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Ministry of Agricultural Development

High Value Agriculture Project in Hill and Mountain Areas (HVAP)

IFAD

A Report on

VALUE CHAIN ANALYSIS OF TIMUR

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Study Team

ABBREVIATIONS

AEC	Agro Enterprise Centre
AEO	Agriculture Extension Office
AICC	Agriculture Information and Communication Centre
ANSAB	Asia Network for Sustainable Agriculture and Bioresources
BDS	Business Development Service
BMOs	Business Membership Organisations
CC	Collection Centre
CF	Community Forest
CFUG	Community Forest Users Group
DAG	Disadvantaged Groups
DDC	District Development Committee
DCCI	District Chamber of Commerce and Industry
DLSO	District Livestock Services Office
DPRO	District Plants Resources Office
DPR	Department of Plants Resources
EU	European Union
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
FGD	Focus Group Discussion
FSC	Forest Stewardship Council
FWDR	Far-Western Development Region
GOs	Governmental Organisations
GoN	Government of Nepal
Ha	Hectare
HVAP	High Value Agriculture Project in Hill and Mountain Areas
HH	Household
HPPCL	Herbs Production and Processing Company Limited
IFAD	International Fund for Agricultural Development
IFP	Interim Forestry Project
ITC	International Trade Centre
ISO	International Standards Organisation
INGO	International Non-government Organisation
JABAN	Jadibuti Association of Nepal
LFUG	Leasehold Forestry Users Groups
LRP	Local Resource Person
LNGO	Local Non-government Organisation
MAPs	Medicinal and Aromatic Plants
MT	Metric Tons
MIS	Marketing Information System
MEDEP	Micro-Enterprise Development Programme
MFIs	Micro-Finance Institutions
MoAC	Ministry of Agriculture and Cooperatives
MoU	Memorandum of Understanding
MSFP	Multi Stakeholder Forestry Project
MWDR	Mid-Western Development Region
NGO	Non-government Organisation
NRs.	Nepalese Rupees
NTIS	Nepal Trade Integration Strategy
NTFP	Non-Timber Forest Products
PPP	Public Private Partnership
PQ	Plant Quarantine
R&D	Research and Development
RMDC	Rural Microfinance Development Centre Ltd

SNV	SNV Netherlands Development Organisation
SPSS	Statistical Package for Social Sciences
TEPC	Trade and Export Promotion Centre
USA	United States of America
VC	Value Chain
VDC	Village Development Committee

EXECUTIVE SUMMARY

Timur, commonly known as Nepalese pepper, has been established as an integral source of income for women, landless and unemployed people. The nature of the plant as its ability to grow in less fertile soil with very less disease and pest infestation; its availability in forests and the surrounding agricultural lands without affect in agricultural productivity; its usage as a terrace raiser for crop land; and long experience of the rural women and poor in collection makes the *timur* a suitable plant species for livelihood improvement of the poor. Asia Network for Sustainable Agriculture and Bioresources (ANSAB) conducted the value chain analysis of *timur* for the High Value Agriculture Project in Hill and Mountain Areas (HVAP) in designing the project's activities for the promotion of the *timur* value chain. This study is focused in HVAP districts along the three road corridors – Chhinchu-Jajarkot, Surkhet-Dailekh and Surkhet-Jumla – and suggests possible interventions to the project. Findings of this study are validated through sharing meetings and interactions with stakeholders at district, regional, and national levels.

Timur is naturally grown, as well as a transplanted shrub, in the barren lands and forests (community, leaseholds, and private), and is regarded as a prioritised commodity for export with its potential of trading in raw and processed form for Indian markets and producing oil for European markets. About 850 to 1,100 MT of *timur* is collected annually in Nepal with India as the principal buyer that purchases about 80 per cent in raw form. Some European countries namely France, Italy, Belgium, Germany and UK have a demand of about 150 Kg *timur* oil from Nepal, which despite being a small amount, is a good indication of the market expansion in developed countries. China also poses as another country for market expansion as *timur* is extensively used as a flavouring agent in food in the country.

In Nepal, about 20,000 households are engaged in *timur* value chain with an annual revenue generation of about NRs 100 million from its sale. The collection practice is primitive and not scientific; usually the poor, women, and children collect *timur* in their leisure time manually by hands and sticks; and sometimes using traditional weapons for cutting stems and branches. In open access areas, early harvesting and lopping off of the branches or stems prevail, often resulting into fungus infestation in dried fruit and decrease in fruit production of the plant.

Timur is prominently found in the project districts. Along with its abundance in the barren lands, surrounding areas of the croplands, and forests of the project districts; some individual farmers have cultivated *timur* in their private lands and small patches of the community and leasehold forests. Altogether 220 MT is being traded along the three road corridors of HVAP areas and around 5,000 households are being engaged in the *timur* value chain. The unit cost of production of *timur* in the project area is estimated at NRs 47 per Kg for commercial cultivation and at NRs 40 per Kg for wild collection. Per shrub production of *timur* is 5 Kg dried weight and 3.5 Kg of dried seed coats. Likewise, 1.5 Kg of black shiny seeds can be obtained from 20 Kg of fresh ripen fruit (DPR, Salyan).

Timur has a good demand since many years; however, its price has been fluctuating over years. The farm gate price of *timur* was NRs 1.8 per Kg and NRs 20 per Kg in 1980s and 2007 respectively with a maximum value of NRs 110 per Kg in 2003/2004. Similarly, the price of oil has also fluctuated between NRs 1,800 and 3,500 per Kg over the years. Nepalgunj is the main route for *timur* export to India accounting about 95 per cent of the export from this route, although there are 27 agreed routes for mutual trade of *timur* between India and Nepal (Rawal, 2010). Chhinchu-Jajarkot road corridor is the principal corridor for production and trading, and holds more than 77 per cent share of the total production of the project area. Gairi Bazaar and Botechaur of Surkhet, Baluwa Sangrahi and Sallibazaar of Salyan, and Marko Bazaar and Khalanga of Jajarkot are the major local collection hubs in this corridor.

The specific constraints in the *timur* sub-sector range from production to marketing. Major constraints affecting the *timur* value chain*,* which can be addressed through HVAP interventions, are listed as below:

- Lack of proper knowledge on harvesting, grading and local value addition, and inadequate capacity of farmers to acquire required technical and business plan preparation skills;
- Inadequate suppliers of harvesting tools and seed/seedlings;
- Low access to market and its information;
- Lack of loyalty to implement no tax provision on transportation and royalty for private land's product;
- Inability of farmers, traders, and processor to provide adequate collateral;
- Improper storage facilities; and
- Lack of groups and networks at local level.

There are specific challenges related to harvesting, storage, and transportation facilities in project area. Lack of proper harvesting tool is a major bottleneck at producers' level. So it is necessary to develop, pilot and field-test the harvesting tool. In this regard, the project could organize a visit for the lead farmers and the interested tools/machine fabricators to some fabricators in India including Defence Research Organization in Ladakh. Dabur Nepal is ready to support for arranging appointment with the Indian fabricants and users. This visit would be useful in making the Nepalese producers and traders familiar with the harvesting tools and local manufacture practices. Once the tools are locally produced, they can be tested in main *timur* pockets like Dharapani and Malarani VDCs of Surkhet district. There are also some irregularities in harvesting practices at local level that is limiting the proper utilisation, protection and regeneration of *timur* at local level. In this regard, a joint monitoring by the groups and DFO could also be initiated for proper maintenance and purposeful regeneration of the species in the area. There are other challenges related to storage house and transportation in specific areas of the project districts. Establishment of storage house for *timur* can be supported in Botechaur, Baluwa Sangrahi and Sallibazaar. Gravity ropeway could be considered as an alternative means in Malarani and Dharapani VDCs of Surkhet district to reduce the transportation costs.

There is potential to cultivate *timur* in private land in some of the catchments of Naumule, Dailekh Bazaar, Botechaur, Baluwa Sangrahi, Sallibazaar, Marko Bazaar and Khalanga markets. In this regard, technical training on high quality seedling production and improving harvesting technology is important to increase efficiency of labour mainly in harvesting and controlling over extraction, and it could be one of the future activities for interventions. Furthermore, in order to exempt from the government royalty, farmers could be facilitated to register their cultivation area of *timur* as private forest.

The quality of *timur* for final marketing can be improved by proper grading, packaging and quality control practices by the producers and the traders that can be achieved by providing necessary skills and strengthening capacities of people involved in the value chain. Supporting the actors for improved technologies and provisioning limited time for harvesting is also important to increase efficiency of labour mainly in harvesting, control the over-extraction of the product, and ensure equity in benefit distribution. The provision of collection rights in community forest and government forest for marginalised and landless farmers of the community can be a right way of intervention. There is a need to facilitate few meetings of potential buyers (e.g., Gyan Herbal, Natural Resources Industries etc.) and the farmers/collectors for contract arrangements and support to prepare legal documents. Support activities for the cooperatives, CFUGs and LFUGs that currently lack working capital for processing, local value addition and collective marketing are also some areas of consideration. The farmers' and collectors' groups should be formed and strengthened for reliability to prove their business as a sustainable one so that buyers engage with them and rely on more functions. For this, technical training for the organised groups on high quality seed/seedling

production is needed. The groups also need to be empowered by business information and skill development trainings to uplift their position in the value chain. In this regard, organising and federating producers in the villages and organising forums and dialogues at central level could be some of the activities. Formation of proper networks of traders at district level would be helpful to overcome the challenges in trade whether that would be in policy issues or the issues of unfair competitions. For this, organising meetings would be effective intervention to address the policy distortions practice at different levels including lobbying for favourable policy implementation such as incentives to exporters, no tax/fees levied on transportation, no royalty levied from private lands and multiple checking. Trader networks at district level and JABAN and NEHHPA at regional and national level could conduct this activity.

Considering all the points, it has been realised that the value chain could be more competitive if facilitation is done carefully for accessing critical technical, financial, and business services to increase efficiency in improving productivity and harvesting methods, local value additions, and approaching new markets. Intensive facilitation would be required for the process of trust building among actors and develop a mechanism to protect poor, Dalit, and women.

1. INTRODUCTION

1.1. BACKGROUND

In a joint initiation of the Government of Nepal/Ministry of Agricultural Development (MoAD) and the International Fund for Agricultural Development (IFAD), a six-year High Value Agriculture Project in Hill and Mountain Areas (HVAP) is being implemented since July 2010 in partnership with SNV Netherlands Development Organisation and Agro Enterprises Centre (AEC/FNCCI) for the reduction of poverty and vulnerability of women and men in Mid-Western Development Region (MWDR). The project covers seven districts: Achham of Far-Western Development Region, and Dailekh, Jajarkot, Jumla, Kalikot, Salyan, and Surkhet of Mid-Western Development Region served by three north-south roads: Chhinchu-Jajarkot, Surkhet-Dailekh and Surkhet-Jumla. The project aims to reach Dolpa, Mugu and Humla districts in its latter years. The project follows Inclusive Business and Value Chain Development approaches in the geographic boundaries demarcated by accessibility to roads. As a part of the project, the Asia Network for Sustainable Agriculture and Bio-resources (ANSAB) carried out value chain analyses of four different products – turmeric, *timur*, goat and off-season vegetables – in the project area to support in designing the project's activities.

ANSAB is an independent, non-profit, civil society organisation committed to biodiversity conservation and economic development through community-based enterprise oriented solutions, and is working in South Asia since 1992. Since its establishment, ANSAB has implemented a variety of innovative approaches including the creation of enterprises based on natural resources, and the initiation of the Forest Stewardship Council (FSC) certification to promote natural products-based enterprises and value-chain interventions in Nepal. Thanks to the organisation's competent team, wide networks, and exemplary track record, it has designed and successfully completed several projects including value chain study of commercially important products, with tangible results on the ground. ANSAB has also provided different expert services to stakeholders working in Nepal and other neighbouring countries.

This study is one of the four studies carried out by ANSAB from November 2011 to March 2012 to support the project in designing the project activities in the four sectors. This study analyses the status and potential of the *timur* value chain in the project districts analysing the sector's value chain map, economic analysis, trend and competitiveness, governance for empowerment, constraints and opportunities, market-based solutions and strategic areas of intervention by functions.

1.2. OBJECTIVES

The main objective of this assignment is to provide sufficient understanding on the current status and future potential of the *timur* value chain and to identify specific bottlenecks and opportunities that can be addressed through the project intervention thereby increasing production, income, and employment of rural poor. The specific objectives are as follows:

- Prepare value chain map of *timur* that depicts the chain actors and their functions and inter-relationship.
- Identify major production pockets, growth potential, market trends, and competitiveness of *timur* value chain (supply and demand) including its future prospects within the country and abroad.
- Identify and examine constraints and opportunities within the selected value chains and recommend interventions to overcome constraints, and make use of

opportunities to promote inclusive and sustainable pro-poor economic growth and competitiveness.

- Analyse dynamics of processing and value creation, reward distribution, value chain governance and power relation structures, and knowledge transfer.
- Identify the underlying policy, institutional, and infrastructural issues that affect the competitiveness of the selected value chains with reference to the role of government and private sectors in the regions of focus.
- Identify institutions and organisations working for selected value chains from national to local levels (local, regional, national organisations from GOs, NGOs, and private sector) that can contribute to pro-poor value chain development.
- Analyse gender and social inclusion/pro-poor perspective at all steps of value chain mapping that enquire about the relative proportions of women and men, caste/ethnic communities at each node and between nodes.

1.3. METHODOLOGY

1.3.1. STUDY AREA

The study sites include Achham, Dailekh, Jajarkot, Kalikot, Salyan, and Surkhet districts in the following three north-south road corridors: Chhinchu-Jajarkot, Surkhet-Dailekh and Surkhet-Jumla (see Fig 1).

Figure 1 Map Showing the Study Area

Source: HVAP, 2011

The study has covered market centres and the existing and potential production pockets along the major three road corridors within the project districts. The details of market centres and production pockets visited, and places of FGD conducted are presented in Annex 2.

1.3.2. DATA COLLECTION AND ANALYSIS

The study has applied both qualitative and quantitative research methods for obtaining information on *timur* sub-sector. Both primary and secondary sources were used for the collection of data for this purpose.

A brief description of the preparatory activities, data collection and analysis are given below:

Preparatory Activities: Initially, review of literatures and consultation with HVAP team was conducted for detail planning. Three separate sets of checklists for farmers, traders and stakeholders were developed. Similarly, two sets of questionnaires, one for farmers and one for traders, were developed to obtain household level data. The checklists and questionnaires along with travel plan were finalised in consultation with HVAP team.

Data Collection: Interviews, focus group discussions (FGDs), observations, stakeholders' consultations/meetings, checklists and questionnaires and sharing and validation workshops were conducted to gather information at each level of value chain. Prior to commencing ground study, an inception workshop was conducted in Birendranagar, Surkhet, which provided insights on the concept, scope of the study including study approach and methodology to the team members and enumerators and in preparing field mobilisation plan.

