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# VALUE CHAIN/ MARKET ANALYSIS OF THE GINGER SUB-SECTOR IN NEPAL

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Nepal Economic Agriculture, and Trade Activityô Value Chain/ Market Analysis of the  
Ginger Sub-Sector in Nepal  
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## ACRONYMS

AEC	Agro Enterprise Center
ANSAB	Asia Network for Sustainable Agriculture and Bioresources
BMOs	Business Membership Organizations
CA	Commission Agent
CADP	Commercial Agriculture Development Project
CAGR	Compound Annual Growth Rate
DADO	District Agriculture Development Office
DDC	District Development Committee
DFTQC	Department of Food Technology and Quality Control
DoA	Department of Agriculture
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FBOs	Farmer-based Organizations
FNCCI	Federation of Nepalese Chambers of Commerce and Industries
FY	Fiscal Year
FYM	Farm Yard Manure
GAPs	Good Agriculture Practices
GDP	Gross Domestic Product
GMPs	Good Manufacturing Practices
GOs	Governmental Organizations
GRP	Ginger Research Program
ha	Hectare
HVAP	High value Agriculture Project
IPM	Integrated Pest Management
IRs	Indian Rupees
ITC	International Trade Center
JABAN	Jadibuti Association of Nepal
kg	Kilogram
LDC	Least Developed Countries
LRPs	Local Resource Persons
MFI	Micro Finance Institutions
MoAC	Ministry of Agriculture and Cooperatives
MT	Metric Ton
NARC	Nepal Agricultural Research Council
NARDEF	National Agriculture Research and Development Fund
NEAT	Nepal Economic Agriculture and Trade Activity
NGOs	Non-governmental Organizations
NGPTA	Nepal Ginger Producers and Traders Association
NPRs.	Nepalese Rupees
NSCDP	National Spice Crops Development Program
NTIS	Nepal Trade Integration Strategy
p.a.	Per Annum
PACT	Project for Agriculture Commercialization and Trade
PFA	Prevention of Food Adulteration
PPD	Plant Protection Directorate
PSDM	Private Sector Dialogue Meeting
SAPTA	SAARC Preferential Trading Arrangement
SNV	Netherlands Development Organisation

TEPC	Trade and Export Promotion Center
TPC	Third Party Certification
USA	United States of America
USAID	United State Agency for International Development
USD	US Dollar
VC	Value Chain
VDC	Village Development Committee
VDD	Vegetable Development Directorate
WTO-STDF	World Trade Organization - Standards and Trade Development Facility

## EXECUTIVE SUMMARY

The Nepal Economic, Agriculture, and Trade (NEAT) Activity is a 30-month project funded by the United States Agency for International Development (USAID) that aims to promote economic growth, reduce poverty, and improve lives in Nepal. Under NEAT component 2-encouraging competitiveness and exports in selected agricultural and non agricultural commodities or services, the Asia Network for Sustainable Agriculture and Bioresources (ANSAB) conducted a value chain/market study of the ginger subsector in Nepal.

Ginger is an important spice crop traditionally grown in the mid-hill areas of Nepal. This sector contributes to 0.59 percent of total exports with an export value of about 403 million NPR (Nepali Rupees) in FY 2008/9 (TEPC, 2010). It is estimated to be cultivated by over 66,000 families in five regions of the country, and due to its high value it has a greater impact on smallholder farmers. Globally, Nepal is fourth in ginger production which translates to about 11.5 percent of the world's production (FAO, 2008). Nepal mostly exports ginger to India in fresh form and partly in traditionally dried form as *Sutho*.

The overall objective of this study is to carry out an in-depth value chain/market assessment of ginger and provide insights to NEAT for interventions, activity designs, and implementation. This study is based on a value chain approach focusing on the market competitiveness and involved market visits, interactions with stakeholders, and consultations with traders, processors and exporters. Validation of findings was achieved through private sector dialogue meetings and expert reviews. After a thorough analysis of the subsector, value chain mapping was completed, and constraints, opportunities, and strategic areas for intervention were identified.

The major constraints of the ginger sector include: a) unavailability of quality rhizome and appropriate plant protection remedies; b) prevalence of rhizome rot disease; c) traditional cultivation practices resulting in low productivity; d) lack of proper knowledge and technology on production; e) lack of collective marketing practices; f) lack of cleaning/washing facilities and use of inefficient processing and product development technologies; g) low quality of products; h) multiple and unofficial taxation during transportation; i) heavy dependence on India for trade and Indian government's discouragement of import from Nepal whenever Indian ginger production is high; and, j) insufficient collection and storage facilities and minimum value addition within the country.

Opportunities in this sector include: a) good demand of quality inputs; b) possibility to increase price through improved post-harvest practices like cleaning, grading & sorting; c) opportunities exist to increase the production area and overall productivity; d) possibility of mother rhizome harvesting; e) possibility of product and market diversification; f) opportunity for import substitution; g) opportunities to employ women and disadvantaged groups in processing activities; and, h) potential for the inward flow of foreign currency.

