plans to provide subsidized loan for financing this kind of project. Depending on the loan agreement on a subsidized interest rate, the debt financing portion can be changed.

<b>Capital Investment Through</b>	<b>Percent</b>	<b>Value</b>
Equity	50%	19,975,000.00
Loan	50%	19,975,000.00
Total		39,950,000.00

## 6.3 Financial assumption

### 6.3.1. Revenue

The primary source of income comes from different types of timber sales i.e Sal, Asna, Sallo and soft woods. This is based on selling 60,000 cubic feet of timber. The selling price of different types of timber are: i.e Sal Rs.5500 per cft., Asna Rs. 3300 per cft, Sallo and soft woods Rs.2200 per cft.. The selling price for the project is expected to be increased by 5% annually.

### 6.3.2. Direct Expenses

The direct expense for running of the project would basically include cost of materials, cost of seasoning, chemical, electricity, utilities, direct labors, repair and maintenance, etc. Direct Cost for the project is expected to be increased by 5% annually.

### 6.3.3. Indirect Expenses

The indirect costs of the project include administrative expenses and expenses related to promotion and advertising. Administrative expenses basically include Salaries and allowances, printing and stationaries, communication expenses, travelling expenses, overhead contractor expenses, etc. Indirect Cost for the project is expected to be increased by 5% annually.

### 6.3.4. Repair and Maintenance

Repair and Maintenance Expense is assumed to be 0.25% of the total net value of the fixed assets of the company and is expected to increase by 5% every year.

### 6.3.5 Interest Expenses:

The debt financing is assumed to be taken at 12.45% interest rate. The given interest rate is taken from “Key Financial Indicators of Commercial Banks” reported by Nepal Rasta Bank.

### 6.3.6 Income Taxes

Income taxes is assumed at 25% of net profit.

### 6.3.7. Depreciation

The expected wear and tear of fixed asset would be occurred as per below mentioned rate:

Total Investment	Rate of depreciation
Land	-
Civil Works	5%
Plant and Machineries	15%
Furniture and Fixtures	25%
Office Equipment	25%
Vehicles	20%

## **6.4 Metric Used for Project Analysis:**

Following analysis are made for the given project:

### **1. Payback Period**

The payback period is a straightforward metric used in project evaluation to assess the time it takes for an investment to recover its initial cost through generated cash flows. In evaluating the payback period of a project.

This metric incorporates the time value of money by discounting future cash flows back to their present value at a rate of 9%.

### **2. Internal Rate of Return (IRR):**

The IRR of the project is defined as the rate of interest which discounts the future net cash flows of a project into equality with its capital cost. It is the rate which results in a zero NPV. IRR higher than the discount rate is deemed beneficial. Higher IRR value, means more economically beneficial is the project.

### **3. Net Present Value (NPV):**

NPV can be defined as the sum of the annual net benefits (gross benefits minus gross costs) of an investment discounted by the opportunity costs of capital. It is the sum of the present values of the cash flows for all the years during the projects' life. The minimum NPV value acceptable for an investor is zero value lower than zero means that the present value of the costs exceeds the present value of the benefits.

### **4. Cost Benefit Ratio (CB Ratio):**

Cost Benefit ratio is the present value of the benefits over the present value of the costs. It is a variant of the NPV, often used in project appraisal. Any CB ratio over 1.00 should be accepted.

### **5. Break Even Analysis:**

The Break Even Point (BEP) in financial analysis is the level of sales or revenue at which total costs (fixed and variable) equal total revenue, resulting in neither profit nor loss. In other words, it's the point at which a company's net income is zero, indicating that it has covered all its costs.