A dedicated team (See Annex 1) for *timur* study having designated value chain expert, research assistant and enumerators was mobilised in the field for 25 days covering all the three road corridors. Market centres and production pockets of these road corridors were visited where the team conducted interviews with traders and farmers, and filled up questionnaires. Focus group discussions were conducted with traders and farmers in some strategic market centres and production pockets respectively (See Annex 2 for details). Meetings were conducted with DFO, DDC, DCCI and other relevant supporting organisations of visited districts. Publications and other relevant documents were also collected from the stakeholders.

A district level consultation and sharing workshop was conducted in Khalanga, Jajarkot where the preliminary findings were presented to participating commercial farmers, collectors, traders, processors, input suppliers, representative from DFO, DCCI and facilitating organisations. The participants provided their inputs that were noted and compiled.

The team also visited major regional market centres namely Birendranagar, Nepalgunj, Dhangadi, Butwal and Kathmandu, and conducted interviews and focus group discussions with traders, processors, and exporters for getting insights of regional trade. Visit to JABAN, custom offices, quarantine offices, Trade and Export Promotion Centre, Department of Plant Resources, Department of Forest, and relevant private companies and organisations, were conducted for interactions and secondary data collection.

A two-day "Regional Value Chain Consultation and Intervention Strategy Development Workshop" was conducted on 15-16 February 2012, in Nepalgunj to share and validate the collected information. In the workshop, group exercises were conducted with farmers, traders/processors and other stakeholders, which provided further detailing of intervention strategies. The comments, suggestions and inputs from the workshop were compiled and incorporated in the study. Likewise, a half day National Validation Workshop which focused more on policy issues was conducted in Kathmandu on 6 April 2012 with related stakeholders including those representing ministry. Verified issues were finally standardised based on inputs.

Data Analysis and Report Preparation: The collected data are analysed systematically in order to obtain the objectives of the study. A detailed value chain map of the *timur* sub-sector in the study areas is prepared. Economic analysis is done to present the situation of production and value addition of the *timur* including cost of production and distribution of margin along the chain. Market trends and competitiveness analysis is conducted to provide

details on end markets, supporting markets, enabling environment and inter-firm cooperation between VC actors. Similarly, analysis of governance structure is done to present the status of power relationship and trust in the value chain along with gender issues and inclusiveness. The constraints are analysed through initial understanding of opportunities and identification of the factors that prevent in reaping the opportunities. Market-based solutions are suggested to address the constraints. The analysis of market-based solutions is done which provided with the list of possible areas of project interventions. Then the suggested interventions for short term and long term are presented.

Qualitative data of the study is summarised and presented in a descriptive form in the report. Tables, figures, and graphs are also used for the data presentation. Triangulation and validation of the data are done to the extent possible with use of different sources including publications, websites, and workshops.

2. VALUE CHAIN ANALYSIS

2.1. INTRODUCTION TO VALUE CHAIN

Timur (*Zanthoxylum armatum*) also commonly called as *boke timur* in Nepal is named as *taimur* in Hindi and Nepalese pepper or prickly ash in English. It is a small shrub found in the sub-tropical to temperate regions (900-2500 metres from the sea level), from Kashmir to Bhutan. Eight species of *Zanthoxylum* have been reported from Nepal, of which *Z. armatum* is the most-widely used species. In Nepal, *Z. armatum* is found in more than 30 districts and is the most prominent in the mid-western districts. Flowering season of *timur* is from March to April and the fruits ripen in the period from September to November.

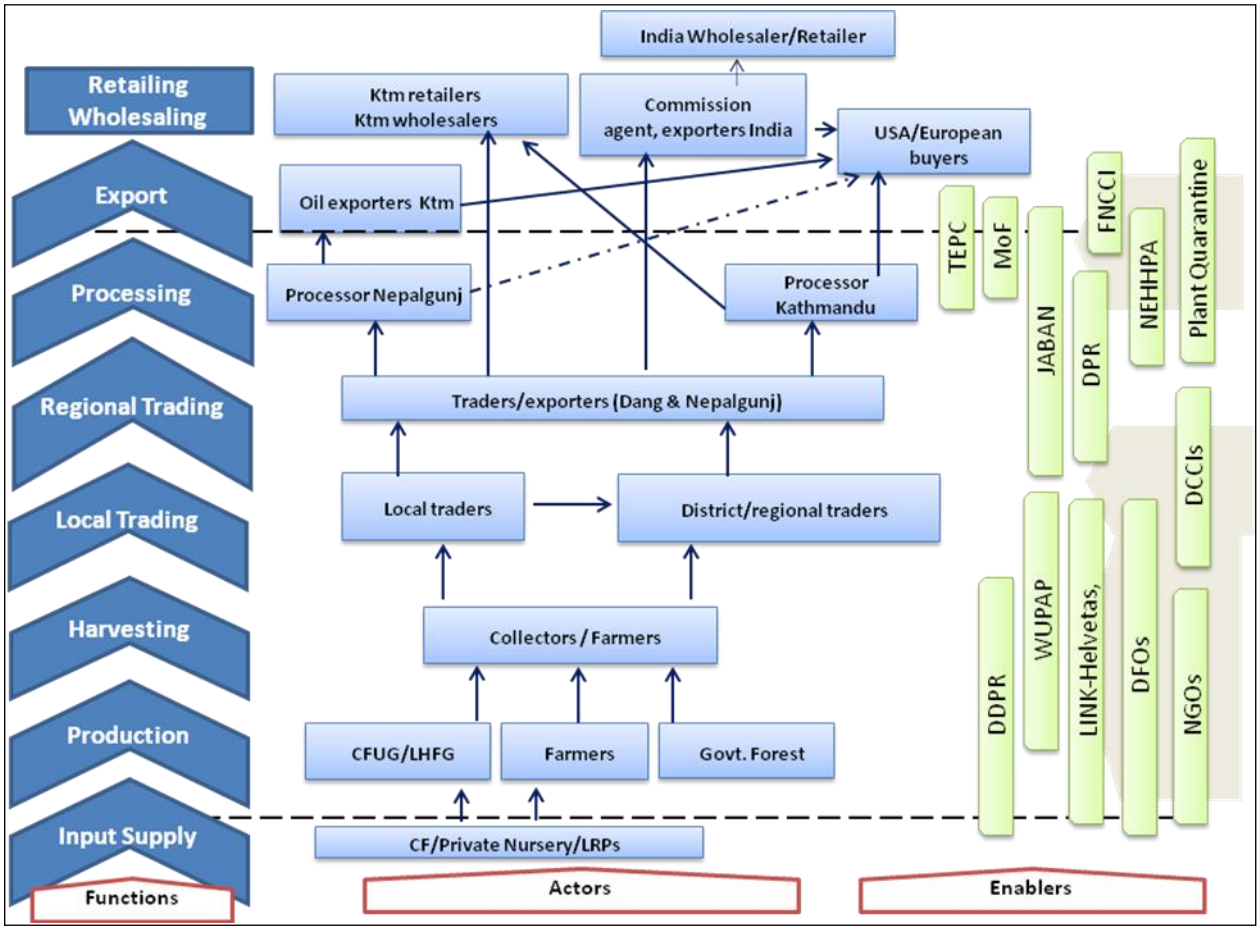
It is believed that the trade of this species started with India in the early 1980s, before which the rural communities in Nepal used it for home remedy. There is a long tradition of *timur* collection and sale (*Malla et. al, 1993*). The product has been established as a locally useable commodity and as an integral source of income benefiting the women, landless and unemployed people. Essentially, dried fruit of *boke timur* (with seed; coats and black seed) is commercially used in ayurvedic medicines, spices (*chutney*), dentifrices (powder for cleaning the teeth) industry, and its oil in the fragrance and flavour industry, which is obtained by distillation of the dried fruit.

The *timur* sub-sector has important significance for its trade in Nepal because of its multiple functions and potential for rural livelihood improvement. It has become an important commodity with a good scope of increase in production by adopting proper management system, improving harvesting tools/methods, and proper post-harvest handling. It also possesses comparative advantage in the Nepalese context for following some reasons. First, it is a native shrub that has been preserved in wild as well as domesticated with most of the geo-climatic setting in the HVAP area being favourable for the plant. Second, the rural people mostly poor and women usually have a long experience of collecting *timur* as a source of income. Third, the product is generally produced and collected under natural conditions, and hence can be considered as organic. Fourth, the plant can be cultivated in the forest and surrounding of agricultural lands in the settlement without affecting agricultural productivity. *Timur* also has very low disease and pest infestation. Cultivating *timur* in private land requires less investment as compared to other crops and can be continuously harvested for many years. The private forest owner can also use *timur* as an evidence of source of income and collateral for taking loans from the banks. There are, however, unhealthy market competitions and fluctuating market price as the critical external challenges in the *timur* value chain. Considering the whole value chain of the sub-sector, it has potential in terms of production, income generation, and employment creation for increasing competitiveness.

2.2. VALUE CHAIN MAP

Figure 2 presents the value chain map of *timur* in the Mid-Western and Far-Western Development Regions of Nepal with the major functions in the chain, key actors, market channels, vertical and horizontal relationship, and the existence of various facilitating and regulating agencies.

Figure 2 Generic Value Chain Map



Note: Quantity, price and number of actors involved in different level are given in Figure 7

Source: Field Study, 2011

2.2.1. Actors and their Functions

Actors involving in *timur* value chain can be categorised into different types according to their functions along the chain. They are farmers/collectors, local level/road head traders, district level traders, regional traders, processors, manufacturers, exporters, retailers, and end users. Short description of each actor and their respective functions are described as follow.

- **Producers/Collectors:** They are the primary actors in this value chain. More than 5,000 households are directly engaged in this sub-sector in the project districts. They are mostly women and belong to the disadvantaged group (poor, ethnic, *Dalit* etc.). Farmers and collectors usually sell the product to the road-head collection points and occasionally to district headquarters. At this stage, all functions demand extensive labour forces and could offer many seasonal employments. Group marketing has not been done in the project areas. However, few traders directly come to the villages and buy the products from the nearby markets.

- **Local/Road-head Traders:** They buy the product from individual farmers and collectors. There are 20 local and road-head traders based in the three road corridors with their capacity for buying ranging from 0.2 to 1 MT.

Most of traders have their own retail shop of grocery items, clothes, and hardware and large quantity collected by them, sell to district level traders and a part goes to agent of regional traders or exporters.

- **District Level Traders:** They buy the product from village level/road-head traders and consolidate it at strategic market centres for transportation to the regional market. Almost all the product from the project areas go to regional level traders or exporters based in Nepalgunj. Altogether, there are eight district traders in the project areas. They are based in Dailekh Bazaar, Manma, Salli Bazaar, Khalanga and Birendranagar.

- **Regional Level Traders:** They buy product from the local or road-head traders, district traders and their agents and sell the product to Nepalgunj based processors and exporters. Sometime regional level traders also export the product via Nepalgunj custom. There are nine regional level traders along the chain and they are getting only a part of required *timur* from their agents, therefore, they buy larger quantity from the district level traders.

- **Processors and Manufacturers:** Bahubali Herbal, HPPCL and Natural Products are the major distillers of *timur* in Nepal. Dabur Nepal has a demand of *timur* for producing end product including dentifrice (tooth powder) items. HPPCL consumes its oil for making different kinds of balm (more than five brands are in market and popular one is *Sancho*).

- **Exporters:** Exporters are mainly located in Dang, Nepalgunj, Krishnanagar, Butwal and Kathmandu. Most of the regional traders also take the function of export. Traders from Nepalgunj, Butwal, and Kathmandu export *timur* and its oil as per the demand of the Nepalese, Indian, and abroad markets. Major market of the raw product is India (more than 80 per cent) and its essential oil's market is European countries. They export to Indian markets after cleaning and repackaging. Rest of the quantity is consumed by processing companies in domestic markets (manufacturers; *Sancho* and dentifrice etc.). Nepalese exporters sell the product (with seed) to the commission agents based in Delhi, which in turn sell to other buyers like Zandu, Charak and Vaidyanath in India. Exporters buy oil from the processors and sell to the international markets mainly in India. Only a small quantity of oil is exported to Europe and the USA. Nepalese processors and exporters sell about 250 Kg *timur* oil to the overseas markets annually. Table 1 presents major companies of Nepal that deal with *timur* and its oil for processing, manufacturing, and exporting.

Table 1 Major Companies Dealing with *timur* and its Oil in Nepal

SN	Name of the Company	What it does	Quantity (Annual)
1	Natural Product Industry Pvt. Ltd., Kapilvastu	Processes and exports mainly to India	100 Kg oil
2	Bahubali Herbal Essence & Extract, Banke	Processes and export mainly to India	200 Kg oil
3	Dabur Nepal, Kathmandu	Produces end product	200 MT-fruits
4	HPPCL, Kathmandu	Produces end product	200 Kg oil
5	Shambala Herbals Pvt. Ltd., Kathmandu	Exports mainly to Germany	200 Kg oil
6	HBTL (from last three years), Kathmandu	Exports mainly to the UK, France, and Italy	30 Kg oil

Source: Field Study, 2011

Indian Traders: They purchase mainly from the regional traders of Nepalgunj and a small quantity from the traders of Krishnanagar and Butwal. Delhi, Lucknow, and Calcutta are the major trading centres in India. Traders in Nepal and India export *timur* oil to international

markets. There number of companies in Nepal and India, producing products that contains *timur*, is also a growing.

Retailers: They are those who have grocery or food and spices shops at local level, district headquarters, regional market centres, and Kathmandu. The product without seed is in demand for using as spice in Nepalese and Indian markets. Especially, retailers of Jumla district get the products from the vendors or traders of Kalikot district and they sell it to the consumers. In other markets, retailers buy the products from the wholesalers or traders based in the nearby markets. However, the products having *timur* as main ingredients pass through own marketing channels of manufacturing companies for the final consumption.

End Users: The principal buyers of *timur* from Nepal are Indian companies and a large volume of the product is used as spices. Ayurvedic pharmaceutical companies and other producers of toiletries and cosmetics use *timur* (raw and oil) for manufacturing end products. European countries namely France, Italy, Belgium, Germany and the UK also consume its oil for flavour and fragrance. The oil is rich in linalool, limonene, methyl cinnamate and cineole. It possesses strong anti-infectious characteristics with a sedative effect on the body. In China it is extensively used in food as flavouring agent in Sichuan province and it is known as "Sichuan pepper".

2.2.2. Enablers and Facilitators

Enablers of *timur* value chain are those who work for the value chain actors and provide facilitating and regulating supports.