After analyzing the constraints and opportunities, the suggested interventions include both short-term and long-term solutions. The short-term interventions include: a) support for quality production and post-harvest handling; b) support to the Government of Nepal (GON) to declare seed production pockets; c) introduction of mother rhizome harvesting practices nationally; d) support to farmers on business development and planning; e) exposure visits with farmers and traders and participate in trade fairs and exhibitions; f) linkages with microfinance institutions (MFIs); g) support to establish rhizome washing facilities and

introduce improved technology on Sutho production; h) support to diversify products including the introduction of efficient slicing and drying technology; i) support to establish collection and storage facilities; j) facilitation of business meetings; and k) strengthening of the Nepal Ginger Producers and Traders Association (NGPTA).

The long-term strategies suggested by this study include: a) work on rhizome rot disease management; b) support to produce quality seeds & introduce high yielding varieties; c) support the Nepal Agricultural Research Council (NARC) for producing seedlings from tissue culture; d) creation and strengthening of Farmer Based Organizations (FBOs); e) launching an auction market; f) support in branding and export techniques; g) initiation of work on Good Agricultural Practices (GAPs) and Good Manufacturing Practices (GMPs); h) support for the free movement of Nepali trucks in India; and i) support to strengthen quarantine labs.

## **1. INTRODUCTION**

### **1.1 Background**

NEAT is designed to promote economic growth, reduce poverty, and improve livelihoods in Nepal. Under its component 2 “encouraging competitiveness and exports in selected agricultural and non agricultural commodities or services” NEAT supports the lentil, off-season vegetables, ginger and orthodox tea subsectors.

ANSAB is an independent, nonprofit, civil society organization working in South Asia since 1992. ANSAB is committed to biodiversity conservation and economic development through community-based enterprise oriented solutions. ANSAB is the pioneer in developing and applying new approaches to promote natural products-based enterprises and value-chain interventions in Nepal. With its exemplary track record, competent team, and wide networks, ANSAB has designed and successfully completed several related projects, including value chain study of commercially important products, with tangible results on the ground. It has also provided different expert services to stakeholders working in Nepal and other neighboring countries.

Nepalese agriculture growth is constrained by poor infrastructure, weak institutions, and inadequate technical support for commercialization and supply chain development. In general, the prevailing weak agricultural growth is not sufficient to boost overall per capita income. Nepal's foreign trade has always been observed at a deficit situation with an increase in demand every year for foreign goods for national development as well as for consumption and with a static trend in export growth. In this context, Nepal Trade Integration Strategy (NTIS) has prioritized 19 commodities with export potential, among them, ginger is one.

### **1.2 Objective**

The overall objective of this study is to carry out an in-depth value chain/market assessment of ginger and provide insights to NEAT for interventions including activity designs and implementation strategies.

### 1.3 Scope of the Study

The scope of this study is presented below:

- Short description of the ginger value chain based on existing reports (value chain analyses with focus on competitiveness and impact) by the Commercial Agriculture Development Project (CADP), SNV (Netherlands Development Organisation), and the Agro-Enterprise Center (AEC);
- Identification of all actors along the value chain; their numbers, roles and existing relationships;
- List of the contact details of lead firms/exporters/traders and an estimate of their size (i.e. tons purchased) and/or importance (i.e., percentage of market, major commodity supply areas) to the extent possible;
- List of the contact details of foreign importers/buyers;
- Identification of the ginger production pocket areas in NEAT districts with direct linkages to these wholesalers and traders based on interviews with wholesalers and traders;
- In depth market study with reliable monetary estimates of the full value chain- production, imports/exports, value addition, and value chain governance;
- Interviews with major lead firms/exporters/processors identifying key opportunities and constraints;
- Facilitation of private sector dialogue meetings, bringing together key actors along the value chain, to discuss on opportunities, constraints, and possible win-win activities for NEAT;
- Assessment of the willingness of actors (exporters, traders, firms) to work together to enhance their competitiveness;
- Visit to Northern India to meet with importers; and
- Identification of the main strategies and their implications for down- and upstream actors, including their costs-benefits based on the NEAT work plan and subsector analysis report, interviews, dialogue meetings and market information.

### 1.4 Study Approach and Methodology

This study was completed with consultation and in close coordination with NEAT staff, government agencies including Department of Agriculture (DoA), Vegetable Development Division (VDD), District Agriculture Development Office (DADO), Nepal Spice Crop Development Program, NARC; NGOs; Business Membership Organizations like AEC/FNCCI, DCCI, Nepal Ginger Producer and Traders Association (NGPTA), Jadibuti Association of Nepal (JABAN), and the Federation of Ginger Cooperatives in Palpa.