## 6.5 Indicators and Ratios:

### 6.5.1 Pay Back Period:

Year	Net Investment	Net Profit after Tax (NPAT)	Non-Cash Expenses	Annual Cash Flows	Cumulative Cash Benefit	PV Factor	PV of Cash Flows	Cumulative Cash Flows	Payback period	Discounted Payback period
0	(39,950,000)				(39,950,000)	1.00	(39,950,000)	(39,950,000)		
1		4,692,425	2,737,500	7,429,925	(32,520,075)	0.91	6,754,477	(33,195,523)		
2		5,554,086	2,301,375	7,855,461	(24,664,613)	0.83	6,492,117	(26,703,406)		
3		6,395,193	1,939,894	8,335,086	(16,329,527)	0.75	6,262,274	(20,441,132)		
4		7,228,655	1,639,733	8,868,388	(7,461,139)	0.68	6,057,228	(14,383,904)		
5		8,065,838	1,390,028	9,455,866	1,994,727	0.62	5,871,349	(8,512,555)	4.79	
6		8,916,947	1,181,900	10,098,848	12,093,575	0.56	5,700,536	(2,812,019)		6.51
7		9,791,348	1,008,090	10,799,438	22,893,012	0.51	5,541,819	2,729,800		
8		10,697,835	862,647	11,560,482	34,453,494	0.47	5,393,050	8,122,851		
9		11,644,870	740,689	12,385,559	46,839,053	0.42	5,252,686	13,375,537		
10		12,640,781	638,206	13,278,987	60,118,040	0.39	5,119,624	18,495,161		

### 6.5.2 Internal Rate of Return:

Year	Net Investment	Net Profit After Tax	Non-Cash Expenses	Annual Cash Flows	Discounting Factor	NPV at Given DF
0	(39,950,000.00)					
1		4,692,425.20	2,737,500.00	7,429,925.20		
2		5,554,086.33	2,301,375.00	7,855,461.33	12%	13,345,592.05
3		6,395,192.63	1,956,168.75	8,351,361.38		
4		7,228,654.72	1,662,743.44	8,891,398.16		
5		8,065,838.01	1,413,331.92	9,479,169.93		
6		8,916,947.35	1,201,332.13	10,118,279.48	16%	4,837,425.46
7		9,791,347.70	1,021,132.31	10,812,480.01		
8		10,697,835.21	867,962.47	11,565,797.67		
9		11,644,870.05	737,768.10	12,382,638.15	18.86%	0
10		12,640,780.57	627,102.88	13,267,883.46		

### 6.5.3 Net Present Value (NPR):

Particulars	Amount
Present Value of Cash Outflows	(39,950,000.00)
Present Value of Cash Inflows	58,502,196.61
<b>Net Present Value(NPV)</b>	<b>18,552,196.61</b>
<b>CB Ratio</b>	<b>1.46</b>

#### 6.5.4 Break Even Analysis (BEP):

Particulars	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
<b>Fixed Cost</b>										
Depreciation		2,301,375	1,939,894	1,639,733	1,390,028	1,181,900	1,008,090	862,647	740,689	638,206
Insurance	100,000	105,000	110,250	115,763	121,551	127,628	134,010	140,710	147,746	155,133
Office and Admin Expense	2,589,000	2,718,450	2,854,373	2,997,091	3,146,946	3,304,293	3,469,508	3,642,983	3,825,132	4,016,389
Marketing and Promotional Expenses	120,000	126,000	132,300	138,915	145,861	153,154	160,811	168,852	177,295	186,159
Interest Expense	2,426,933	2,285,227	2,124,835	1,943,295	1,737,818	1,505,248	1,242,012	944,067	606,836	225,139
<b>Total Fixed Cost</b>	<b>7,973,433</b>	<b>7,536,052</b>	<b>7,161,651</b>	<b>6,834,797</b>	<b>6,542,203</b>	<b>6,272,224</b>	<b>6,014,431</b>	<b>5,759,259</b>	<b>5,497,698</b>	<b>5,221,026</b>
<b>Variable Expenses</b>										
<b><u>Cost of materials</u></b>										
Sal	115,200,000	120,960,000	127,008,000	133,358,400	140,026,320	147,027,636	154,379,018	162,097,969	170,202,867	178,713,010
Asna	33,600,000	35,280,000	37,044,000	38,896,200	40,841,010	42,883,061	45,027,214	47,278,574	49,642,503	52,124,628
Sallo and soft Woods	36,000,000	37,800,000	39,690,000	41,674,500	43,758,225	45,946,136	48,243,443	50,655,615	53,188,396	55,847,816
<b><u>Cost of seasoning</u></b>										
Sal	6,000,000	6,300,000	6,615,000	6,945,750	7,293,038	7,657,689	8,040,574	8,442,603	8,864,733	9,307,969
Asna	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519	3,828,845	4,020,287	4,221,301	4,432,366	4,653,985
Sallo and soft Woods	6,000,000	6,300,000	6,615,000	6,945,750	7,293,038	7,657,689	8,040,574	8,442,603	8,864,733	9,307,969
Chemical	7,500,000	7,875,000	8,268,750	8,682,188	9,116,297	9,572,112	10,050,717	10,553,253	11,080,916	11,634,962
Direct Labour	1,260,000	1,323,000	1,389,150	1,458,608	1,531,538	1,608,115	1,688,521	1,772,947	1,861,594	1,954,674
Utilities	360,000	378,000	396,900	416,745	437,582	459,461	482,434	506,556	531,884	558,478
Electricity	1,200,000	1,260,000	1,323,000	1,389,150	1,458,608	1,531,538	1,608,115	1,688,521	1,772,947	1,861,594
Repair and maintainance	50,000	52,500	55,125	57,881	60,775	63,814	67,005	70,355	73,873	77,566
<b>Total Variable Cost</b>	<b>210,170,000</b>	<b>220,678,500</b>	<b>231,712,425</b>	<b>243,298,046</b>	<b>255,462,949</b>	<b>268,236,096</b>	<b>281,647,901</b>	<b>295,730,296</b>	<b>310,516,811</b>	<b>326,042,651</b>