Table 2 List of the Facilitating Organisations and Regulating Agencies in *Timur* Value Chain

Major Activities	Facilitating Organisation	Regulating Agency
Seedlings, nursery management training	WUPAP, EIG, Link Helvetas, DPR	DFO
Registration (shrub or private forest)	ANSAB	DFO
Collection permit/License	WUPAP, EIG	DFO, CFUG, LFUG
Harvesting and post-harvest handling	WUPAP, EIG, Link Helvetas,	DFO, CFUGs
Royalty exemption	CFUGs, ANSAB, DPR, ICIMOD	DFO, CFUGs
Checking and verification of quantity	CCI/JABAN	Range Post, CFUG
Release order or transit permit	CCI/JABAN	DFO, CFUGs
Local taxes and fees	ANSAB, ICIMOD	DDC
Checking and endorsement	ANSAB	Forest Check-posts
Lab testing	EIG, Link Helvetas, DPR	DPR
Export recommendation	EIG, Link Helvetas	DFO
Product verification and export permission	TEPC, FNCCI	DPR, PQ
Certificate of origin	JABAN/NEHHPA	MoCS
Export permission	JABAN/NEHHPA, TEPC	Custom, DoIT
Market information	NGOs, ANSAB, TEPC	MoSC
Processing technology	ANSAB, NGOs, EIG, MEDEP,	DoI, DoCSI
Resource management	ANSAB, NGOs, HVAP	DPR, DFO, FUGs
Trainings (Business plan, etc.)	Link Helvetas, ANSAB, MEDEP	DFO, CSIDB

Source: Field Study, 2011

Activities of the enablers range from production to final consumption including technology and product development, advocacy for simplifying trade policy and procedures, organising groups and networks for reinforcement, and market information and linkages for better access. Table 2 presents the major facilitating organisations and regulating agencies and their activities. Regulating agencies are also working as a facilitator in many cases.

Enablers in Production and Local Processing Functions

For providing technical support on cultivation, harvesting, local processing and trading, District Forest Office and District Plant and Resources Office are the responsible agencies in this value chain. Those agencies also regulate the functions from production to sale through monitoring, licensing, product verifying, and levying royalty, fees, and tax. Similarly, MEDEP, WUPAP, LFP, EIG, Link Helvetas, and CCIs are working for the programme implementation at local level. Similarly, microfinance institutions and cooperatives are there to assist farmers and collectors by providing loan. Link Helvetas is involved in *timur* for providing technical assistance to the farmers and collectors.

Enablers in Trading and Export Functions

At traders' level, Business Membership Organisations (BMOs) like Jadibuti Association of Nepal (JABAN), District Chamber of Commerce and Industries (DCCI) are supporting for the sector's business activities. Agro Enterprise Centre (AEC) is working in the area of market development by providing market information, facilitation for market linkages, etc. Similarly, Trade and Export Promotion Centre (TEPC) assists in export of goods and maintains the export data. Plant Protection Directorate **(**PPD) is responsible for the programme implementation on the Plant Protection Sector (During export of *timur*, the plant quarantine offices work on legal formalities of export). The mission of this Centre is to expand and strengthen market oriented private sector driven agro enterprises in order to increase the value and volume of high-value products sold domestically and internationally. It is one of the major partners in HVAP.

At higher level, business enablers are Ministry of Forest and Soil Conservation (MoFSC), Department of Forest (DoF), Ministry of Commerce and Supplies (MoCS) and Federation of Nepalese Chambers of Commerce and Industry (FNCCI), and they facilitate business through policy lobbying, policy formulation and bilateral trade agreements.

2.3. ECONOMIC ANALYSIS

2.3.1. Production

Both seeds and vegetative parts are used for the propagation of *timur*. In farmers' experience, it grows best in moist soil that expose to the sun. The plant also works as a terrace raiser for cropland and has minimum impact to crop yield. It requires less fertile soil and can be harvested after three years of plantation. A five years old plant has an average yield of about 3.5 Kg of fruits per year. The study revealed that a large quantity of *timur* is collected and harvested from the naturally grown as well as transplanted shrubs in the community forests and leasehold forests, private forests, and barren lands in Salyan, Surkhet, Jajarkot, Dailekh, Achham, and Kalikot districts. A small portion of production comes from the national forest. Naturally regenerated plants are found dominantly in the barren lands and surrounding areas of the croplands. Few individual farmers are doing mass cultivation in their private lands and small patches of plantation have also been initiated in the community forests and leasehold forests.

This species is gradually depleting from the national forests as well as community forests, particularly in open access areas. People have started plantation of the species in private land and the systemic cultivation has been realised in the project area. Though, cultivation cost of this species seems slightly high for the initial few years, after that it requires minimum investment, mostly labour for harvesting and post-harvest handling.

Table 3 presents the types of forests, total areas under different management system and benefited households (HHs) in the mid-western region of Nepal.

Table 3 Forest Categories by Forest Management in Mid-western Region

SN	Forest Types	No.	Area (ha.)	HH benefited
1	Community Forest	3,924	778,681	474,124
2	National Forest		847,580	-
3	Private Forest	476	342	-
4	Leasehold Forest	1,015	10,715	19,149
5	Religious Forest	12	100	-

Source: Mid-West Regional Forest Directorate, Surkhet (2067/68)

The table shows that the area of private forest, religious forest, and leasehold forest is very low as compared to the community forest and national forest. However, significant quantity of the product comes from the private land, which shows that people have been giving high importance to *timur* and are more interested in the protection and management of the *timur* plants. It is obvious that there is a scope to increase the production volume of *timur* by promoting proper management system, improved harvesting tools/methods and post-harvest handling.

Nepal's Trade Policy, 2009 has prioritised *timur* as one of the major commodities for export since it contributes the highest trade volume of medicinal herbs in Nepal. Every year, from 850 to 1,100 metric tons (MT) *timur* is being collected in mid hills of Nepal and 80 per cent of the raw form is exported to India. The trade of processed or value added products of *timur* (oil and powder) with abroad markets is negligible. On an average, NRs. 100 million have been generated annually by selling the product. Altogether 20,000 households are directly or indirectly engaged in production, harvesting, post-harvesting, sorting and cleaning, transporting and further processing activities in Nepal (ANSAB, 2009). Assuming that one working day is needed to collect 5 Kg of dried seeds then about 170,000 to 220,000 work days are required only for picking the fruits. Moreover, other function requires extensive labour force and therefore it would provide seasonal employment for 5,556 people for 90 days (@NRs. 200/day) in a year.

Harvesting

It has been identified that the season for collection of fruit varies from one place to another in the surveyed location. However, in most of the places, people start collection from the last week of September, when the fruit ripens and turns dark red, and the collection continues till the early November. According to the respondent farmers, the poor, women, children and the unemployed people collect the *timur* fruit while grazing cattle *(gothala),* and collecting leaf litter and fodder. They generally pick the fruit by using hands and sticks and using traditional weapons occasionally to cut the branches and stems.

Harvesting of *timur* is found to be difficult and inefficient because of its spines and thrones which decreases the per day collection. Collectors often lop off the branches or stems especially in open access areas (national forest and community forest) in order to facilitate the collection. Such lopping off practice has negative effects on the plant and decreases the subsequent fruit production. Sometimes it takes as many as three to five years for the recovery of fruit production. As a traditional practice, whole shrubs are also harvested for fencing the farmland in some areas. Harvesting the entire plant even before it has fully matured can adversely affect the regeneration of the species. In the project area, the early harvesting of the product is generally in practice that might cause fungus development in

dried fruit. Altogether 220 MT of *timur* is being traded along the three road corridors. Around 5,000 HHs are involved in the project area and 36,300 person days is required for collection, harvesting and post-harvest handling. Moreover, extensive workforce is required for processing and marketing activities; weighing, packaging, load/unload and storage purposes. Per shrub production of the product is 5 Kg dried weight. Dried seed coats weighing 3.5 Kg and 1.5 Kg of black shiny seeds can be obtained from 20 Kg of fresh ripen fruit (DPR, Salyan).

2.3.2. Cost of Production

Table 4 presents the detail calculation on cost of production of *timur*.

Table 4 Cost of Production for *Timur*

SN	Particulars	Unit	Qty	Rate (NRs)	Total (NRs)
Input	Seedlings (1.5 years old)	no	1100	10	11,000
	Manure	*doko*	300	25	7,500
	Land preparation/Pit digging (35*35*35 cm)	day	80	200	16,000
	Labour for plantation	day	50	200	10,000
	Irrigation (plants)	day	LS	LS	12,000
	Plant protection cost for 20 years	year	20	2,000	40,000
	Tree or private forest registration				5,000
I	***Sub-total costs of pre-production***				***101,500***
Labour	Harvesting (5 Kg/day)	day	594	200	118,400
	Cleaning	day	45	200	9,000
	Transportation cost per Kg	Kg	2970	2	5,,940
II	***Sub-total cost of after production***				***133740***
III	***Grand total cost (I/20+II)***				***138,825***
IV	Assuming 90 % plants produce fruits (yield is 3 Kg per shrub in initial three years)				2,970
V	**Per Kg cost of production**				**47**

Source: Field Study, 2011

It has been identified that a person can harvest 5 Kg of dried (weights) fruit in a day. If it is collected from the open access, no extra investment is required except the labour use. In the project area, cost of production has not been recorded. For the simplicity, production cost calculation is done on the basis of experiences shared by the farmers of Gairi Bazaar of Surkhet.

It is assumed that one hectare (20 *ropanis*) land is required for planting of 1,100 seedlings. Price of a seedling aged one and half year is NRs. 10. Furthermore, much labour is required for land preparation, plantation, irrigation, harvesting and post-harvest handling. It is also assumed that the production or fruiting starts after two years of plantation and all the shrubs will continue fruiting for 20 years. The cost of production per Kg is NRs. 47.

2.3.3. Value Addition

Fruit - *Household use*: It is used for adding taste to the curry and pickles in Nepalese and Indian kitchens. Outer part of the fruit (without seed) is in demand for using as a spice; the seed coat can be separated from the whole seed. This activity can be done at local level. Ayurvedic pharmaceuticals companies and other companies use whole *timur* (raw and oil) for manufacturing end products. In addition, it is used as a flavouring agent in the confectionery and soft drinks. It is also used in the perfumery industries.

Oil - *Medicinal Uses: Timur* oil is analgesic, antibiotic, antiseptic, carminative, febrifuge, odontalgic, sedative, stimulant, stomachic and tonic in physiological properties. It is commonly used for arthritic conditions. However, the most effective action of this oil is within the circulatory system. It works well on chilblains, cramp in the legs, varicose veins and varicose ulcers. Due to its stimulating effect upon the lymphatic system, circulation and mucous membranes, it can play an important role in clinical aromatherapy. *Industrial Uses:* According to the exporters, *timur* oil is the newly investigated product in the western countries. Its special fragrance is very popular among the users. The product has been used as the additive for products of the famous cosmetic company L'Oreal of France (ANSAB 2009).

Other Forms
It is also useful in the treatment of circulation, muscles, and joint complications and relieves arthritis, inflamed joints, muscular pains, rheumatism, and sprains. Using the products made of *timur* prevents the spreading of infectious diseases. It is famous in the treatment of tooth problems and aids the digestive system and helps to improve appetite.

2.3.4. Distribution of Costs and Margins

The Table 5 presents the distribution of the costs and margins at different value chain levels. Farmers receive the gross margin of NRs. 10 per Kg, regional level traders receive the gross margin of NRs. 12.4 per Kg, and the exporters are getting the gross margins of NRs. 10 per Kg.

People involved in the *timur* value chain are the farmers, collectors, local road-head and the regional traders. Mostly women, poor, and unemployed people are engaged in collection; their involvement is either full time or partial (as engaged during the time of cattle grazing *(Gothala),* leaf litter and fodder collection). An average loss of 5 per cent is calculated at each level of transaction from harvesting to export but it depends upon the dryness of the products and its storage facility. Often the final product is produced outside the country that creates uncertainties and invisibility in the trade and has resulted in less transparency in the price in each stage.

Table 5 presents the margins to be taken within the country, altogether 71 per cent of margins goes to residence of the project area and 29 per cent goes to exporters of Nepalgunj. Obviously this figure hints that a large proportion of the income directly goes to the farmers/producers of the project area. Hence, this value chain could be a poor friendly and has more potential for better inclusion. But there are challenges to maintain equity in the value chain. When the economic value of the product is low, traders are not much interested. However, if the price of the product hits to more than NRs.100 per Kg, everyone shows interest in collecting and trading often leading to early harvesting of the product. This has resulted to the quality degradation of the product leading to fungus infestation in the seed later. So, building trust among actors is crucial.

Table 5 Calculation of Cost of Goods Sold of *Timur* at Different Levels

Production		Local Trading		Regional Trading		Export	
Item	**Cost**	**Item**	**Cost**	**Item**		**Item**	**Cost**
Input	5,425 (I/20; I means cost of pre-production)	Sack & thread	0.8	Load & unload		Load & unload	0.5
		Cleaning & sorting	1.5	Sack & thread		Sack & thread	0.8
		Weighing & packaging	1	Cleaning & sorting		Cleaning & sorting	2
		Load & unload	0.5	Storage		Storage	0.2
Labour	133740 (from table 4: II)	Transportation (Nepalgunj)	2	Custom		Custom	1.5
		Release permit	0.5	Transportation Delhi		Transportation Delhi	3
		DFO Royalty		Other costs (misc)		Other costs (misc)	5
		Other costs (misc) *	6				
		Deduction	2.0				
Purchasing Price	***0***	***Purchasing Price***	***60***	***Purchasing Price***		***Purchasing Price***	***90***
Farm level cost	***47***	***Total district level cost***	***14***	***Total Exporter cost***		***Total Exporter cost***	***13***
Losses (5%)	*3*	*Losses (5%)*	*3*	*Losses (5%)*		*Losses (5%)*	*4.5*
Gross Margin	***10***	***Gross Margin***	***12.4***	***Gross Margin***		***Gross Margin***	***10***
Farmers		Local Traders		Regional Traders		Exports	

Source: Field Study, 2011

2.4. MARKET TREND AND COMPETITIVENESS ANALYSIS

2.4.1. Demand

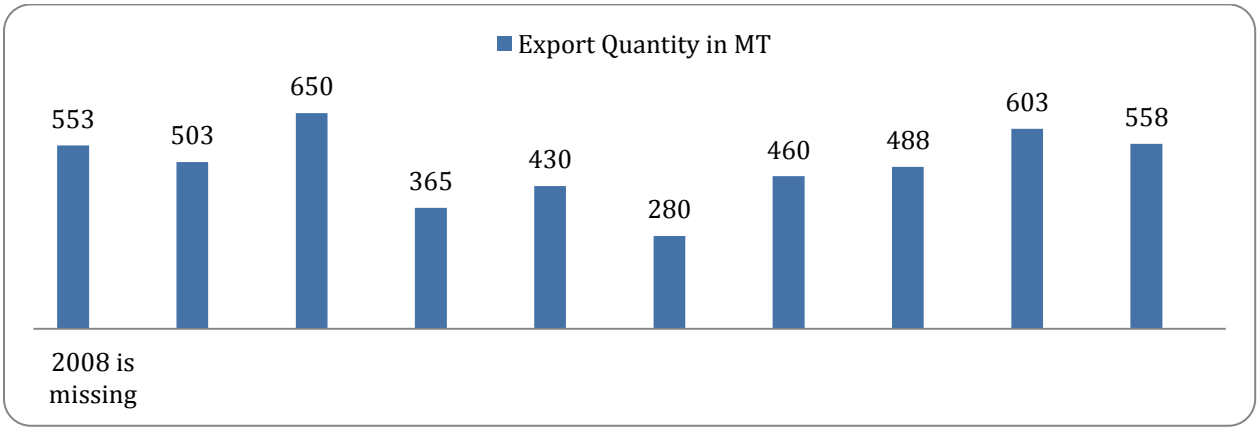
Timur is collected in over 30 districts of Nepal and sold to the final consumers via different local markets or market segments in all over the country for household consumption. *Timur* is used in Nepal and India in various forms - without seed as a spice, with seed in dentifrice industry and its oil in ayurvedic medicine (e.g. *Sancho*). It is well-established product in the Nepali and Indian markets. However, according to an exporter (oil) based in Kathmandu, *timur* oil is quite a new product for the European and USA based consumers. The product has a continuous demand in Nepali and international markets, and no close substitute products are available in the market to replace the core demand of the *timur*.