Qualitative data was collected through interactions with traders, processors, exporters and related stakeholders whereas quantitative data was collected from secondary sources. Assistance was also sought from our Indian private sector partner ó Medherb Consulting Company - to gather information from the Indian buyers. The information collected from different sources was validated through a Private Sector Dialogue Meeting (PSDM) conducted in Butwal. The study followed the following activities in sequential order:

- Development of methodology including checklists and travel plan;
- Consultation with NEAT team and finalization of methodology including checklists and travel plan;
- Review of existing reports and publications ó AEC, ITC, FAO, SNV, CADP;

- Consultation with key informants;
- Interviews with lead firms/exporter/traders/processors;
- Visit to production pockets and interactions with local actors;
- Visit to major domestic market hubs and some Indian border cities and interactions with traders;
- Compilation of study findings and triangulation with secondary sources;
- Conduction of private sector dialogue meetings;
- Meetings with other donor agencies/projects;
- Preparation of first draft; and
- Completion of the report and submission to NEAT.

## 1.5 Limitations of the Study

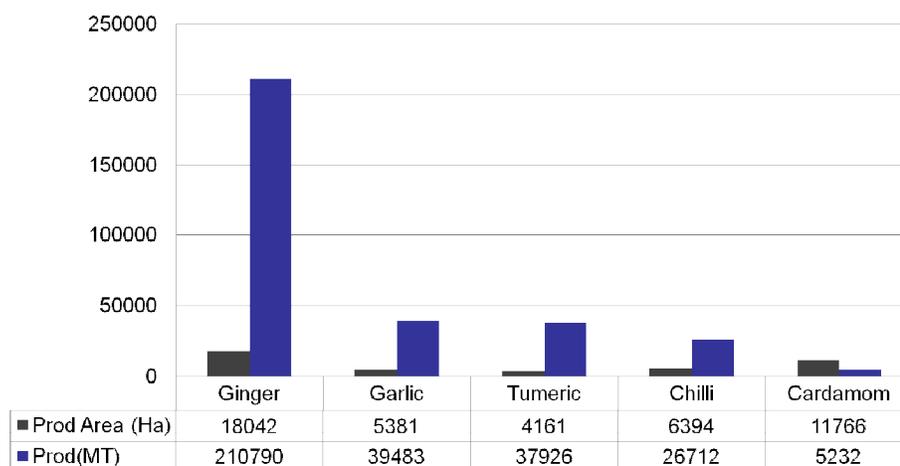
Ginger production area in Nepal is scattered from east to west throughout the country, so it is difficult to cover all the ginger cultivating regions in a short period of time. This study focused on the eastern, western, and mid-western regions of Nepal. Ilam, Dhankuta, Palpa, Dang, Salyan, Surkhet were selected as a sample districts for collection of farmer level information, which might not adequately capture the nationwide scenario. At the marketing level, sample markets of Nepal and some border cities of India were visited. It was not possible to visit major international production sites as Assam, Bangalore, Cochin and Tibet which are the major competitors of Nepali ginger.

## 2. INDUSTRY ANALYSIS

### 2.1 Production Situation

In Nepal, ginger is the topmost spice crop both in terms of area of cultivation and production volume. In year 2009/10, the total area of ginger cultivation was 18,042 hectares (ha) while the total production quantity was 210,790 metric tons (MT).

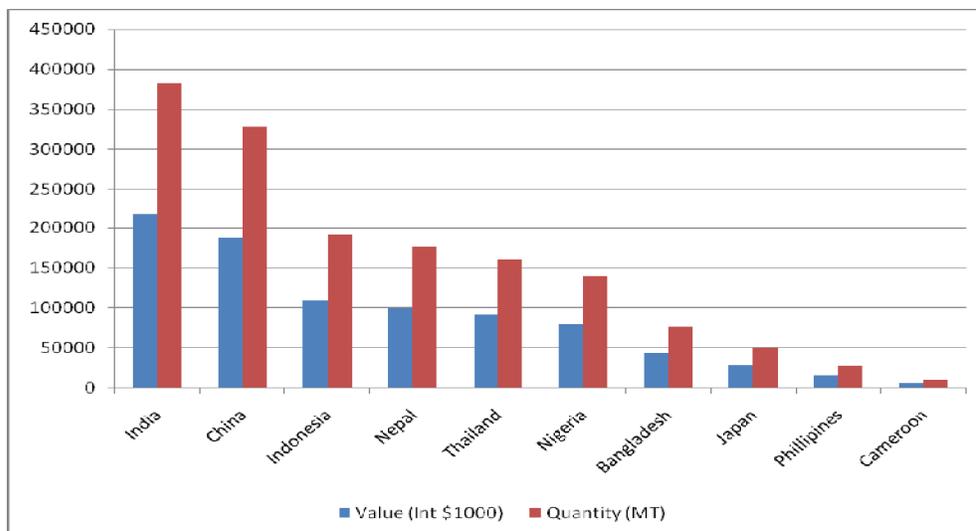
**Figure 1: Area and Production of Major Spices in Nepal**



Source: VDD, 2009/10

According to the FAO 2008, Nepal is fourth in worldwide ginger production after India, China, and Indonesia and includes about 11.5 percent of the world's production. The following figure shows the top 10 countries in terms of ginger production.