<b>Sales</b>										
Sal	132,000,000	138,600,000	145,530,000	152,806,500	160,446,825	168,469,166	176,892,625	185,737,256	195,024,119	204,775,325
Asna	39,600,000	41,580,000	43,659,000	45,841,950	48,134,048	50,540,750	53,067,787	55,721,177	58,507,236	61,432,597
Sallo and soft woods	52,800,000	55,440,000	58,212,000	61,122,600	64,178,730	67,387,667	70,757,050	74,294,902	78,009,647	81,910,130
<b>Total Sales</b>	<b>224,400,000</b>	<b>235,620,000</b>	<b>247,401,000</b>	<b>259,771,050</b>	<b>272,759,603</b>	<b>286,397,583</b>	<b>300,717,462</b>	<b>315,753,335</b>	<b>331,541,002</b>	<b>348,118,052</b>
<b>Contribution Margin</b>	<b>14,230,000</b>	<b>14,941,500</b>	<b>15,688,575</b>	<b>16,473,004</b>	<b>17,296,654</b>	<b>18,161,487</b>	<b>19,069,561</b>	<b>20,023,039</b>	<b>21,024,191</b>	<b>22,075,401</b>
<b>Projected Quantity of wood (in Cubic Feet)</b>	<b>60,000</b>									
<b>Contribution margin per cubic feet</b>	<b>237.17</b>	<b>249.03</b>	<b>261.48</b>	<b>274.55</b>	<b>288.28</b>	<b>302.69</b>	<b>317.83</b>	<b>333.72</b>	<b>350.40</b>	<b>367.92</b>
<b>BEP (in cubic feet)</b>	<b>33,619.54</b>	<b>30,262.23</b>	<b>27,389.30</b>	<b>24,894.54</b>	<b>22,694.11</b>	<b>20,721.51</b>	<b>18,923.66</b>	<b>17,257.90</b>	<b>15,689.63</b>	<b>14,190.53</b>

## 6.6. Findings:

### 6.6.1 Payback Period

The investment is projected to recover its initial costs within approximately 4.79 years.

Further, the investment is expected to recover its initial costs within approximately in 6.51 years on a discounted basis.

### 6.6.2 Internal Rate of Return (IRR)

The Internal Rate of Return (IRR) of the given project is 18.86%.