The study found that there is no recorded data of household consumption of *timur* within Nepal. It can be estimated that 23 MT is required to fulfil the local demand assuming 5 per cent households of Nepal use 10 gm *timur* annually per household as a spice. The biggest buyer of *timur* with seed for processing in the country is Dabur Nepal (200 MT annually). Recently, Gyan Herbal has started buying (50 MT) for trading and oil processing. Bahubali Herbal has been involving in trading, producing, and trading of *timur* oil since 1996. Similarly, HPPCL has a demand of more than 200 Kg of *timur* oil (equivalent to 6.6 MT raw; 3% yield) for using it as a major ingredient in *Sancho* (traders cum exporters during field

- According to Biiya Pun (traders) other cost includes informal fees at each check post (Malarani Chauki, Botechuar, Mahelkuna, Chhinchu, Kohalpur, different groups, , Revenue Office, Kohalpur (500/truck),

survey, 2011). Similarly, many other ayurvedic companies and dentifrice industries have demand of *timur* in Nepal but the quantity demanded is unknown. Nepal exported the highest quantity of the product in 2003 that was 650 MT, which however followed by a reduction in subsequent year, with a record low 280 MT export in 2006. It is believed that the low demand in these years were down because of two reasons: first - mixing foreign materials gave negative impression to the buyers, and second - some big buyers/stockist kept a large quantity of *timur* in their stores. Total quantity exported to India from 2001 to 2011 is given in Figure 3.

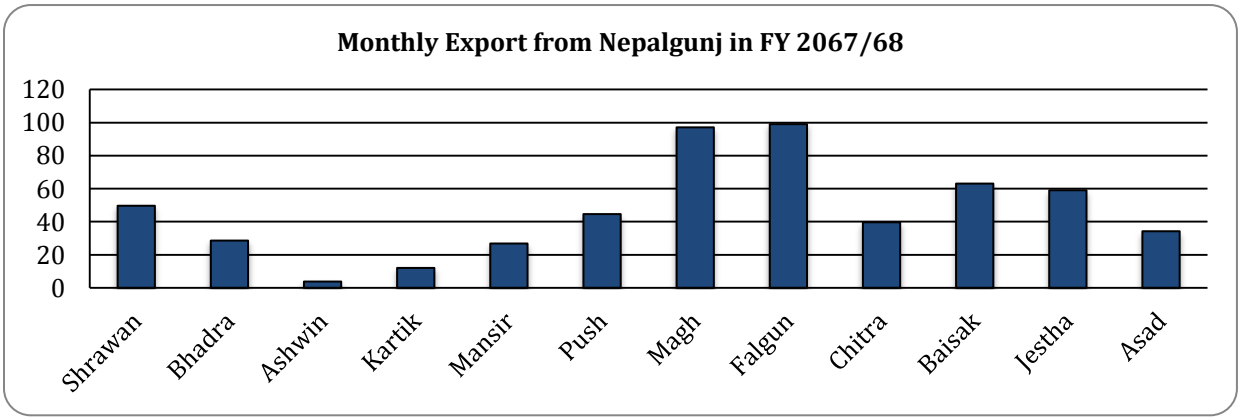
Figure 3 Export Trend of *Timur* in Nepal



Source: ANSAB (2008) for Period of 2001 to 2007, JABAN for 2009 and RPQO-Nepalgunj for 2011

Besides the Indian market, there is also a demand of about 150 Kg oil from France, Italy, Belgium, Germany, UK, and USA per year. Although it is not a significant volume, the figure is important from the future demand perspective at international level. There are 27 agreed routes for mutual trade of *timur* between India and Nepal (Rawal, 2010), however, Nepalgunj, Krishnanagar, Gaddachauki, and Bhairawa are the only routes to export raw *timur* from Nepal. Nepalgunj is the main route for *timur* export to India with an approximately 95 per cent export from this route. Figure 4 presents monthly export of the product to India. A large volume of *timur* is exported to India in *Magh* (Jan/Feb) and *Falgun* (Feb/Mar) and the volume is low in *Ashwin* (Oct/Nov) and *Kartik* (Nov/Dec) of Nepali months. This may indicate the desired or preferred months for the exporters and Indian buyers are *Magh* and *Falgun*, although it solely does not guarantee the degree of influence or preference of the buyers.

Figure 4 Monthly Export of *Timur* via Nepalgunj Custom



Source: Nepalgunj Quarantine Office, 2012

After examining the export scenario of *timur*, it can be inferred that there is a potential to link up with third country markets (outside of India) for both raw and oil.

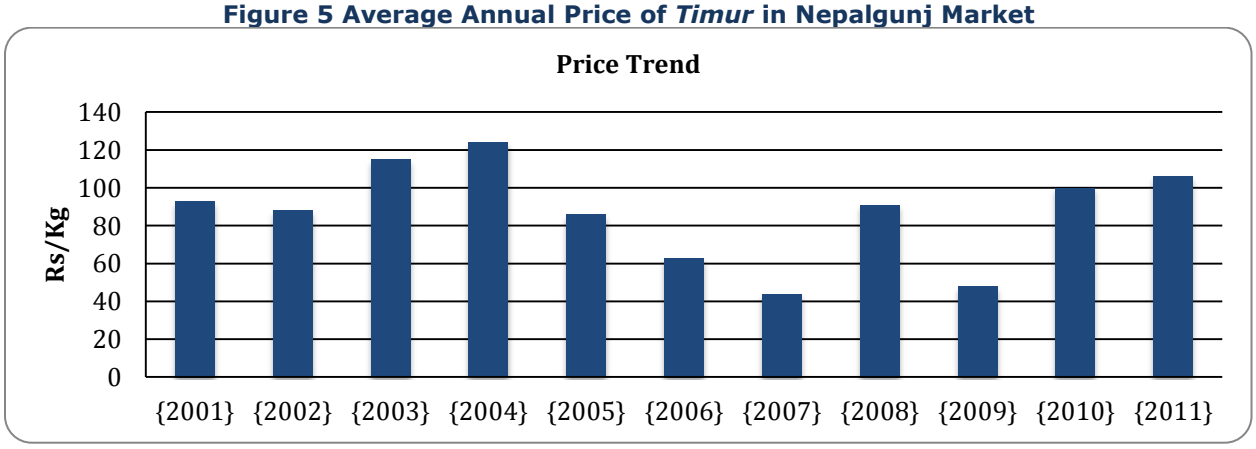
2.4.2. Product Quality

Quality standard has not been placed in practice in the project area. However, traders consider the product with good quality if it is well dried with brittle fruits, have no foreign material mixed and have strong aroma with sound flavour of linalool and methyl cinnamate. Fleur Himalayan, a Kathmandu based company, had once bought the product from the communities of Salyan according to its oil yield percentage, however, this practice was not successful and the company stopped buying. Normally, *timur* is considered as organic whether it is harvested from the forest or cultivated lands. However, there are some practices of adultering the product with weed seeds (*Kaladana)*, *Tigedi* and dusts registered in some areas. This practice may destroy the existing and future order because the usual demand of this product is to use in flavour and fragrance, dentifrices, ayurveda, and as a spice. Basically, the poor and landless people have done wild collection and they might get extra incentives or premium price for their product if it is registered as organic. There is a potential to diversify products like deseeding, oil, and powder.

2.4.3. Price

According to the MIS price list published by ANSAB, the average annual price of *timur* with seed was the lowest as NRs. 44/Kg in 2007 and as high as NRs. 124/Kg in 2004 in a period of last ten years. Similarly, the price of oil has also fluctuated between NRs. 1,800 and NRs. 3,500 per Kg. The premium price for the good quality is not in practice in the project area. The price fluctuation and the lack of practice of price premium have discouraged the farmers and collectors of *timur* in the project area. Figure 5 presents average price each year offered by the Nepalgunj based buyers from the year of 2001 to 2011.

Figure 5 Average Annual Price of *Timur* in Nepalgunj Market



Source: ANSAB, 2011

2.4.4. End Market

Domestic: The product is found in many places or markets in the country for sale. However, Dang, Surkhet, Nepalgunj, Kapilvastu, Butwal, and Kathmandu are the major trading markets in Nepal. Among them, Kathmandu can be considered as the end market for both

the oil and raw form of *timur* in terms of household consumption, industrial and ayurvedic uses. Tanakpur, Lucknow, New Delhi, and Kolkata are the major trading centres in India. Similarly, France, Belgium, Germany, UK and USA are the overseas markets for oil.

2.4.5. Market Channels

District Forest Office's record indicates that the Salyan district has released the highest quantity (222.9 and 326 MT) of *timur* in fiscal years 2065/66 and 2067/68 among the project districts (although a complete list for all the districts could not be found). Similarly, Surkhet district appears the second highest in receiving royalty from 29 MT in fiscal year 2067/68. The marketing channel for *timur* transaction in Nepal is illustrated in the Figure 6.

Table 6 Released Quantities (in Kg) of *Timur* from the Project Districts in the Last Five Years

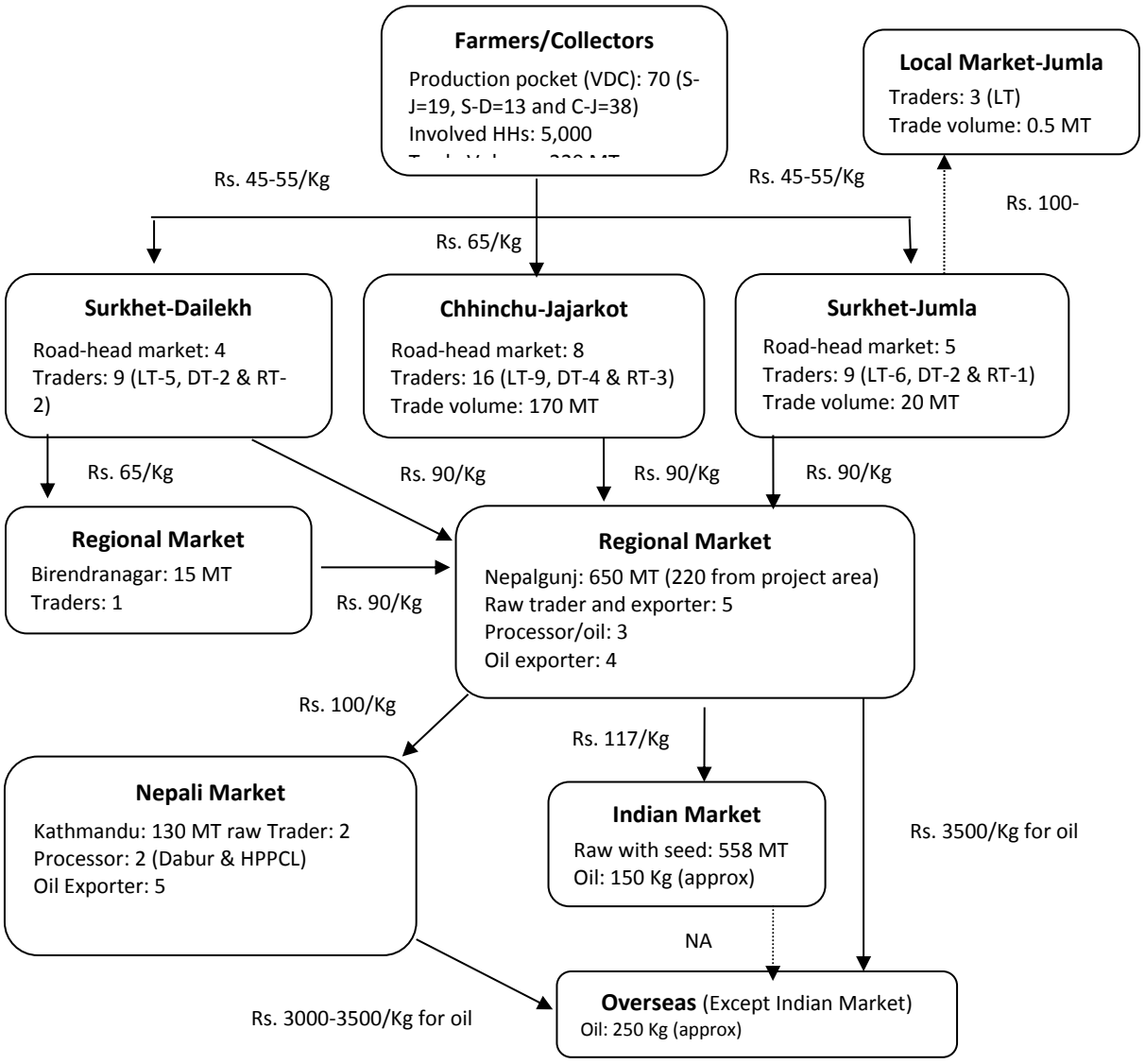
Fiscal Year	Kalikot	Salyan	Dailekh	Jajarkot	Surkhet	Total
F/Y: 2063/64	NA	33,659*	13,500	3,775*	45,792*	96,726
F/Y: 2064/65	NA	26,590*	6,500	700*	43,525*	77,315
F/Y: 2065/66	500	222,900	15,666	7,150	1,500	247,216
F/Y: 2066/67	NA	29,450	3,129	3,500	NA	36,079
F/Y: 2067/68	NA	326,00	17,747	5,600	29,000	84,947

Source: DFO (Dailekh, Surkhet, Jajarkot, Salyan, Kalikot) and Mid-West Regional Forest Directorate, Surkhet (2067/68)

**Field Survey-2009 by PSPL*

According to the respondent farmers of the production areas, the species has been decreasing in the national forests and community forests. It is found that when the price of product increases, the tendency of protection and plantation in private land also increases whereas the product is heavily harvested resulting in depletion in national forests and community forests. Conversely, when the price remains low, people either do not harvest the product or start cutting the whole plant due to low economic return. Similarly, in some place, harvesting is not done due to lack of labour. In the surveyed areas, it is observed that there is no practice of renting in and renting out private land for *timur* cultivation.

Figure 6 Marketing Channel of *Timur*



Source: Field Study, 2011

Note: LT=Local Traders, DT=District Traders, RT=Regional Traders, S-D= Surkhet-Dailekh, S-J=Surkhet-Jumla and C-J=Chhinchu-Jajarkot, Rs= Nepalese Rupees, (10% oil is consumed locally in Nepal)

Table 7 presents the major market centres, traded volume of each major market centres and its production pockets along the three road corridors.