**Figure 2: Worldwide Ginger Production Status, 2008**



Source: FAOSTAT, 2010

The domestic production volume and price of ginger steadily increased from 2000 to 2010 (Table 1). When compared to 2001/02, production nearly tripled in 2005/06 reaching the highest quantity of the decade with production of 232,992 MT. The area cultivated in the same year was 18,515 hectares which is also the highest Nepal has experienced. In 2006/07, there was a drastic decline in production with 160,576 MT of ginger produced. The decline was due to a 29 percent decrease in area cultivated. The farmers cultivated less ginger in 2006/07 because of a dip in ginger prices. The national retail price trend of ginger has been fluctuating over the last decade. Year 2003/04 was the best year for ginger in terms of average retail price. The following table illustrates the production status of ginger in Nepal in last decade.

**Table 1: Domestic Production and Price Trend**

Fiscal Year	Prod (MT)	Area (Ha)	Yield (MT/Ha)
2000/01	84,366	8,956	9.42
2001/02	87,909	9,189	9.57
2002/03	140,056	11,480	12.20
2003/04	150,593	11,830	12.73
2004/05	152,704	11,930	12.80
2005/06	232,992	18,515	12.58
2006/07	160,576	13,170	12.19
2007/08	161,171	14,007	11.51
2008/09	211,251	17,665	11.96
2009/10	210,790	18,042	11.68

Source: VDD, 2009

Ginger is cultivated throughout the mid-hills, foothills, and in some plain areas of Nepal. The Eastern Development Region has the highest share of ginger in terms of area of cultivation, production and productivity each with 31.5 percent (area), 36.8 percent (production) and 13.65 percent (productivity) respectively. The Western Development Region and Mid-western Development Regions produce 24.9 percent (area) and 17.9 percent (production) respectively. The Central Development Region has a share of 10.9 percent (production) whereas Far Western Development Region has the lowest production volume share with 9.5 percent in total (VDD, 2009/10).

The availability of road networks and access to vibrant markets might be the causes to produce high amount in Eastern and Western Development region compared to others. The detail on region wise area of cultivation, production and productivity is illustrated in the following table.

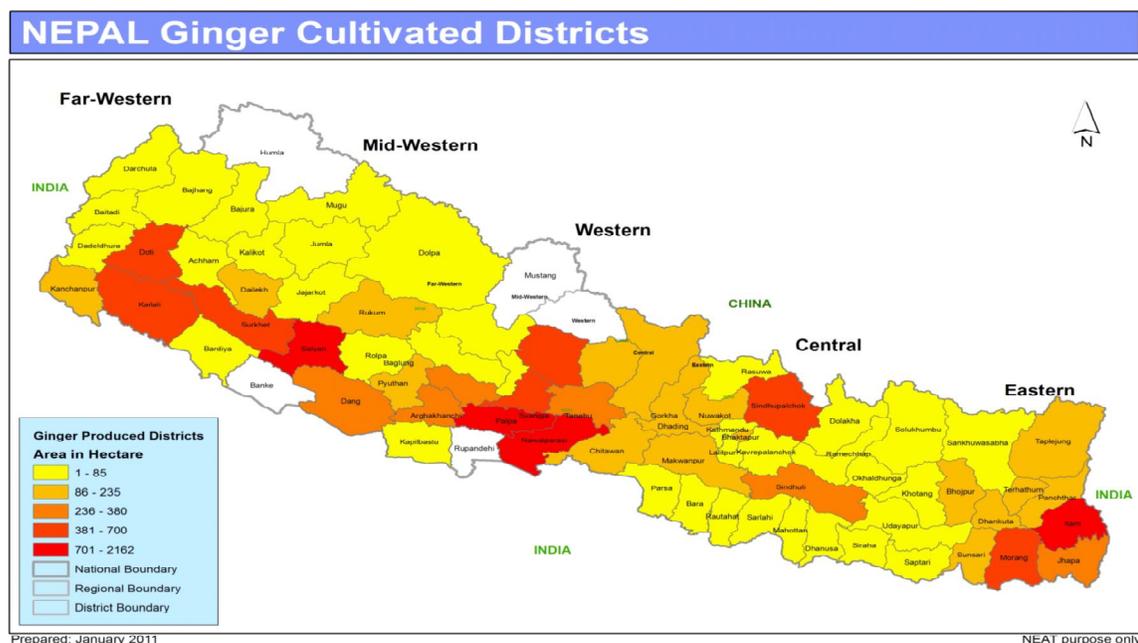
**Table 2: Development Region-wise Production Status**

Development region	Area of Production (ha), percent		Production Volume (MT), percent		Productivity (MT/ha)
	Area (ha)	Percent	Volume (MT)	Percent	
<b>Eastern</b>	5,680	31.5 %	77,556	36.8 %	13.65
<b>Central</b>	2,140	11.7 %	22,944	10.9 %	10.72
<b>Western</b>	5,309	29.4 %	52,584	24.9 %	9.91
<b>Mid-Western</b>	3,369	18.8 %	37,668	17.9 %	11.18
<b>Far-Western</b>	1,544	8.6 %	20,037	9.5 %	12.98
<b>Nepal</b>	18,042	100.00	210,790	100.00	11.68

Source: VDD, 2009/10

According to VDD, 2009/10, the major ginger producing districts are Ilam, Salyan, Nawalparasi, Palpa, Doti, Morong, Kailali, Surkhet, Tanahu, and Kaski. During our study, Malneta, Salyan were found to be the most productive pockets with 20-30 MT/ha productivity. The intensity of area coverage by ginger in various districts of Nepal is depicted in the following figure.