### 6.6.3 Net Present Value (NPV)

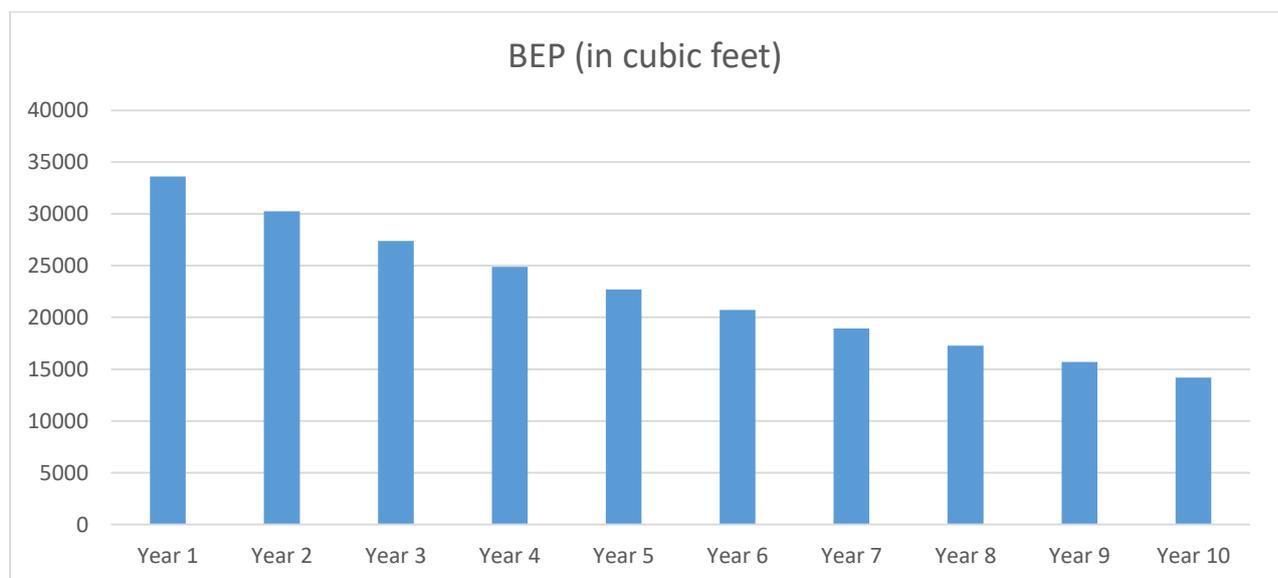
At discounted rate of 10% applied over 10 years, Net Present Value (NPV) of the given project is Rs. 18,552,196.61.

### 6.6.4 Cost Benefit Ratio:

At discount rate of 10% applied over 10 years, Cost Benefit Ratio for the given project 1.46.

### 6.6.5 Break Even Analysis:

Break Even Points of the given project over 10 years is given below:



## Chapter 7

### 7.1 Environmental and Social Considerations

#### 7.1.1 Environmental Considerations

Before establishing a plant, it is essential to consider both environmental and social attributes. An Initial Environmental Examination (IEE) should be conducted to address the environmental and social impacts of the plant. Safe disposal of waste materials is another concern to prevent environmental degradation, necessitating a comprehensive waste management plan.

Generally, timber is extracted from forests. During the periods of timber harvesting, logging, and transportation, it is important to use environmentally friendly tools and techniques to safeguard biodiversity and prevent soil erosion. Additionally, sound pollution should be considered and minimized as much as possible.

#### 7.1.2 Social Considerations

1. **Inclusive Management Team:** Ensure the management team includes members from diverse backgrounds, promoting inclusivity and representation.

2. **Employment Generation:** Prioritize the hiring of local people to generate employment opportunities and support the local economy.

3. **Community Engagement:** Engage with the local community to understand their needs and concerns, fostering positive relationships and ensuring that the project benefits the broader community.

4. **Transparency, accountability, and equitable benefit-sharing mechanisms** are critical components in the governance system of a seasoning plant to ensure its sustainability. Here's why each of these elements is important:

#### Implementation in a Seasoning Plant Governance System

- **Develop Clear Policies:** Establish transparent policies and procedures for decision-making, financial management, and operations.
- **Regular Audits and Reports:** Conduct regular audits and prepare comprehensive reports to keep stakeholders informed about the plant's performance and activities.
- **Stakeholder Involvement:** Involve stakeholders in key decisions and ensure their voices are heard through regular meetings, surveys, and feedback mechanisms.
- **Fair Distribution Models:** Create models for equitable benefit sharing, such as profit-sharing schemes, community development programs, and fair wage structures.
- **Training and Development:** Invest in training programs to educate employees and stakeholders about transparency, accountability, and equitable benefit sharing, ensuring they understand and adhere to these principles.

By embedding these principles into the governance system, a seasoning plant can achieve greater sustainability, enhance its reputation, and foster long-term success.

By addressing these environmental and social considerations, the plant can operate sustainably and contribute positively to the local area.