Table 7 Major Market Centres for *Timur*, Traded Volume, and their Production Pockets

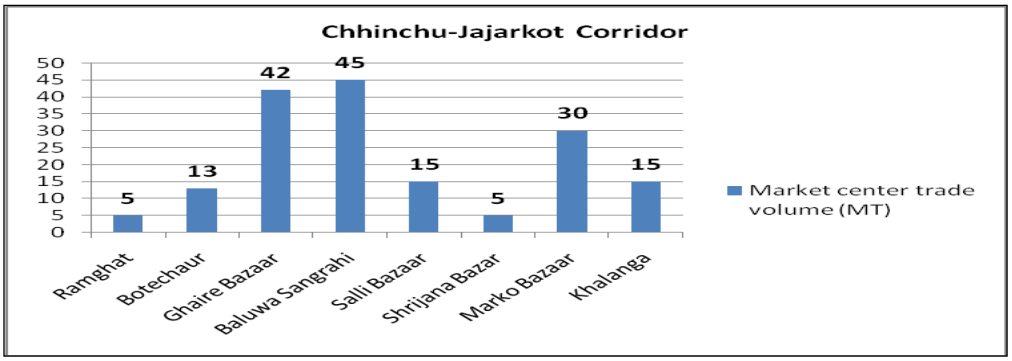
Market Centres	***Quantity (MT)***	***Production Pockets***
Ramghat	5	Kafalkot, Rajena, Neta
Botechaur	13	Sahare, Malarani, Dharapani
Ghaire Bazaar	42	Majhkada , Nigalcula, Malarani, Dharapani
Baluwa Sangrahi	45	Sangari, Palle, Kuvende, Chade, Sijuwatakura, Marke
Salli Bazaar	15	Bame, Swekot, Jimali, Mulkhola, Marmapuri Kanda
Shrijana Bazar	5	Kafalkot, Kabrechaur, Agrigaun, Sima, Ghoreta
Marko Bazaar	30	Juga Thapachaur, Karkigaun, Bhoor, Jhapra, Daha,
Khalanga	15	Dhime, Paink, Khalanga, Dandagaun, Sakla
Sub-total of Chhinchu-Jajarkot road corridor is 170 MT		
Guranse	3	Seri, Baraha
Dailekh Bazar	19	Bhuwari, Raniban, Kasikadha, Chauratha
Naumule	7	Kalika, Salleri, Dauwari, Baluwatar, Naumule
Mathilla Dungeshowr	1	Aulparajul, Dandaparajul
Sub-total of Surkhet-Dailekh road corridor is 30 MT		
Tunibagar/Rakam/Khirki Juila	9	Pipalkota, Singasaini, Tilepata, (Asara, Kalebada, Thankot of Achham)
Jite/Hulma	6	Lalu, Malkot, Rupsa, Dhaula, Mumra, Shivkhana, Melmadi
Manma	5	Daha, Pakha, Chapre, Magrah, Gela, Sukatiya
Sub-total of Surkhet-Jumla road corridor is 20 MT		
Grand Total	**220**	

Source: Field Study, 2011

Chhinchu-Jajarkot Road Corridor:

Chhinchu-Jajarkot road corridor has comparatively high transaction of *timur* with a large number of traders - local, district and regional traders - as well as few commercial farmers. The field survey revealed that this road corridor is the principal corridor for both production and trading which holds more than 77 per cent (170 MT) of market share of the project area. In Surkhet district, there are five registered private forests and most of them grow *timur*. There is also a case of a single household planting over 2,100 *timur* plants in the private land in Dharapani of Surkhet district. Gairi Bazaar and Botechaur of Surkhet, Baluwa Shangrahi and Sallibazaar of Salyan, Marko Bazaar, and Khalanga of Jajarkot are the major local collection hubs in this corridor. Based on the information received from field study, the approximate quantity of *timur* transacted in various market centres is presented in Figure 7.

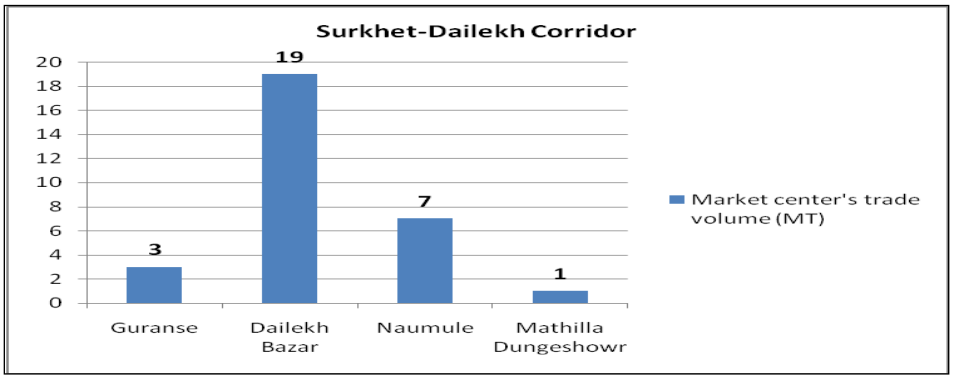
Figure 7 Quantity of *Timur* Traded in Chhinchu-Jajarkot Road Corridor



Source: Field Study, 2011

Surkhet-Dailekh Road Corridor:
This road corridor has the second highest production and trade volume of *timur* among the three corridors of the project areas. Based on the field study, the approximate volume of transaction in this road corridor is 30 MT, and covers about 14 per cent of share of the project districts. Dailekh Bazaar (Narayan Municipality) and Naumule of Dailekh district are the major market centres in this corridor. Estimated quantity of *timur* transacted in the markets centres of this corridor is provided in Figure 8.

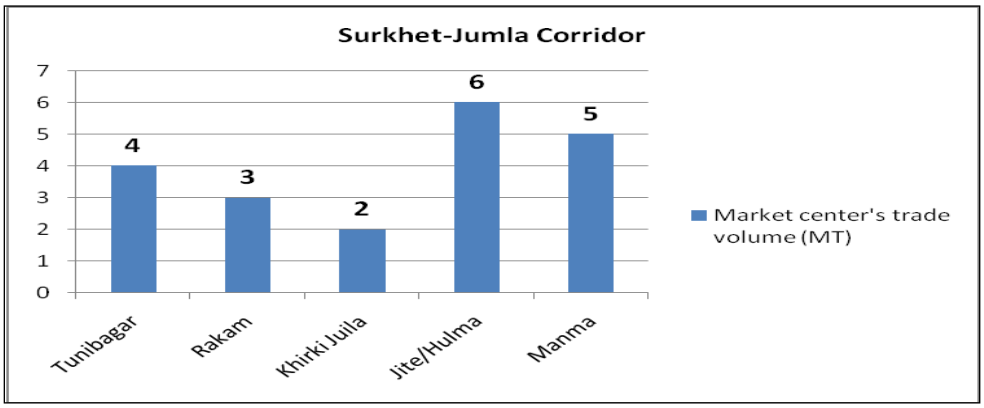
Figure 8 Quantity of *Timur* Traded in Surkhet-Dailekh Road Corridor



Source: Field Study, 2011

Surkhet-Jumla Road Corridor:
Surkhet-Jumla road corridor is found to hold 9 per cent of total traded volume of *timur* along the three road corridors of project areas. Jite/Hulma of Kalikot is the key market centre of this corridor. The estimated quantity of *timur* traded in this road corridor is presented in Figure 9.

Figure 9 Quantity of *Timur* Traded in Surkhet-Jumla Road Corridor



Source: Field Study, 2011

2.4.6. Enabling Environment (Policy and Regulatory)

There is no legal restriction on *timur* cultivation in private land, collection from national forest and marketing or export in any form. Similarly, no licence/permit is required to collect *timur* from the private land. There is a provision of registration of private forest or private land and royalty is not levied for the product from registered private areas. For community forest, CFUGs have practice of opening the forests during the collection period.

Nepal's Trade Policy 2009 indicates a strategic shift towards supporting value chains as a whole rather than concentrating efforts at the primary production end as was the case in the past. Specifically, the policy has explicitly stated that lands can be available on leasehold basis for commercial farming of *timur*. For the first time, the policy has provided a lot of space for exportable commodities including *timur* and has placed its focus for reducing transaction costs by facilitating export through procedure simplification, facilitation, and institutional strengthening. There is a provision for providing additional incentives to export oriented industries by initiating the harmonisation of the policies on agriculture, forest, and other sectors. According to this policy, exporters do not need to pay custom duty, excise duty, and value added tax, except the export service fees. However, the policy exclusively focuses on exports and largely misses out on quality of trade issue. There is lack of serious analyses on what policies and incentives would encourage export-oriented industries that use local materials and have strong linkages.

Furthermore, the duty drawback systems can be made simple, easy, and speedy for the refund of tax and duty paid on the raw materials used in the production of exportable goods. The policy encourages exporters to open liaison office or sales counter abroad. However, these have not been sufficiently reflected into the annual programme of the District Forest Officer. Some of the government policies and initiatives for promotion of *timur* sub-sector are listed in Table 8.

Table 8 Government Policies and Initiatives for Promotion of NTFPs Including *Timur* Sub-sector

Policy Initiative	Description
Master Plan for the Forestry Sector, 1989	Provides a 25-year policy and planning framework for the forestry sector including NTFPs as one of the primary programmes.
Tenth Plan of the Forestry Sector	Encourages private investors by simplifying the taxation systems, sale, and distribution. Creates a role for the government as facilitator, catalysts, and regulator in the process of overall NTFPs development. Assists entrepreneurs in acquiring loan from commercial banks.
Industrial Enterprises Act, 1992	Encourages the overall economic development of the country by supporting industrial enterprises in a competitive manner.
Herbs &Non-Timber Forest Products Development Policy, 2004	Aims to make Nepal well known in the global market as the 'Treasure of Herbs and NTFPs' by 2020 by supporting the production, processing, marketing, and other development related activities of NTFPs by encouraging conservation and sustainable management.
Trade Policy, 2009	Prioritised *timur* as an important commodity for export and encourages exporters by providing extra incentives. No fees of any type and local tax levied on the transportation within the country of exportable goods and raw materials used in their production. Simple, easy, and speedy system for the refund of tax and duty paid on the raw materials used in the production of exportable goods.

Source: Source: Field Study, 2011 and Trade Policy, 2009

Provision of no local taxes and fees on the transportation of *timur* within the country and raw materials used in their production provides an enough space for trading. It is however not implemented in practice, and traders have to pay informal fees at various checkpoints including forest check posts and police posts.

JABAN has a laboratory for Gas Chromatography (GC) and Mass Spectrometry (MS) testing but lacks the reference compounds and the reference library (literatures). In the project area, conventional practice of under invoicing has remained problems for genuine traders. This practice also adds cost to the product and makes difficult for entrance of new capable traders in this business.

2.4.7. Inter-firm Cooperation (Vertical and Horizontal Linkages)

Considering inter-firm cooperation, both the vertical and horizontal linkages are found weak. The product goes to the processors in an unprocessed form, and is processed before marketing as oil or as an element in other end products to the consumers at national and international levels. The market system in the sector is informal and undeveloped with less transparent pricing mechanism and lack of supportive programs for the marginalised groups in the value chain. The farmers and collectors have less bargaining power and are not receiving optimum income from the sale of raw *timur*.

There is not any local collection centre focusing on NTFPs in the project areas. There exists price discrimination among collectors; the educated and well-off farmers are getting better price of the same product as compared to that for the poor and uneducated farmers. Because of the lack of the organised collection centres, farmers and collectors are compelled to sell their products to the road-head traders at low price.

Some processing companies are either providing or interested in providing services to farmers. During interactions with Dabur Nepal, the company expressed its interest to provide free expert services to the farmers in piloting of high yielding (oil content) *timur* varieties and quality control aspect. Gyan Herbal has started a trail production of *timur* oil and has already exported 45 Kg of essential oil sample including *timur* oil to Canada, Germany, USA and France. According to the General Manager of Gyan Herbal, the price of *Timur* oil is Rs. 3,500/Kg and he has also shown his interest for an agreement with the farmers/collectors of the project areas. On the other hand, Fleur Himalayan had formally agreed with the farmers of Salyan for buying *timur* (1 MT annually) and the price was differed according to the quality and grade of *timur*. But this practice could not work for long period and the company stopped buying from the farmers.

2.4.8. Supporting Markets

The business development services have not reached at community level because of the low expectation of the service providers on the local communities. There lacks appropriate facilitation at the community level to provide platform for tapping the available opportunities.

In general, there is lack of access to finance at the community level. Although commercial banks are obliged to invest 5 per cent of their investment in rural areas, practically the project area is not receiving that much percentage of loans. Banks are reluctant to sanction loans due to high costs for loan assessment and repayment. There are cases of financial institutions including private banks not providing loans even to farmers having 4,000 shrubs of *timur* and who are able to provide their forest registration certificate as collateral. Facilitation and training on business planning, entrepreneurship development, and understanding of required procedures could be appropriate solutions for easy access to loans. Considering incapability of the traders to advocate alone for supportive policy implementation, a collective mechanism should be in place targeting to upgrading their activities.

At the national level, there is lack of institutions working in international market linkages of *timur* and its product, especially to the third country. The coordination and cooperation of district level business management organisations with regional and national level organisation to advocate on policy issues is found weak in the project districts. Similarly, though some NTFPs price dissemination practice has been started in some project districts by relevant District Forest Offices including Surkhet through local radios, these organisations are unable to consolidate other critical information about buyers, market, quality, and other updated development in the NTFPs sector. Likewise, though some organisations such as ANSAB, AEC, and JABAN have been providing market information including market price of *timur* at different national and international cities, the farmers from project areas have very limited access to such information. Extension services in forestry sector are normally provided by the DFO through range posts; however, due to inadequate number and capacity of human resources, such services have not reached effectively to the communities of the project districts. Similar is the condition at present in District Plant Resources Office (DPRO) of the project districts who are supposed to provide research and development activities in their relevant areas.

2.4.9. Firm Level Upgrading/Dynamics of Value Creation and Growth Potential

Mostly, unprocessed form of *timur* is being traded to Nepalgunj from the project areas. However, it is found that farmers and collectors of certain pocket areas are willing to participate in value addition activities. Similarly, the demand for inputs and services needed for processing the product is also found to be sufficient in the project area.

Improving the quality of products through improved standards for grading, packaging, and quality control needs to be developed via building necessary skills and capacities of the people involved. Traders, processors, and input suppliers have not been able to expand their activities for their benefit satisfactorily. Their activities can be stimulated through involving farmers and collectors in marketing and value addition activities that result in higher prices for farmers and collectors. For this, partnering with them could be viable and sustainable in the long term without continued project support. There is a risk that ownership could be an issue.

Farmers, collectors and even local traders are not organised into a collective marketing, which would have otherwise ensured timely, efficient and organised delivery of the product in the project area. Inclusion of women, poor, and disadvantaged group needs to be ensured while organising them. Sustainable production and harvesting guidelines is essential along with training on nursery management, cultivation, and harvesting. Marketing and sustainable harvesting is found critical in the project area. The institutional aspect needs to be well thought out mostly in terms of management, benefit distribution, sourcing, finance, and marketing. A mix of business activities with other similar products would be planned and expanded to increase benefits at village level. Farmers and collectors are unaware on market requirements. Supplier-buyer meeting would be helpful for improving understanding on the markets and their specific requirements.