**Figure 3: Ginger Cultivation Status Nepal**



## 2.2 Cost of Production

In Nepal, ginger cultivation is mostly conducted in traditional ways with very few external inputs. The major factors in production include- input costs, labor costs, and land preparation costs. Transport costs are incorporated in production costs because farmers usually have to transport their produce to road-heads. For the purposes of this study, production costs were calculated based on interviews and focus group discussions conducted with farmers from Ilam, Birtamod, Surkhet, Salyan and Nepalgunj. According to our findings, the average cost of production per kg is calculated to be 18.08 NPR. Table 3 summarizes each cost.

**Table 3: Cost of Production of Ginger (National Average)**

S N	Descriptions	Quantity	Unit	Rate (NPRs)	Total (NPRs)
A	Land Renting	20	Ropani	1,000	20,000
B	Inputs				
1	Seed	3.5	MT	30,000	105,000
2	Manure/Fertilizer	600	doko/sack	15	9,000
3	Pesticide use	5	kg	300	1,500
	Total (Production Input)				115,500
C	Labour				
1	Land preparation	40	man-days	200	8,000
2	Ploughing	20	pair bullocks	500	10,000
3	Labour for FYM application	40	man-days	200	8,000
4	Mulch collection	40	man-days	200	8,000
5	Plantation	40	man-days	200	8,000
6	Weeding	60	man-days	200	12,000
7	Harvesting	80	man-days	200	16,000

8	Cleaning and packaging	40	man-days	200	8,000
	Total (Production Labour)				78,000
D	Transportation cost	12.5	per ton	1,000	12,500
	Grand total cost				226,000
	Per kg cost of production				18.08
Summary of the major costs				Per kg	Share percent
Seed				8.40	46
Labour				6.24	35
Manure/Fertilizer				0.72	4
Pesticide				0.12	1
Others				2.60	14
Total				18.08	100

Source: Field Survey, 2011

**Input costs:** Farmers usually use inputs that are locally available. The cost of several inputs (plough, spade, sickle, etc.) used for cultivation is very small. Home-made organic manure (farmyard manure and compost) is mostly used instead of chemical fertilizers. Farmers typically use locally available seed varieties. Farmers in some production pockets use pesticides during seed treatment; however there was no evidence of bio-pesticide use.

Forty-six percent of the costs associated with ginger cultivation are attributed to the procurement of seeds. Seeds are typically produced by farmers themselves and kept for the next season's plantation. Farmers keep 20 to 25 percent of their production for the purpose of seed. New growers purchase seeds from neighbouring farmers or from local markets. In some cases, seeds are purchased from other areas that have better productivity. For example, farmers in Ramghat bought seed from Hetauda which has greater productivity. The cost of seed is usually higher than fresh ginger.

Among the other inputs, manure/fertilizer incurs 4 percent of the total cost of production. The use of organic manure is common. There is a nominal use of chemical fertilizer in the eastern region, while farmers of the western region grow ginger mostly without the use of chemical fertilizers.

**Labour cost:** Ginger farming in Nepal is very labor intensive and represents around 35 percent of the total cost of production. Labor is mainly used for land preparation, ploughing, plantation, FYM/fertilizer application, mulch collection and application, weeding, harvesting, and post harvest handling activities. During ploughing, farmers usually use bullocks. If the farmers do not have their own bullocks, they usually hire bullocks from others. The cost of a pair of bullock per day is normally 500 NPR. Mulch is collected from surrounding areas, farms, or nearby forests and the costs mainly include labor, and transportation costs. In the post harvest handling, the rhizomes are separated from the stem and soil is removed from the rhizomes. There is absence of washing and grading practice at farmers' level.

In most cases, family members are involved in providing labor. Medium and large scale farmers will use laborers from the outside. Daily labor wages range from 150 to 250 NPR.

Due to the aggressive seasonal migration of laborers to overseas work, non-family member laborers are becoming less prevalent every day.

**Transportation cost:** Transportation costs include transportation of the product to local markets or up to road-heads where traders are located.

**Land renting cost:** Normally, farmers cultivate ginger on their own land. If they have to rent the land, the cost will vary. The average land renting cost estimated is around 20,000 NPR/hectare and is included in the production costs.

## 2.3 Distribution of Value Addition

Fresh ginger is the most traded product and is harvested during both the main season and offseason (mother rhizome). Young ginger has a mild flavor and a pale, thin skin that requires no peeling. Fresh rhizomes with low fibre content but rich in aroma, pungency, fat, and protein are preferred from consumers.