## Chapter 8

### 8.1 Conclusion and recommendations

#### Conclusion

In conclusion, the feasibility study thoroughly examined critical aspects essential for the sustainability of the wood seasoning and treatment plant in Surkhet, Karnali Province, and found positive results for the establishment of the plant.

The financial analysis reveals a detailed snapshot of the business's performance. Total profit of 85,627,977.77 will be generated over the period of 10 years of project life. Also, the overall capital investment will be recovered within 4.79 years (discounted payback 6.51 years). With Internal Rate of Return of 18.86% the business demonstrates a positive financial outlook. However, a regular supply of quality timbers within the time frame is an utmost factor that leads to the sustainable management and operation of the seasoning and treatment plant. The marketing of the seasoned and treated wood is another factor that contributes to the success.

In addition, forest policies, industry regulations, and legal frameworks play a crucial role in the operation and sustainability of the plant. Therefore, it is essential for the government to reformulate existing policies to address any gaps that may exist. This reform should aim to create a supportive and conducive environment for enterprises like the wood seasoning and treatment plant, ensuring alignment with sustainable forestry practices, environmental protection measures, and economic viability. Clear and coherent policies will not only facilitate smooth operations but also encourage investment and growth in the sector, contributing to overall economic development and environmental conservation goals.

#### Recommendations

To further encourage private sector investment, it is recommended that the government should facilitate the policy reform by providing soft loans and subsidies. These financial incentives can significantly lower the initial investment burden and operational costs, making them more attractive to potential investors. This approach not only supports economic growth but also aligns with sustainability goals by promoting responsible resource management and industry practices.

A regular supply of quality timber is another crucial factor in the sustainability of the plant. Due to policy, legal, and administrative complications, timber trading and transportation take a long time. As a result, log woods are decaying in forest areas, especially threatening softwoods. Therefore, it is recommended that the private sector, especially timber traders, collaborate with government entities to eliminate these hurdles. Additionally, it is necessary to establish technically appropriate log port (Ghatgadhi) facilities to ensure the protection and maintain the quality of the logs.

The fixed tenure of operational plans for community forests has expired, and they are awaiting renewal. This delay prevents CFUGs from harvesting and trading wood as usual, causing disruptions in the regular timber supply to the market. Therefore, it is recommended that the government allocate adequate budget and human resources to the DFOs for the timely renewal of these operational plans.

Family and private forests have a significant role in timber supply in Nepal. They are supplying

softwood which is the most demanded form of seasoning and treatment plant. Therefore it is recommended that the government revisit the gap in the existing policy and legal guidelines to overcome the complications of private forest harvest, collection trading, and transportation.

The government should support the marketing strategies of seasoning and treatment plants to promote the use of seasoned and treated wood. Additionally, the government should mandate the use of wood in constructing government buildings.

Based on the Capacity Need Assessment of stakeholders, capacity enhancement activities such as training, workshops, learning-sharing visits, sustainable forest management, and harvesting, forest fire management should be launched. Similarly, re-orientation on forest management and awareness of relevant laws and regulations are necessary in the community.

## **Annex-1 Checklists of Interview for Key Informants and Interaction Meeting**

1. How Many furniture industries and sawmills in Surkhet
2. What is the major issues of timber trading?
3. What are the policy barriers?
4. What are the administrative barriers in trading and operating forest-based industry?
5. What is the basic role of CFUGs and CF in demand and supply of timber in Surkhet?
6. Any significant roles found of Family and Private forestry component
7. What is the condition of investment by private sector in forest-based industries in Surkhet?
8. There is any wood seasoning and treatment plant in Karnali?  
And what is its scope and demand
9. Which model do you prefer for the establishment of plant in Surkhet?
10. Could you explain the role of different stakeholders regarding the seasoning and treatment plant establishment and operation?
11. What are the environmental and social issues in the harvesting, trading and marketing of timbers?
12. Which location is suitable for the establishment of the plant? And why