2.5. GOVERNANCE FOR EMPOWERMENT

The governance of *timur* is buyer driven with minimum trust among various actors. As about 80 per cent of the product goes to India, the Indian buyers mostly govern the trade of *timur*, and the Nepalese traders usually refer to the Indian markets for fixing price of the product. There is lack of proper market information system that has resulted in less

bargaining power of the farmers. As per farmers and collectors, Nepalgunj traders play major role in determining price rate.

Based on the field study, Brahmin, Chhetri (including Thakuri), Newar, Gurung, Magar, and Dalit are the major castes in the project area. Chhetris are the dominant ethnic group involved in *timur* collection in Chhinchu-Jajarkot corridor followed by the Dalits whereas Brahmins, Thakuris, and Magars are less involved in *timur* collection activities. Similarly, Dalits followed by Magars, Brahmins, and Chhetris are involved in collection in the Surkhet-Dailekh corridor. Involvement of Newars and Gurungs is insignificant in many market centres.

In the project districts, all the castes are represented in community based organisations and groups such as savings and credits groups, community forest groups, and user's group of drinking water and irrigation, etc. However, Gurungs are observed of holding the key positions in most organisations, whereas Dalits are limited to general members only where they have no major decision roles.

During the survey, dominance of the male household head was clearly observed with only a few females as household head. Women have a clear and important role in the *timur* value chain during collection and harvesting, post-harvest handling, cleaning, sorting, and transportation activities. Their involvement in marketing activities, especially in cash transaction, is very limited. And even if they are involved in marketing activities, they lack updated market price information and are compelled to sell the product at low price. Most of the decisions on *timur* collection are taken at jointly by both the male and female household members. This study shows that 80 per cent firms are owned at family level and most of the family members work there. About 52 per cent of Janajatis and Dalits (male and female) are engaged as seasonal employees. About 29 per cent of the permanent employees at family level are female.

India is the end market of raw *timur* – which is not easy to access for marketing for the local and district traders. The role of end market is crucial to shape the governance structure and benefit distribution in value chain, however there lacks promoting responsible practices in this value chain in the project districts to benefit from the market. Practice of contractual agreement between producers and the upstream actors is not found in the project districts. Regional level traders or exporters of Nepalgunj hold more power in the value chain as 80 percent of the products pass through them with good gross margins. They are the dominant players in the value chain.

In some cases, producers borrow money from the traders in mutual understanding to supply the products without any set terms of purchase. Most of the time, the price offered by the traders to the producers is low, and there is not much alternative for the producers because there are only a few buyers in the respective villages. Other reasons for the producers to sell their products at low price are lack of information on prices in alternative markets, pressure for paying back quickly the money they borrowed from the traders, social relationships and culture promoting transaction even in lower price, and lack of entrepreneurship to arrange marketing in alternative market centres that pay higher price. Indian traders and manufacturers have a high degree of control over Nepali traders in the chain.

2.6. CONSTRAINTS AND OPPORTUNITIES

Table 9 Market Based Solutions Addressing Value Chain Constraints

Type	Opportunities	Constraints
Market related	• Good demand in Indian market since 1980s and oil is considered as a new product in western market (Europe & USA) • High priority product for export • Grading and value addition potential • Local demand for *chutney* • Can be used as bio-pesticides for soil treatment and protection from insects in grain storage • Local or indigenous product; Niche product • Export volume of *timur* is large compare to other herbs	<u>Lack of market information</u> • Highly fluctuating price discourages farmers or collectors • Lack of information on end market requirements on quality standards and price • Lack of information to fetch better price and lack of quality based price in the market hinder fair traders <u>Low access to market</u> • New product for Europe and USA (oil) so the abroad market linkage is also in initial stage • Lack of organised market at local level • Lack of market diversification and high dependency on Indian market

Technology and product development	• Traditional knowledge on collection
	• High scope to increase productivity
	• Easy for plantation in marginal land (private and CF)
	• Availability of distillation technology within the country
	• Rare infestation of diseases and pests
	• Favourable geo-climatic condition and possibility of natural regeneration
	• Possibility of value addition within the country
		<u>Lack of Knowledge and Skill</u>
		• No economy of scale; small patch plantation/collection limits to access buyers and little initiative has been taken towards plantation and spacing for natural regeneration
		• Sustainable harvesting causes difficult to harvest due to spines/thrones (cut stems and use sticks)
		  ○ Collector often lop off the branches in order to facilitate the collection; such lopping off practice decreases subsequent fruit production
		  ○ Early harvesting is in practice that cause fungus development in the dried product
		  ○ Lack of proper harvesting tools and techniques which increases the per Kg cost of collection or production
		• Quality control; mixing other materials (*tigedi,* thrones, stems, dust, *kala dana etc.*) in seed decreases the quality of the product
		<u>Research and development</u>
		• Less research on high productivity plants, product development, and local value additions (processing)

Management and Organisation	• Organising common interest group to get economies of scale • NTFPs traders are already organised in some places e.g. Nepalgunj, Dailekh etc. • Existence of private forest, CFUGs, LFUGs • *Timur* is already mentioned in the management plans of CFUGs • Interest of development organisation • Leverage scope with (MSFP) esp. for private sector promotion in forestry • Alternative source of income for *timur* farmer and collector • Work on advocacy to implement favourable policy	<u>Farmers lacking skills and capacity of to acquire required BDS</u> • To develop business plans and schemes for collectors and local traders and no practice of cost benefit analysis • Inadequate capacity of individual farmers to get services like leadership training and skill trainings <u>Lack of lands for farmers (commercial and landless) of *timur*</u> • Special rights to marginalised groups (open access) in CFUG for resource management and they are not organised at production pockets • No NTFP network at corridor level • Less collaboration between traders and government authorities • Inadequate coordination among *timur* stakeholders; traders, DFOs, VDCs, NGOs, projects etc.

Type	Opportunities	Constraints
Policy (Regulatory)	• Timur is a prioritised commodity for export • Good initiative to promote export as no fees (any type) and local levy on the transportation within the country • Provision of tax and duty paid refund on the raw materials used in the production of exportable goods	Policy distortion • Practices of multiple tax, informal fees, over/under invoicing • Lack of conducive policy for attracting the private sector's investment • Lack of collaboration between private sector and DFO for policy implementation (to tackle trade barriers issues) No lobby and support for international accreditation • Lack of accredited laboratory in the country • Lack of compound reference and literature reference for GC/MS testing
Access to Finance	• Provision of soft/longer term loan • Provision of finance for rural/NTFPs based business • Availability of financial intermediaries in rural areas	Inadequate collateral • Farmers are unable to pre-finance improved inputs (no guarantee) • Inability of farmers, traders, and processors to provide adequate collateral increases cost of production or decreases their access to loans • Lack of capacity of collectors and traders to access finance (providing enough documents.) Inadequate interest of financial institution • To provide loan for *timur* production and sale due to high cost of financial institutions
Input supply	• Good demand of harvesting tools • Interest to plant high yielding variety or quality of seed and seedlings • Opportunity to work with market based input supplier for developing harvesting tools and building their capacity on using those tools	Inadequate input • Suppliers (seed/seedlings), inadequate knowledge on quality seed supplier (low germination percentage) • High cost of inputs due to being unaware of bulk demand of such inputs and existing suppliers having limited outreach No market oriented supplier • Harvesting tools/materials
Infrastructure	• Establishing collection centre in Raikar or Botechaur and Sallibazaar • Extension of road in rural areas • Opportunity to strengthen/establish district level information centre at DCCI	Poor roads, storage facilities and no collection centre • High transportation costs increases the price of the product • Improper storage facilities result in loss of quality or helps to develop fungus • Lack of NTFP collection centres in the project area • Lack of information centres at local level Lack of laboratory testing facilities
Governance for empowerment	• Employment for women and poor in collection and primary processing activities • Building trust among actors	Lack of programme groups and networks formation; • Existing income from the sale of *timur* is not enough for women and poor (if they work as a labour in other sector, they earn more) • Dominance of male in marketing and sale of the product (cash transaction) • Lack of trust between farmers and traders Buyer driven price fixing mechanism • Creating distrust and compelling to take advance from regional traders

3. MARKET BASED SOLUTIONS

3.1. IDENTIFICATION OF MARKET BASED SOLUTIONS

During the value chain analysis of the *timur*, various constraints were identified. Regarding the constraints under different categories, lack of market information and linkages to the appropriate market; lack of knowledge and skills (production, harvesting, post-harvest handling, processing, and value addition); lack of adequate financial support to farmers and traders (for buying inputs, production, trading, and processing); lack of access to business development services; policy distortion (local tax and fees); lack of proper transportation facilities/collection/warehouse and lack of organised groups at local level were identified as critical issues and gaps that were hindering the upgrading of the value chain.

To address the needs of different actors and gaps along the chain, potential market based solutions have been identified. Effective coordination is also realised as a critical factor to facilitate interventions for the value chain. Accordingly, to deal with existing constraints related to market access, provision of market information on price, quality standards, buyers, and their specific requirements for farmers and collectors, linkage to district and regional level buyers, linkage to large-scale buyers of India for raw exporters, linkage to international buyers (France, Germany, Italy, UK, Belgium, and USA) for organic oil exporters, access to Indian and international buyers for products made of *timur* could be possible solutions.

Likewise to improve and transfer skills/knowledge on technology and product development, trainings on nursery management, harvesting and processing, and field piloting of high yielding variety of the product are major solutions. Training on business scheme/plan preparation, development of guidelines on resource management and sustainable harvesting and provision of land rent facility for commercial farmers and landless farmers are solutions to tackle the issues of lack of services to develop their business. Similarly, training to build capacity to get loans from financial institutions and lobbying for possible loans with flexible collateral system are the solutions to tackle the issue with lack of adequate finances. To deal with the constraints of lack of proper storage facility, establishing and promoting warehouse at strategic location would be a solution. Detail of market-based solutions is presented in Table 10.

Table 10 Value Chain Constraints and Their Respective Market Based Solutions

Constraints	Market Based Solutions
• Low access to market • Lack of market information	Provision of market information • Price, quality standards, volume, buyers and their specific requirements Linkage development • Linkage to district and regional level buyers • Access to affordable transportation services for farmers and local traders • Linkage to large-scale buyers of India for raw exporters • Linkage to international buyers (France, Germany, Italy, UK, Belgium and USA for organic oil exporters) • Access to Indian and international buyers for products made of *timur* • Market exploration through trade fair participation at regional, national and international levels.
• Lack of knowledge on cultivation, harvesting, quality control, value addition, high yielding plants, and technology (harvesting and processing) • Lack of action research on high yield variety	Training and capacity building • On nursery management, plantation/production, **sustainable harvesting** and post-harvest handling for farmers and collectors to produce international buyers' specifications • Skill training on quality control, value addition/processing for local traders and processors Piloting action research • Piloting action research on high yielding plants in the field for farmers
• Farmers lacking skills and capacity to acquire required BDS • Lack of practice of rent-in and rent-out land for commercial *timur* farmers	Training and capacity building • On business scheme/plan for farmers, collectors and local traders • To local service providers for organising groups • Development of guidelines on resource management and sustainable harvesting for farmers, CFUG, LFUG, private forest owners, and collectors Provision of • Rent-out facility for commercial farmers (public land, national forest etc.) and performance based rent for landless farmers

• Policy distortion (tax and fees at check post)
• Lack of collaboration between private sector and policy implementation
• Lack of international accreditation
	• Provision of lobbying services for favourable policy implementation;
	  ○ incentives to exporters
	  ○ no tax/fees on transportation
	  ○ no royalty for *timur* from private lands
	• Access to international accreditation services; support and facilitate for obtaining accreditations/certifications

• Inability of farmers, traders, processor to provide adequate collateral • Inadequate interest of financial institutions to provide loan for production, processing, and trade	Provision of • Local fund mobilisation for *timur* cultivation, processing and marketing • Working capital for exports • Silence guarantee of loan for processors Access to • Input credit for farmers

Constraints	Market Based Solutions
	• Working capital for traders Training and capacity building • To financial institutions for loan provision on *timur* including marginalised groups (procedures and preparing necessary documents)
• Inadequate input supplier (seed/seedlings) • No market oriented supplier of harvesting tools/materials	Provision of • Seed/seedling for farmers • Affordable inputs for harvesting tools/materials and techniques • Action research on developing harvesting tools
• Poor roads, improper storage facilities, no collection and information centre • Lack of laboratory testing facilities	Access to • Affordable transportation facility including establishment and upgradation of ropeways, foot trails etc. in Malarani and Dharapani area. • Cost-effective warehouse facilities at selected market centres • Facilitate and lobby for establishment of recognised laboratory testing facility within the country
• Lack of groups, networks • Buyer driven price fixing mechanism creating distrust	Provision of • Special rights (collection in open access) for marginalised group • *Timur* sub-groups and traders networks at corridor level Access • Land (leasing out public and private) for mass plantation for commercial farmers

3.2. ASSESSMENT OF MARKET BASED SOLUTIONS

In the Table 11, an assessment of market-based solutions is presented. Assessment of market-based solution was done on the basis of set criteria mainly potential to increase income and potential to increase number of beneficiaries. In this analysis, the fee based services, embedded and subsidies were also considered to cover the cost of proposed market based solutions (by identifying who does and who pays, potential private sector solution providers, existing situation of supply and demand; commercially viable or not and identifying constraints to the supply and demand of the targeted solutions).