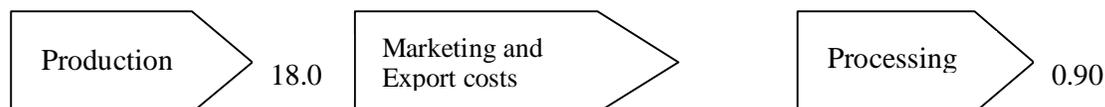
Fresh ginger does not go through very many value addition activities. The two most prevalent activities include cleaning and sorting after the harvest. Cleaning begins at the farmer level where only preliminary cleaning is completed by removing soil and roots from rhizome. Due to a lack of awareness and incentives received for high quality products, farmers do not engage in a grading system. There is a practice of deducting 2 to 8 kg per sack (normally 50 kg/sack) from farmers by the local traders depending upon the soil content in the product. Major cleaning is usually done at the traders' level prior to exporting or sending it to the market. However, during this study, we did not observe cleaning completed by traders/exporters prior to exporting to India. Poor cleaning practices have resulted in a low quantity of produce supplied by exporters and the Indian importers have been complaining about weight loss and the soil content in packages. Fresh ginger from the eastern region is washed in facilities at Naxalbari, the nearest Indian town on the Kakarbhitta border. Such washing facilities are owned by Indian traders as well as Nepali traders and employ a significant number of women as laborers. No such washing practice was found on the western border. One of the traders in Bhairahawa said that washing decreases the self-life of fresh ginger which is why they choose not to wash. In Naxalbari, the cleaning process is completed in various steps which includes washing by placing in big pits, spreading in open areas, drying by air circulation, and placing in fresh jute sacks.

During this study, increases in the price of ginger and value addition activities were noted in the eastern region. It was found that the level of value addition for fresh ginger is found different in different places. Besides the way of processing of ginger, the taxes, custom clearance and transportation also varied depending on geographic locations.

### 2.3.1 Costs of Goods from Ilam to Naxalbari, India

Table 4 represents the distribution of value addition for fresh ginger from the production areas of Ilam to Naxalbari where it is mostly handed over to washing facilities.

**Table 4: Cost of Production/Value Addition at Different Levels from Ilam to Naxalbari**



Items	Costs (NPRs)	Items	Costs (NPRs)	Items	Costs
Land Renting	1.60	Input (sack, thread)	0.70	Cleaning, grading and packaging cost	0.90
Seed	8.40	Weighing and sacking	0.36		
Manure	0.72	Load and unload	0.47		
Pesticide	0.12	Transportation (Naxalbari)	1.20		
Land preparation	1.44	VDC taxes	0.07		
FYM application	0.64	DDC taxes (Ilam, Jhapa)	0.36		
Plantation	0.64	Municipality taxes	0.05		
Mulch collection	0.64	Custom (Nepal, India)	1.10		
Weeding	0.96				
Harvesting	1.28				
Cleaning	0.64				
Transportation	1.00				
Purchasing Price		Purchasing Price	25.00	Purchasing Price	37.00
Farm Level cost	18.08	Total Road-head/Exporter level cost	29.31	Total Processor cost	37.90
Losses	-	Losses (8 percent)	2.34	Losses	
Gross Margin	6.92	Gross Margin	5.35	Gross Margin	2.10
Sales Price	25.00	Sales Price	37.00	Sales Price	40.00
				CA commission on sales price	7 %

Source: Field Survey, 2011

Most of the district traders of Ilam work for exporters stationed at Dhulabari, Jhapa or Naxalbari, India and some of the district traders export directly to Naxalbari on their own cost. The ginger is washed and cleaned at Naxalbari prior to selling to commission agents and/or Indian importers/wholesale markets. Most of the ginger from Naxalbari goes to Kolkata and occasionally to Delhi and Amritsar. One of the traders from Dhulabari reported the export of ginger to Bangladesh (500 MT).

The major differences observed within the different routes of ginger supply from Nepal were in the cost of taxes, custom clearance costs, and transportation costs. Traders face multiple taxes while transporting their goods from production areas to market. According to the local governance act, the DDC tax is payable only at the point of origin but it is not properly followed so that the traders are paying unnecessarily extra tax while entering to a new district. As per the information received, the traders while passing the goods from Ilam to Kakarbhitta have to pay about 0.26/kg NPR in Ilam, 0.10/kg NPR in Jhapa and 0.05/kg NPR in Birtamod. In the western region, traders have to pay 0.30 NPR/kg in Palpa and 0.20 NPR/kg in Rupandehi as DDC taxes while bringing goods to Bhairahawa. However, traders

bringing goods from Surkhet needs to pay DDC tax only in Surkhet of NPRs. 0.25 NPR/kg and are not charged in Banke.