## Annex- 2 Glimpse of photo Seasoning and Treatment Plant

- These photos were drawing from Mount Everest Argo Pvt Private limited



Photo; Band and Trolley saw



Photo; Sawn Timbers



Photo: Brick chamber and metal chamber for seasoning



Treatment Chamber and Chemical



DISCUSSION IN PROVINCIAL FOREST DIRECTORATE, SURKHET

Text

Paragraph

Text

Drawing

Text

Editing



DISCUSSION WITH DFO SURKHET



DISCUSSION WITH PRIVATE SECTOR



DISCUSSION AMONG CFUGS/ LOCAL MEDIA / DIVISION FOREST OFFICE CHINCHU



MEETING WITH MOUNT EVEREST AGRO WOOD PRIVATE LIMITED, RUPENDEHEI,



TREATMENTS PLANTS



SEASONING PLANT



आज मिति २०८१ साल असार १३ गतेका दिन मया अनुसन्धान तथा प्रशिक्षण केन्द्र कर्णाली प्रदेश मुस्ताङको लोपोन्मुख पठारक्षेत्रमा सोलु तथा अनुसन्धान केन्द्र (NASC) काठमाडौँबाट सक्ने आउनु भएका दोस्रो तहको प्रशिक्षकहरूलाई तालिम दिने कार्यक्रमको अंतिम दिनको प्रतिनिधिक संघ कर्णाली प्रदेशमा काठ सिन्धुविह्र र उपचारण संस्थानमाथि तालिमको सम्पत्तिमाथिमा उपस्थित सम्पन्न भयो ।

१. प्रशिक्षक सुभाष शर्मा - प्रमुख प्रशिक्षक
२. प्रमुख प्रशिक्षक - कर्णाली प्रदेश प्रशिक्षण केन्द्र
३. प्रमुख प्रशिक्षक - " " " "
४. प्रमुख प्रशिक्षक - कर्णाली प्रदेश प्रशिक्षण केन्द्र
५. प्रमुख प्रशिक्षक - कर्णाली प्रदेश प्रशिक्षण केन्द्र
६. प्रमुख प्रशिक्षक - प्रशासनिक अधिकारी
७. प्रमुख प्रशिक्षक - " " " "
८. प्रमुख प्रशिक्षक - कर्णाली प्रदेश प्रशिक्षण केन्द्र

... विद्यापीठ ... विद्यापीठ ...  
 ... प्रशासक ...  
 ... (R.P.S.C.) ...  
 ... विद्यापीठ ...

- 1. विद्यापीठ ...
- 2. ...
- 3. ...
- 4. ...
- 5. ...

आज जिसे 2029 साल आस-पास 70 गते का कार्यक्रम  
 लक्ष प्रशिक्षण के रूप में प्रस्तुत किया जाएगा जो कि नया  
 अनुसंधान के रूप में (R&D) का कार्य कर रहे हैं। (करीब 3000  
 करोड़) होती है। इसी लक्ष्य के लिए सशुद्धता के लिए  
 सिद्धता प्रमाणित किन्तु कार्य के निष्पत्ति में प्रमाणित  
 है। मेरा मतलब लक्ष्य सिद्धता के लक्ष्य में है।

लक्ष्य  
 3. जमीन (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)

1. जमीन (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)
2. डिप्लोमा आर्चा (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)
3. डिप्लोमा आर्चा (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)
4. डिप्लोमा आर्चा (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)
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6. डिप्लोमा आर्चा (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)
7. डिप्लोमा आर्चा (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)
8. डिप्लोमा आर्चा (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)
9. डिप्लोमा आर्चा (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)
10. डिप्लोमा आर्चा (वि. वि. सं. 99) डिप्लोमा आर्चा (वि. वि. सं. 99)

आज मिति २०८१ साल असार महिनाका,  
दिन वन अग्रमन्थान तथा प्रशिक्षण से-इ  
कोशी प्रदेश मुक्तिको नफेका ११११दिना  
कोश तथा अग्रमन्थान सेन्ट्र (RSC) काठमाडौंमा  
रुडी काठमाडौंको रोली र नेपाल वन पैदावा  
इच्छो मावशाशी जिल्ला प्रकृति मुक्ति र नफेका  
कोशी प्रदेशका प्रतिनिधिहरूको कोशी प्रदेशका  
काठमाडौं जिल्ला इच्छोको फेलागता को इच्छो  
कार्यक्रम तथा नफेकाको समुपस्थितिमा सम्पन्न गरियो।

उपस्थिति:

- १. हरि धापा - ९८५८०६२३११  
सबलकोट केन्द्रिय समिति  
९८५८०५२३१०
- २. राजेन्द्र गिरी कोशी प्रदेश इच्छो
- ३. धिरेन्द्र प्याम्जी - सचिव सुबत ९८५८०३७९७१
- ४. सन्दिप कुमार गुप्ता - काठ व्यवसायी  
प्रदेश कोषाध्यक्ष
- ५. मनोहर कुमार ठाकुर - कोषाध्यक्ष सुबत  
९८५८००९२६९
- ६. रवोश्वर बाहोला - प्रदेश सदस्य  
९८५८०५६३२
- ७. सुब्बर कुमार पन्त - काठ व्यवसायी  
९८५८०५८४९९





## Annex-4 Legal and Policy Consideration

Sn	Policies	Provisions related to timber business	Implications
1	Forest act 2019	<ul style="list-style-type: none"> <li>• A license is required for the utilization, removal, sale, and distribution of timber from Government-Managed forests.</li> <li>• The price of the product is prescribed by the Government. Government-managed forests allow the felling of the dead, dying, and diseased trees but not the green trees.</li> <li>• This Act has introduced a provision of partnership forests in partnership between DFO, local levels and forest users (Chapter 6, Article 23). The forest products from partnership forest should be used internally and only the remaining products should be sold outside of the group (Chapter 6, Article 25).</li> <li>• The collection and transportation of forest products from private forests or private cultivation for commercial purpose will require an approval of local government</li> <li>• (Chapter 10).</li> </ul>	The Act favors timber business
		<ul style="list-style-type: none"> <li>• Forest products shall not be collected, sold, or distributed exceeding the quantity specified in the work plan for a whole year. When forest products are likely to damage and get destroyed due to natural calamities, the limitation of quantity will not be considered for collection, sale, and distribution (Chapter 2).</li> </ul>	It creates a prospect to engage in forest-based business along with managing overuse of forest products for

2	Forest regulation 2022	<ul style="list-style-type: none"> <li>• Government may issue a ban on collection use, sale, distribution, and transportation for any specified category of Forest products (Chapter 2)</li> <li>• Timber may be collected out of forest during the period between October 17 to June 14 (8 months) (chapter 2,).</li> <li>• CFUGs can collect, sell, and distribute only those forest products mentioned in work plan and after collection, CFUGs must arrange for reforestation or rehabilitation as soon as possible. The sale rate of forest products should be informed to DFO. CFUG can run a forest-based industry outside forest by obtaining approval from concerned agency (Chapter 4, article 32).</li> </ul>	commercial purpose.
1	Forest act 2019	<ul style="list-style-type: none"> <li>• A license is required for the utilization, removal, sale, and distribution of timber from Government-Managed forests. The price of the product is prescribed by the Government. Government-managed forests allow the felling of the dead, dying, and diseased trees but not the green trees.</li> <li>• Any part of national forest can be handed over to user groups to conserve, use and manage the forest and sell and distribute the forest products independently by fixing their price according to the work plan.</li> <li>• Private forestry owner can collect and sell timbers grown in their private land .</li> </ul>	The Act favors community to manage the forest and engage in the timber business independently.

		<ul style="list-style-type: none"> <li>• This Act has introduced a provision of partnership forests in partnership between DFO, local levels and forest users (Chapter 6, Article 23). The forest products from partnership forest should be used internally and only the</li> <li>• remaining products should be sold outside of the group (Chapter 6, Article 25).</li> <li>• The collection and transportation of forest products from private forests or private cultivation for commercial purpose will require an approval of local government</li> <li>• (Chapter 10, article 36).</li> </ul>	<p>It focuses on the internal use of forest products rather than their trade.</p>
2	<p>Forest regulation 2022</p>	<ul style="list-style-type: none"> <li>• Forest products shall not be collected, sold, or distributed exceeding the quantity specified in the work plan for a whole year. When forest products are likely to damage and get destroyed due to natural calamities, the limitation of quantity will not be considered for collection, sale, and distribution (Chapter 2, article 6).</li> <li>• Government may issue a ban on collection use, sale, distribution, and transportation for any specified category of Forest products (Chapter 2, article 12)</li> <li>• Timber may be collected out of forest during the period between October 17 to June 14 (8 months) (chapter 2, Article 16).</li> </ul>	<p>It creates a prospect to engage in forest-based business along with managing overuse of forest products for commercial purpose.</p>