Table 11 Assessment of Market Based Solutions and Possible Interventions

Market based solutions	Supply and demand analysis	Service providers and users	Constraints of service providers and users	Possible intervention
• Provision of market information services • Linkage to buyers (Nepal and India)	• MIS service available and high demand • Continue production and trade	AEC DCCIs, Traders, NTFPs traders network and local cooperatives Farmers and collectors	• Lack of capacity of farmers and collectors to acquire market information • Products quality not meeting the requirements of buyers • Inconsistent quality of products; problem of adulteration • No contract arrangements for	• Strengthening DCCIs for disseminating information (price, buyers and its quality, of different market centres via local radio) weekly of agri-NTFPs products including *timur* as part of transaction; embedding • Support to participate in NTFPs trade fairs (international) with partial financial assistance to

Market based solutions	Supply and demand analysis	Service providers and users	Constraints of service providers and users	Possible intervention
			regular supply and fair price • Low knowledge on export market	major exporters (charging fees) • Support to traders and farmers to set grade/quality standard through buyer-seller meetings to ensure better price to all according to quality standards • Conducting training on grading and quality standards by potential buyers to lead farmers/collectors and local traders (embedding) • Support to processors/exporters (50 % of cost sharing) in detail market assessment of international market especially India (charging fees) • Facilitation meetings between buyers (Gyan Herbal, Natural Resources Industries etc.) and farmers/collectors for contract arrangements by preparing legal documents with and support of the buyers in R&D for value addition esp. oil. (charging fees)
• Training on nursery management, plantation/production, sustainable harvesting and post harvest handling for farmers and collectors including to produce international buyer's specifications and skill training on quality control, value addition/processing for local traders and processors • Piloting action research on high yielding plants in the field for farmers	• There is high demand of training from farmers and collectors • Service providers are available at local and regional level	Collectors, nurseries, CFUGs/LFUGs, owners, LRPs, local traders, And technical experts/rangers, traders, processors, DPR, DFOs, NGOs,	• High cost to afford as individual farmers/collectors • Lack of buyers, traders and farmers awareness on quality • Lack of resources and publication targeting *timur* productions, sustainable harvesting and post-harvest handling • Lack of concept of production pocket development • No idea on which area and seeds/shrubs is high productive	• Provide trainings to LRPs and nursery *naike* on high quality seed/seedling production of *timur* by using DFO Rangers (charging fees) • Provide on the spot trainings on sustainable harvesting to farmers/collectors through LRPs and organised by HVAP/DFO (embedding) • Develop a model for sustainable harvesting and management practice (doc. and distribute it to collectors of production pockets for practice (build on existing best practices and experts consultation) monitoring by DFOs • Provide support to fabricate improved

Market based solutions	Supply and demand analysis	Service providers and users	Constraints of service providers and users	Possible intervention
				harvesting tools/materials set and distribute (10% cost sharing basis by collector) for experiment/trial in the field (charging fees)
• Training on business scheme/plan preparation and training to local service providers for organising groups • Provision of land rent /leasehold facility for commercial and landless farmers	• There is high demand of training from the farmers and collectors • Service providers are available at local and regional level	Lead/commercial farmers, collectors, sub-groups, local traders, LRPs, NGOs, NTFPs collection centres, traders networks /associations BDS providers (consulting firms and NGOs; local and national), District Survey Office (DSO)	• No idea (what level of demand is needed for community) • Lack of capacity to afford the BDS services individually • Low incentive to offer BDS services • Lack of institution to linkage development with service providers and users	• Provide training to LRPs and support communities to prepare business plans (through KPB, Surkhet)-charging fees • Organise farmers/collector groups in selected production pockets (Malarani, Dharapani, Baluwa, Naumule, Majhkada and Nigalcula (NGO/CFUG) • Facilitate to develop or establish standard norms for collecting of *timur* from the govt. forest and CF to stop lopping off the branches and bad collection practice joint monitoring by groups/DFO (control utilisation, maintenance and protection, purposeful regeneration). Example; o Limited period of time for harvesting for equity in benefit distribution, efficiency in labour investment and easy control of extraction o Collective rights of post harvesting in open access areas for benefiting to marginalised and landless farmers o Spacing natural regeneration to increase fruit production o Mulching and pruning for improve growth and stimulate fruit production
• Provision of lobbying services for favourable policy implementation; o Incentives to	• Most important to implement favourable policy on trade	• DFOs, JABAN, NEHHPA, DCCIs, traders, transport associations,	• Low interest or self-esteem of local bodies, DFOs staff and traders in policy implementation	• Organise govt, trader, farmers and stakeholders meeting to address policy distortion (multiple check posts); advocate by

Market based solutions	Supply and demand analysis	Service providers and users	Constraints of service providers and users	Possible intervention
exporters, ○ no tax/fees levied on transportation ○ no royalty for *timur* from private lands) • Access to international accreditation services	of *timur* • Government has a policy to promote production and trader for export promotion	cooperatives, NTFPs networks, DDCs, VDCs	• Practice of over/under invoicing in NTFPs transportation by traders • Lack of human resources in Government offices; DPR for providing laboratory facilities and getting international accreditations • Lack of recognised laboratory facilities available in the country (JABAN has lack of compound reference and literature reference for GC/MS lab test	JABAN, NEHHPA (embedding) • Support to JABAN to buy compound reference and literature reference for GC/MS lab test on cost sharing basis • For organic certification and MoU, buy with buyers (Dabur Nepal for research of high yielding seed/seeding production and QC) embedding and charging fees • Organise meetings of financial institutions (BOK, Cooperative, ADB etc.) for processors (Gyan Herbal, regional traders etc.) for soft/long term loan for working capital (charging fees)
• Easy access to finance	• Rural development bank, other financial institutions providing loans to farmers and traders • High demand of investment for expansion of business	• RDB, ADB • Cooperatives and Saving Groups (RMDC) • Commercial banks • Farmers • Traders • Processors (separation of seed coats and oil) • Exporters	• Users are unable to get finance due to lack of collateral, complicated procedure to get loan and knowledge • Lack of linkage to RMDC by local cooperatives • Finance provider's high cost to finance/loan assessment and repayment monitoring	• Facilitate and strengthen existing cooperatives, CFUGs, LFUGLFUG and other saving credits groups for local fund mobilisation for cultivation, processing and marketing (embedding) • Provide input credit to farmers through existing cooperatives (charging fees & embedded) • Facilitate meeting between traders, exporters and FIs for accessing working capital as a loan for traders • Provide silence guarantee of loan for community/district based processors (embedding & charging fees)
Provision of affordable inputs	• Available of input supplier and have required capacities • Fabricators are interested to design tools for harvesting • Local traders	• Trading companies • Equipment manufacturers (Sital Agrovet, KBS, etc.) • Processors • Cooperatives • Farmers	• Lack of facilitating institutions working in linkage development in *timur* • Lack of capacity of farmers/collectors in obtaining loan for purchase of tools/equipments for upgradation	• Facilitate to fabricators of tools/machines in developing, piloting suitable technology and field testing; through market study in India (Dabur Nepal is ready to support to get appointment with Indian fabricants and users) and

Market based solutions	Supply and demand analysis	Service providers and users	Constraints of service providers and users	Possible intervention
	and farmers have good demand of input		• Lack of appropriate tools designed for harvesting materials	trails production, design and field testing (charging fees)
Access to affordable transportable services for farmers and local traders	• Donor agency and government are committed to develop rural infrastructures • High demand of rural farmers	• Government • DFOs • Donors • HVAP • VC actors • Indirect beneficiaries • Farmers	• Lack of assessment of potential sites for infrastructure development • Lack of coordination between government and donors programmes	• Assessment of potential sites for development of infrastructure which can provide greater impact and wide base of beneficiaries • Facilitate better coordination between government and donor programs through better coordination • Support to establish infrastructure development (storage house, collection centre, gravity ropeways on PPP)
• Provision of special rights for marginalised groups	Government and donor organisation have many programme targeting to excluded groups of the society	• Government • DFOs • Donors • HVAP • Excluded groups	• Lack of groups of *timur* at production level and networks at corridor level • Buyer driven price fixing mechanism has creating distrust between farmer and traders	• Organize new sub-groups and women groups and strengthen existing groups in production and collection for increasing quality participation of poor, women and ethnic groups • Organise series of meetings to implement shrub/tree registration procedure in practice and provide recommendation to reduce royalty rate from Rs. 8 to Rs. 3 (advocate by JABAN) because landless and poor are involved in collection from the government forest • Improve operational plan of Community Forest/LHF for allowing women and poor households to cultivate

4. STRATEGIC AREAS OF INTERVENTIONS

This chapter presents some strategic areas of interventions for HVAP. The interventions are designed prioritising the suggested possible project interventions/activities mentioned in Chapter Three. The suggested interventions are categorised into two broad categories:

a. Short Term — interventions that can have a visible output within project duration
b. Long Term — interventions that can be initiated within project duration but with its visible output seen beyond project period

4.1. PRIORITY AREAS OF INTERVENTIONS (SHORT TERM)

4.1.1. Input Supply, production and harvesting

Support the lead farmers and tools fabricators in organising visits to India: Since the lack of proper harvesting tool is a major bottleneck at producers' level; developing, piloting and field-testing of the harvesting tool is necessary. During the study, it was found that there are some fabricators in India including Defence Research Organization (DRDO) in Ladakh that can develop *timur* harvesting materials such as gloves and sceizers etc. The study also shows that Dabur Nepal is ready to support for arranging appointment with the Indian fabricants and users. For this, the project could organise a visit for the lead farmers and interested tools/machine fabricators to India; so that they would be familiar with the harvesting tools and local manufacture practices. Once the tools are locally produced, they can be tested in main *timur* pockets like Dharapani and Malarani VDCs of Surkhet district.

Provide trainings to LRPs and nursery owners: Technical training on high quality seedling production and improving harvesting technology is important for increasing efficiency of labour mainly in harvesting and controlling of over extraction could be future activities for interventions. Further giving space for natural regeneration is also important for both increasing production in future and contributing to environmental conservation.

In some of the catchments of Naumule, Dailekh Bazar, Botechaur, Baluwa Sangrahi, Sallibazaar, Marko bazaar and Khalanga markets, there is potentiality to cultivate *timur* in private land and collect from forests. In this case, the project can develop a curriculum on nursery raising, production and sustainable harvesting and train the LRPs. Once the LRPs and nursery owners are trained they will provide hands on training to the local farmers.

Provide special provision of collection rights to marginalised groups: Both in community forests and national forests, *timur* shrubs are gradually depleting particularly due to negligence in harvesting and its management practices. Once the collection rights are granted to a certain group, they will be more responsible and manage the resource systematically. Therefore, it is recommended to allocate community forest for marginalised and landless members of the CFUGs for collection and management of *timur*.

Facilitate to prepare business scheme for farmers: Production pockets like Malarani, Dharapani, Baluwa Sangrahi, Naumule, Majhkada and Nigalchula are very prominent for collection and cultivation of *timur*. So, it is recommended to organise farmers/collector groups in these production pockets and provide training on business planning through LRPs. LRPs can be backstopped by BDS providers like KP Business Service Centre, Surkhet and the project itself.

Facilitate to develop collection standards: Improper collection practices for *timur* as by lopping off the branches are very common in the national forests and CF. In order to regulate the harvesting practice, a joint monitoring by groups and DFO is necessary for

utilisation, maintenance and protection and purposeful regeneration. The monitoring group can develop standard norms of harvesting and that can include:

- Limited period of time for harvesting
- Equity in benefit distribution - rights of harvesting on open access area for benefiting to the marginalised and landless farmers
- Efficiency in labour investment
- Spacing for natural regeneration and to increase fruit production
- Mulching and pruning for improve growth and stimulate fruit production

Facilitate farmers for private forest registration: In order to exempt from the government royalty, the cultivation area of *timur* should be registered as private forest. Therefore, the project with its LRPs can support farmers to register their shrubs or plantation area of *timur* in DFO office in coordination with DSO and District Land Revenue Office.

Facilitate to provide input credit to farmers: Through existing cooperatives and organise meeting between traders, exporters and FIs for accessing working capital as a loan for traders.

Form new groups and strengthen existing groups: There is a need to form new groups and strengthen existing groups in *timur* production and collection for increasing quality participation of poor, women and ethnic groups.

4.1.2. Processing and Marketing

Disseminate market information (price, quality, quantity, buyers and markets) through local radio on weekly basis.

Organise training on grading and quality standards for farmers, collectors and local traders. Potential buyers and relevant experts can facilitate the training. At the end of the training, participants will be able to set the quality standards, grade and price accordingly. The project will have to facilitate few meetings of potential buyers (Gyan Herbal, Natural Resources Industries etc.) and farmers/collectors for contract arrangements and support to prepare legal documents.

Organise meetings of financial institutions (Commercial Banks like Bank of Kathmandu, Cooperative, ADB etc.) for processors (Gyan Herbal, regional traders etc.) for soft and long term loan. Similarly, the cooperatives, CFUGs, LFUG are lacking working capital for processing, local value addition and collective marketing especially in Dharapani and Malarani area of Chhinchu-Jajarkot road corridor. With the increased access to finance, these groups can start business activities at local level where, marginalised groups of people can be employed.

Physical infrastructures There is need to support for establishment of storage house for *timur* in Botechaur or Gairi Bazaar, Baluwa Shangrahi, Sallibazaar. Similarly, to reduce the transportation costs, gravity ropeway is also important. For this, the project can conduct the feasibility study in major production pockets especially Malarani and Dharapani VDCs of Surkhet district.

Support to participate in NTFPs trade fairs with partial financial assistance to major oil exporters targeting oil export to India and European countries.

Support JABAN for buying compound reference and literature reference for GC/MS lab test. For this JABAN is ready for cost sharing.

4.1.3. Policy (regulatory)

Organise meetings of government agencies, trader, farmers and stakeholders: Organising interaction and meetings among the government agencies, traders, farmers and stakeholders could be an effective intervention to address the policy distortions practice at different levels including lobbying for favourable policy implementation such as incentives to exporters, no tax/fees levy on transportation, no royalty levy from private lands, reduce multiple checking system that ultimately helps to trade of *timur* by reducing their transaction costs. Trader networks at district level, JABAN and NEHHPA at regional and national level, can conduct this activity.

4.2. PRIORITY AREAS OF INTERVENTIONS (LONG TERM)

- Support to conduct a detail assessment of international markets especially India for knowing the market requirements. In this process, major district level traders and traders from Nepalgunj can be included.
- Support to communities along with oil exporters for organic certification and facilitate to develop MoUs with the buyers (Gyan Herbal, HPPCL and Dabur Nepal).
- Facilitate government agencies, TEPC or FNCCI for getting international accreditation in essential oil testing certificate.

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ANNEXES

Annex 1

Information on study team:

This study on "Value Chain Analysis and Baseline Assessment of *Timur*, Off-season Vegetables, Goat Meat and Turmeric" was led by Dr. Bhishma P. Subedi, Executive Director of ANSAB who provided necessary guidance to the study and mobilised team for conduction of ground study. Mr. Puspa Lal Ghimire, Programme Manager, ANSAB played a role of Deputy Team Leader for this study and coordinated entire study activities. Specifically, the study on *timur* was conducted in leadership of Mr. Prakash Katwal, Sr. Officer, ANSAB and was assisted by Mr. Sagar Godar Chhetri, Programme Associate, ANSAB. Several local enumerators and Local Resource Persons were mobilised for conducting household questionnaire survey. Mr. Ritu Panta, Data Analyst/Statistician, looked over the data compilation and report preparation. He was also involved actively throughout the questionnaires and checklists preparation and provided guidance in collection of data in the field. Mrs. Durga Devkota, Gender and Social Inclusion Expert, made contribution in designing of the study ensuring the generation and compilation of gender and social inclusion disaggregate data. She also trained and mobilised the teams so as to make the study inclusive and with greater reflection in gender equity and social inclusion issues of the region. Mr. Sudarshan Khanal, Programme Planning and Communications Specialist, ANSAB and Mr. Kabir Ratna Sthapit, Programme Officer, ANSAB provided contribution in reviewing and editing the study document.