Farmers mostly transport their produce to local collectors or road-head traders. In some instances, the local collectors go to farmers' fields and procure the goods. In this case the transportation cost is borne by local traders. The price of ginger varies according to seasons. During the offseason (May, June, July) the price is high and usually mother rhizomes are sold; whereas, during the main harvesting season (November, December, January) the price is low. During this study, the calculated average price received by farmers was 25 NPR/kg. The gross margin received by farmers comes to be 6.92 NPR/kg. Road-head traders and district traders bear the cost of marketing which is estimated to be 3.86 NPR/kg. Usually, road-head traders supply goods to district/national traders who sell mainly to exporters or sometimes to Indian commission agents directly. The gross margin calculated for marketing and processing actors are 5.35 NPR and 2.1 NPR per kg.

## **2.4 World Market**

Globally, both the export and import value of ginger is growing every year which shows good prospects for the ginger business.

### **2.4.1 World Export**

The world export market of ginger is growing by 27.14 percent by value and 5.18 percent by volume annually. In terms of value, major exporting countries of ginger are China, Nigeria, Netherlands, Thailand, and Ethiopia. In terms of volume; the major countries are China, Thailand, Nepal, Nigeria and Netherlands. Nepal lies in 8<sup>th</sup> position in terms of total earning and in 3<sup>rd</sup> position in terms of the total export volume of ginger. The Compound Annual Growth Rate (CAGR) in terms of value of Nepal is 19.75 percent which is below the world average. The CAGR of Nepalese ginger in terms of volume is 13.82 percent which shows that the unit price of Nepali ginger increased from 2009 to 2010 (See Annexes 2 & 3 for details).

Trade indicators show that Nepal has exported 5.4 percent and 6.6 percent of the total world export in 2009 and 2010 respectively while receiving monetary benefits of 1.2 percent and 1.4 percent respectively. In the period of 2006 to 2010, CAGRs of China in export value and volume were 26.8 percent and 1.7 percent respectively and the CAGRs of India in export value and volume were 5.4 percent and -11.3 percent respectively. From these figures, we can derive that Nepal is receiving fewer benefits from exports compared to the world and neighboring countries like China and India (see Annex 4 for details).

Among major exporting countries, the unit price of Nepalese ginger is the lowest. Germany, UK, Ethiopia, and Nigeria are achieving better prices in the world ginger market. Globally, China is the biggest exporter with a 67.1 percent share followed by Nigeria, Netherlands, and Thailand. The unit price of Chinese ginger is significantly high compared to Nepal. The following table depicts the facts and figures on the export of ginger from China which can provide trade intelligence for Nepali exporters.

**Table 5: Export from China (Trade Indicators)**

Exporters	Exported value 2010 (USD '000)	Share in China's exports (percent)	Exported quantity 2010	Unit value (USD)	Exported growth in value (2006-2010) (percent, p.a.)	Exported growth in qty (2006-2010) (percent, p.a.)	Exported growth in value (2009-2010) (percent, p.a.)	Ranking of partner countries
World	434,920	100	299,978	1,450	29	4	54	
Japan	70,696	16.3	43,182	1,637	8	-10	44	1
USA	53,555	12.3	36,278	1,476	29	6	79	2
Pakistan	43,942	10.1	29,203	1,505	16	-13	38	3
Malaysia	43,676	10	33,190	1,316	37	3	81	6
UAE	34,037	7.8	22,183	1,534	43	9	76	7
Bangladesh	31,287	7.2	23,829	1,313	65	22	18	5
Netherlands	25,987	6	16,281	1,596	61	28	101	4
Saudi Arabia	22,323	5.1	17,913	1,246	37	5	72	11
UK	20,738	4.8	14,779	1,403	49	18	75	8
Canada	13,083	3	9,052	1,445	33	6	58	12
India	5,823	1.3	1,780	3,271	49	26	44	10

Source: ITC, 2011

The annual growth of China in terms of value and volume is 29 percent and 4 percent respectively during the period of 2006 to 2009. Japan, USA, Pakistan, Malaysia, UAE, and Bangladesh are the major importing countries of the Chinese ginger. It can be interpreted that there is strong ginger export in South Asia, East Asia, and the Middle East which could be potential alternative markets for Nepal. EU and US market have their specific quality requirements and exporters should follow them (See Annex 1 for details).

## 2.5 World Import

World import statistics show that the annual growth rate of the ginger sector was 23 percent in the period of 2006 to 2010 though there was a 5 percent increment in export volume. Most interestingly, the growth in the world ginger market was 58 percent in 2010 compared to 2009. Japan, USA, Pakistan, Netherlands and Bangladesh are the major importers of ginger worldwide. The unit import value of ginger is highest in Germany and lowest in India. There are significantly higher unit prices in Pakistan and Bangladesh compared to India. Pakistan and Bangladesh are the nearest international markets for Nepal beyond India (see Annex 5 for details).

Import data shows that there is a good prospect for Nepali ginger to export to international markets with better unit prices. Initially, Bangladesh, Pakistan, the Middle East and East Asian countries could be the alternative markets for Nepal. In the long run, Nepali ginger entrepreneurs should target EU and US markets by meeting their quality requirements (see

Annex 1 for details). Good Agriculture Practices (GAP) and Good Manufacturing Practices (GMP) should be adopted by Nepalese producers.