	<ul style="list-style-type: none"> <li>• CFUGs can collect, sell, and distribute only those forest products mentioned in work plan and after collection, CFUGs must arrange for reforestation or rehabilitation as soon as possible. The sale rate of forest products should be informed to DFO. CFUG can run a forest-based industry outside forest by obtaining approval from</li> <li>• concerned agency (Chapter 4, article 32).</li> </ul>	
Procedure Directives 2003	<ul style="list-style-type: none"> <li>• The auction should be announced for 15 days if forest product is of NPR 1 lakh and for 21 days if forest product is worth more than NPR 1 lakh (Article 9).</li> <li>• The firm or company should have valid registration, PAN, and tax clearance for competing in auction (Article 10)</li> <li>• At least two applications for bidding should be received to open the auction, otherwise it should be renounced for next 15 days (Article 16).</li> <li>• The auction should be based on the minimum selling royalty rate maintained by the government (Article 20).</li> <li>• The winning bidder should transport timber within 3 days of receiving the permit for transportation (Article 26).</li> </ul>	can be lengthier if at least two bids are not received during auction. During this the softwood species from hilly region may be damaged and decayed causing a loss to the buyer.
	<ul style="list-style-type: none"> <li>• Forest User Groups should complete timber harvesting and hauling, between the period of October 17 to 28 May of each fiscal year. But transporting them to the depot can go till the end of 14 June (Chapter 2, article 4).</li> <li>• Timber should not be harvested near water source, riverbank, erosion prone areas, Chure areas, slopy areas, and biodiversity hotspot (Chapter 2, article 7).</li> </ul>	The directive addresses the environmental and ecological risks as well as the maintenance of forest health associated with

4	Directives for collection and sale of timber/ fuelwood from community forests, 2014	<ul style="list-style-type: none"> <li>• While harvesting, at least 25 mother trees for single species forest and 5-10 mother trees for mixed species forest should be left (Chapter 2, article 8).</li> <li>• Chapter 5 of this directive deals with the sale of timber and fuelwood outside forest user groups. It has laid five points procedures for such sale. Forest user groups must follow the bidding process if they have to sell for commercial purposes. Article 33 provides an auction procedure that the CFUG must follow. The procedure consists of 10 important rules with several annexes to follow and appears to be complicated for the forest user groups to follow. 15 days' notice shall be published in a national daily newspaper if the valuation of forest products is less than NPR 1 lakh and if it is more than NPR 1 lakh notice of 21 days should be announced. At least 3 quotations must be received to carry out the auction process otherwise the notice will be re-Announced for a second time.</li> </ul>	<p>timber harvesting. The CFUG timber selling process is very lengthy and requires a high level of regulatory tasks. During this time the quality of timber may deteriorate which can result in the economic loss to timber trader.</p>
5	National Forest Policy 2019	<ul style="list-style-type: none"> <li>• Forest policy aims to be self-reliant on forest products and promote their export with value addition.</li> </ul>	<p>The policy facilitates the investment of different sectors in the timber economy.</p>
		<ul style="list-style-type: none"> <li>• Action: The present royalty system on timber will be reviewed and revised based on market prices for timber and international best practice.</li> </ul>	

		<ul style="list-style-type: none"> <li>• Further the strategy envisions to identify investment opportunities for private sector partnerships with CFUGsto enhance sustainable and productive forest management, and marketing and processing of forest products, especially timber.</li> </ul>	
		<ul style="list-style-type: none"> <li>• The strategy also plans to conduct awareness campaigns amongst the public and timber enterprises to create a better understanding and demand for legitimately sourced</li> <li>• Forest products.</li> </ul>	
		<ul style="list-style-type: none"> <li>• Chapter 11 highlights the process for timber sale from CFUG and associated transparency and accountability.</li> </ul>	
7	Sustainable forest management procedure, 2079	Support for both forest managementand operation of forest-based enterprises	
8	Forest Act,2080 & Forest Regulation,2080	<p>Chapter 3,(11) The provision to supply the raw materials to forest based enterprise.</p> <p>Capter 3, (12 ) The enterprise that buys the round timber must make it of sawn wood or first-level processing before selling it to consumers.</p> <p>Chapter3,(13) Without the value-added of ( listed species in the Gazette ), both timber and non-timber forest products are restricted to trade outside the province.</p>	This creates the scope for establishment of timber seasoning plant

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