Annex 2

Table 12 Market centres and production pockets visited and surveyed

Road Corridor	Market Centres Visited	Market Centres Surveyed	Production Pockets Surveyed	Production Pockets
Chhinchu -Jajarkot	Chhinchu, Botechaur, Gairibazar, Baluwashangrahi , Salli, Srijana, Marko and Khalanga	Chhinchu, Botechaur, Baluwashangrahi, and Marko	Nigalchul, Kuvinde, Majhkada, Ghajaripipal, Dharapani, Malarani, Manjhkot and Jhapra	Khalanga, Kuvinde, Andheri, Lekh Sangrahi, Gorkhakot, Manjhkot, Daha, Kotrang, Jhapra, Pajaru, Dasera, Malarani, Nigalchula, Majhkada, Dharapani, Baluwa, Aauljham, Lutepani, Sahare, Ghomkhahare, Gumi, Ramghat and Ghajaripipal
Surkhet-Dailekh	Guranse, Mathillo Dhungeshwor, Chupra, Dailekh bazaar and Naumule	Guranse, Ghodabas and Dailekh bazaar	Naumule, Ghodabas, Seri, Raniban, Kashikandh, Barah, Salleri and Bawani	Barah, Seri, Goganpani, Bhawani, Khadkabada, Naumule, Bestada, Ghodabas, Chhanna, Khambagadi, Raniban, Kashikandh, Kalika, Dwari, Baluwatar and Salleri.
Surkhet-Jumla	Baddichaur, Tallodhungeshwor, Tunibagar, Khidki Juila, Manma and Jite/Hulma	Manma, Jite/Hulma and Tunibagar	Tumrawan, Bhairabsthan, Sigasain, Kalika and Khin	Sundarpani, Bhatghaun, Ramankot, Nanikot, Mumara, Mugraha, Sukatiya, Faimahadev, Tumrawan, Nararayanpuri, Bhairabsthan, Nada, Toshi, Dhamali, Himcha, Thakuri, Gela, Khin, Tharpu, Mehelmudi, Kalika, Dhaulagol and Furkot

Source: Field Study, 2011

Table 13 FGD conducted in the three road corridors

Road Corridor	FGDs conducted in Market Centres	FGDs conducted in Production Pockets
Chhinchu-Jajarkot	Botechaur, Baluwashangrahi, Gairibazar and Khalanga	Sahare, Malarani, Gajaripipal, and Khalanga
Surkhet-Dailekh	Dailekh bazaar and Naumule	Godabas, Salleri & Naumule
Surkhet-Jumla	Manma, Jite/Hulma and Baddichaure	Sigahsain, Bhairabsthan, Manma and Jite/Hulma

Source: Field Study, 2011

Annex 3: List of people consulted

SN	Name	Company	Contact no	Address
1	Dr. Pankaj Raturi, HOD	Dabur Nepal, Tinkune	01-2054533-38	Kathmandu
2	Mr. Ajay Pradhanang, MD	Fleur Himalaya Ltd	01-5529436	Pulchowk, Lalitpur
3	Mr. Krishna Sapkota, Proprietor	Lumbini Herbal	071-543761 &9757009311	Milan Chowk Butwal
4	Mr. Tanka Sharma – Secretary	JABAN	jaban@wlink.com.np	Nepalgunj, Banke
5	Mr. Madhukar Thapa, Chairperson	JABAN	jaban@wlink.com.np	Nepalgunj, Banke
6	Mr. Rabindra Nath Sukla	JABAN	jaban@wlink.com.np	Nepalgunj, Banke
7	Mr. Parikshit Khemka, Director	Natural Resources Industries	01-4461847	Sinamangal, Ktm
8	Mr. Ram Hari Subedi , MD	Gorkha Ayurved Company	01-4286873, 4286875	Soalteemode, Ktm
9	Mr. Pradeep Chanched, MD	Gyan Herbal		Nepalgunj, Banke
10	Mr. Ratna Kumar Karki	HPPCL	9841364397	Jadibuti, Kathmandu
11	Katak B. Shahi	Trader	9748909015	Ramnikot 4, Kalikot
12	Mr. Kali Bahadur Rokaya	Trader	9748042445	Khalanga, Jajarkot
13	Mr. Dandabir Woli	Trader	9741175949	Khalanga, Jajarkot
14	Mr. Meen Bahadur Buddha	Trader	9748907937	Khalanga, Jajarkot
15	Mr. Bhupendra Kuwar Yougi	Trader	9748001518	Khalanga, Jajarkot
16	Mr. Prithivi Bahadur Singh	Trader	9748029972	Khalanga, Jajarkot
17	Mr. Gorakh Bahadur Shahi	Trader (regional)		Sallibazar, Sanyan
18	Mr. Geeta Ram Thapa Magar	Trader (regional)	9848262534	Sahara 8, Surkhet
19	Mr. Bijaya Pun	Trader (regional)	9816523888	Gairibazar, Surkhet
20	Mr. Dal Bd Oli	Trader	9848140652	Sahara 8, Surkhet
21	Mr. Chandra Bd Bohara	Trader	9748018163	Barah ,1 Dailekh
22	Mr. Shyam Bd Bohara	Trader	083-690143	Barah ,1 Dailekh
23	Mr. Sita Karki/Jeeban Karki	Trader (regional)	9848122871	Barah ,1 Dailekh
24	Mr. Moti Chapai	Trader (regional)	9848051295	Malarani 6, Surkhet
25	Mr. Bal Bd Pun	Trader	9848209505	Malarani 6, Surkhet
26	Mr. Man Bd Hamal	Trader	9848199108	Malarani 6, Surkhet
27	Mr. Santa Bd Pun	Trader	9848203744	Malarani 6, Surkhet
28	Mr. Dal Bahadur Buda	Trader (regional)		Ramghat, Surkhet
29	Mr. Indra Bahadur Kharti	Trader (regional)		Surkhet
30	Mr. Tanka Rokaya	Traders (regional)	9758900892	Kalikot
31	Mr. Bayassi Bam	Traders	9748907656	Kalikot

Annex 4

FGD Participants List:

Location: Barahha 1, Ghodabas , Dailekh Date: 12/12/2011

SN	Name	Address	Contact no	Remarks
1	Meena Gurung	Barah, 2	9815509103	Service provider
2	Chandra Bd Bohara	Barah ,1	9748018163	Trader (083-691866)
3	Shyam Bd Bohara	Barah ,1	083-690143	Trader
4	Sita Karki/Jeeban Karki	Barah ,1	9848122871	Trader
5	Geeta Gurung/Til Bd Gurung	Barah ,1	9848047554	Farmer
6	Prabi Gurung	Barah ,1		Farmer
7	Gita K.C.	Ramghat-5	9848105754	Service Provider-LRP
8	Sagar Godar Chhetri	Kathmandu		ANSAB
9	Prakash Katwal	Kathmandu		ANSAB
10	Sanjeeb Shrestha	Surkhet		HVAP/SNV

Location: Naumula, Dailakh Date: 14/12/2011

SN	Name	Address	Contact no	Remarks
1	Harilal Chand	Salleri-4		Farmer
2	Karna Bd Chand	Salleri-5		Farmer
3	Ram Bd Rawal	Salleri-4		Farmer
4	Durga Bd Gurung	Salleri-4	9748022401	Farmer
5	Nand Lal Gurung	Salleri-4		Farmer
6	Raju Chand	Salleri-5	9848156601	Farmer
7	Lal Bd Chad	Salleri	9848175440	Supporting Org(WUPAP)
8	Chandra Bd Rana Magar	Salleri-3		Farmer
9	Padam Bd Gurung	Salleri-4		Farmer
10	Prakash Katwal	Kathmandu		ANSAB
11	Sagar Godar Chhetri	Kathmandu		ANSAB
12	Sanjeeb Shrestha	Kathmandu		SNV

Location: Gairibazar, Surkhet Date:

SN	Name	Address	Contact no	Remarks
1	Moti Chapai	Malarani 6, Gauribazar	9848051295	Trader
2	Bijaya Pun	Malarani 6, Gauribazar	9816523888	Trader
3	Moli Woli	Malarani 6, Gauribazar		Trader
4	Bal Bd Pun	Malarani 6, Gauribazar	9848209505	Trader
5	Man Bd Hamal	Malarani 6, Gauribazar	9848199108	Trader
6	Parsu Ram Pun	Malarani 6, Gauribazar		Trader
7	Moti Lal Majhi	Malarani 6, Gauribazar		Trader
8	Santa Bd Pun	Malarani 6, Gauribazar	9848203744	Trader

Location: Jite/Hulma, Kalikot Date: 17/12/2011

SN	Name	Address	Contact no	Remarks
1	Koeili B.K.	Gobada-8, Chotikot		Farmer
2	Mangla B.K.	Gobada-8, Chotikot		Farmer
3	Til Bd Mala	Jharma-5, Malikot	9848301528	
4	Radhika Bhandara	Lalu-7, Kheuda		
5	Durga Bd Bista		98483488317	

6	Ramana Singh Bista			
7	Kabel Singh Bista			
8	Lal Bd B.K.			
9	Kabir Ratna Sthapit	Kathmandu		ANSAB
10	Prakash Kutuwal	Kathmandu		ANSAB

Location: Kalikot Date:

SN	Name	Address	Contact no	Remarks
1	Rajesh Pokhrel	Kalikot	9846119733	DFO staff
1	Janga Bd Shai	Kalikot		Trader/Farmer
2	Top Bd Basnet	Kalikot		Trader/Farmer
3	Tanka Rokaya	Kalikot	9758900892	Traders
4	Bayasi Bam	Kalikot	9748907656	Traders
5	Kabir Ratna Sthapit	Kathmandu		ANSAB
6	Prakash Kutuwal	Kathmandu		ANSAB
7	Sagar Goder Chhedtri	Kathmandu		ANSAB
8	Saroj Khadaka	Kathmandu	9848301363	WUPAP
9	Dinesh Bastakoti	Kathmandu		ANSAB

Location: Sahare, Surkhet Date:

SN	Name	Address	Contact no	Remarks
1	Dinesh Bastakoti	Kathmandu	9846119733	ANSAB
2	Dal Bd Oli	Sahara 8, Surkhet	9848140652	Trader/Farmer
3	Shal Bd Oli	Sahara 8, Surkhet		Trader/Farmer
4	Geeta Ram Thapa	Sahara 8, Surkhet	9848262534	Trader/Farmer
	Singhi Khattri	Sahara 8, Surkhet	9848218782	Farmer
6	Sher Bd. B.K.	Sahara 4, Surkhet	9848214408	Farmer
7	Jaya Bd Gharti	Sahara 9, Surkhet	9748027021	Farmer
8	Bir Singh Gharti	Sahara 8, Surkhet	984194126	Farmer
9	Khal Bir Buddha	Sahara 9, Surkhet	083691677	Farmer
10	Til Bd Gharti	Sahara 9, Surkhet		Farmer
11	Sumitra Rana	Sahara 9, Surkhet		Farmer
12	Pimapa Kali Rana	Sahara 9, Surkhet		Farmer
13	Geeta K.C.	Sahara, Surkhet		Collector
14	Nokhendra Kumar G.C.	Sahara 6, Surkhet	9848208101	Farmer
15	Dhansara D.C.	Sahara, Surkhet		Collector
16	Kabir Ratna Sthapit	Kathmandu		ANSAB

Location: Sahare, Surkhet Date: 20/12/2011

SN	Name	Address	Contact no	Remarks
1	Dal Bd Woli	Dharapani-5, Hiley	9848140652	Co-Operative
2	Karna Bd Gharti Magar	Sahara 8, Botachor	9848222343	Co-Operative
3	Geeta Ram Thapa Magar	Sahara 8, Botachor	9848262534	Co-Operative
4	Kabir Ratna Sthapit	Kathmandu		ANSAB
5	Sagar Godar Chettri	Kathmandu		ANSAB
6	Prakash Katwal	Kathmandu		ANSAB
7	Dinesh Bastakoti	Kathmandu		ANSAB

Location: Sigasen 8, 5 & 9, Dailekha Date: 2068/09/01

SN	Name	Address	Contact no	Remarks
1	Chana Khanal	Sigasen-8		
2	Biura Bhurtel	Sigasen-8		
3	Aaita Thapa	Sigasen-8		
4	Chaya Acharya	Sigasen-5	9848006937	Farmer
5	Saruta Thapa	Sigasen-9		Farmer
6	Naurata Puri	Sigasen-8		Farmer
7	Pansara B.K.	Sigasen-8		Farmer
8	Lalita B.K.	Sigasen-8		Farmer
9	Amrita B.K.	Sigasen-8		Farmer
10	Pura B.K.	Sigasen-8		Farmer
11	Lalita Acharya kha	Sigasen-8		Farmer
12	Sarita Acharya	Sigasen-8		Farmer
13	Padamlal Achary	Sigasen-8	9848076441	Farmer
14	Man Bd B.K.	Sigasen-8	9848284188	
15	Maan Bd B.K.	Sigasen-8	9848002907	
16	Bisa B.K.	Sigasen-8, Paiya		
17	Mausari B.K.	Sigasen-8, Paiya		
18	Bhagarthi Acharya	Sigasen-8, Paiya	9848077441	
19	Deaudhara Khanal	Sigasen-8, Paiya		
20	Jalu B.K	Sigasen-8, Paiya	9848808909	
21	Timki B.K.	Sigasen-8, Paiya	9848229188	
22	Geeta K.C.			
23	Yoganaryan Singh			
24	Sita G.C.	Surkhet	9848128103	

Location: Khalanga, Jajarkot Date: 21/12/2011

SN	Name	Address	Contact no	Remarks
1	Ruk Kumari Shai		9748052595	Collector
2	Bhabagati Kumari Shai		9748028440	Collector
3	Hari Bahadur Shai		9748029963	Collector
4	Kali Bahadur Rokaya		9748042445	Trader
5	Dandabir Woli	Traders	9741175949	Traders
6	Meen Bahadur Buddha	Traders	9748907937	Traders
7	Bhupendra Kuwar Yougi	Traders	9748001518	Traders
8	Tikha Basnet			
9	Amar Bahadur Karik		9748052640	
10	Birkuma Basnet		9748042229	
11	Prithivi Bahadur Singh		9748029972	Trader
12	Deep Bahadur Singh			
13	Debendra Bahadur Karna		089-430091	
14	Thakur Bahadur Wagla		975500800	
15	Aajaj Ansari		9755001166	
16	Sahadab Basnet		9748007318	
17	Sanjeeb Kumar Shrestha			
18	Giyalal Yadab			
19	Gobinda Pandit		9748028301	
20	Puspa Lal Ghimire	Kathmandu	9851051225	ANSAB
21	Sagar Godar Chhetri	Kathmandu	9847077627	ANSAB
22	Kabir Ratna Sthapit	Kathmandu	9849275909	ANSAB

23	Rupesh Lama		9848304701	
24	Lee Sereyrith			
25	Uttam Saha		9844050733	
26	Lal Bahadur Khadaka			
27	Padam Bahadur Mahatara			
28	Prakash Katwal	ANSAB		
29	Sashi Ram Rawal		9748013651	

Location: Manma, Kalikot

SN	Name	Address	Contact no	Remarks
1	Aanga Bahadur Bam			
2	Karak Bahdur Shai	Ramnakot -4, Kalikot	9748909015	
3	Tanka Rokaya	Kheen-2, Kalikot	9848305953	
4	Gir Bahadur Dhami	Thirpu-8, Kalikot	9748906220	
5	Mukti Bd Sanjel	Nanikot-7, Kalikot	9848306087	
6	Dharmajeet Yadi	Nanikot-5, Kalikot		
7	Preem Shai	Panma-5, Kalikot		
8	Madhan Shai	Panma-5, Kalikot	9848327518	
9	Ganesh Neupane	Kumalgau	9848322427	