Because India is one of the worldwide importers with increasing demand, it is necessary to analyze trade indicators of ginger imports by India. Table 6 shows that Nigeria, Nepal, China, and Ethiopia are the major suppliers of ginger to India. Therefore, Nepal should compete with those countries in terms of quality, quantity, and price.

**Table 6: India's Import (Trade Indicators)**

Exporters	Imported value 2010 (USD '000)	Share in India's imports (percent)	Imported qty 2010	Imported growth in value (2006-2010) (percent, p.a.)	Imported growth in qty (2006-2010) (percent, p.a.)	Imported growth in value (2009-2010) (percent, p.a.)
Total	25,171	100	38,481	79	40	194
Nigeria			5,414		33	691
Nepal	6,164	24.5	30,188			18
China	5,823	23.1	1,780	49	26	44
Ethiopia	1,514	6	880	132	112	68

Source: ITC, 2011

Bangladesh is another promising market for Nepali ginger beyond India and the following table depicts trade indicators of ginger imports in Bangladesh.

**Table 7: Bangladesh's Import (Trade Indicators)**

Exporters	Imported value 2010 (USD '000)	Imported qty 2010	Unit value (USD/unit)	Imported growth in value (2006-2010) (percent, p.a.)	Imported growth in qty (2006-2010) (percent, p.a.)	Imported growth in value (2009-2010) (percent, p.a.)
Total	41,997	26,995	1,556	74	25	41
China	31,287	23,829	1,313	65	22	18
Nigeria		762			34	
Indonesia	1,669	2,219	752	170	118	-26
Nepal	63	185	341			

Source: ITC, 2011

Import statistics show that there was an increasing annual demand for ginger in Bangladesh from 2006 to 2010 by 74 percent which illustrates the existence of huge opportunity for Nepali exporters. Major competitors of Nepal in Bangladesh market are China, Nigeria, and Indonesia.

## 2.6 Domestic Market

### 2.6.1 Ginger Import to Nepal

Though Nepal is a major producer and exporter of ginger, it is also importing ginger in order to fulfil domestic demand- especially during off-seasons. The major sourcing countries for Nepal are China and India. Nepal has been importing ginger from China (Tibet) for quite a

long time. However, in recent years, especially in 2009, the export of ginger from China to Nepal has dramatically increased. The following table presents the export trend of ginger from China to Nepal. The ginger from China is mostly fibreless and is neatly cleaned, waxed, and properly packaged. The price of Chinese ginger is also comparatively higher than Nepali ginger.

**Table 8: Export of Ginger from China to Nepal**

Years	Exported quantity, MT	Exported value, USD 1,000	Exported unit value, USD/MT
2001	50	40	800
2002	0	0	-
2003	1,548	484	313
2004	215	118	549
2005	321	156	486
2006	30	26	867
2007	208	235	1,130
2008	1,613	937	581
2009	6,110	3,578	586

Source: ITC 2010, CoMTrade 2010

Another country that Nepal imports ginger from is India. The quantity of ginger imported from India is small compared to China. However, the imported unit value from India to Nepal is relatively high compared to what Nepal exports to India. The following table presents the scenario of imported quantity, value, and unit price of ginger from India to Nepal in the period of 2001 to 2009.

**Table 9: Export Trend of Ginger from India to Nepal**

Years	Exported quantity, MT	Exported value, In USD 1000	Exported unit value, USD/MT
2001	15	9	600
2002	32	20	625
2003	107	65	607
2004	120	53	442
2005	5	4	800
2006	189	225	1,190
2007	68	87	1,279
2008	15	15	1,000
2009	186	241	1,296

Source: ITC 2010, CoMTrade 2010

### **2.6.2 Domestic Consumption and Price**

On average, about 25 to 30 kg is consumed by the producing households. 85 percent of the total production is estimated to be marketed by the producers either as fresh new rhizome or mother rhizomes after maintaining the stock for next year plantation. The producers retain 30-35 percent of the total production for seed purpose but at the later date part of this stock again enters the market (CADP, 2008). Ginger is consumed in most of the households as spices. Some domestic manufacturers including pharmaceuticals use ginger in their products. Ginger is also one of the main ingredients for pickle industries in Nepal.

Kathmandu is one of the major domestic markets for ginger. Most of the ginger is distributed from the Kalimati Fruit and Vegetable Wholesale market in Kathmandu. The volume of trade from the Kalimati market in various years reveals a decreasing trend in the quantity traded (See Table 10).

**Table 10: Volume of Trade in Kalimati Market**

Year	Volume (MT)	Year	Volume (MT)
2000/01	5,784.27	2005/06	1,695.92
2001/02	4,019.19	2006/07	2,371.80
2002/03	4,526.87	2007/08	2,278.80
2003/04	3,193.77	2008/09	1,582.29
2004/05	1,656.50	2009/10	1,807.87

Source: Kalimati Fruits and Vegetable Development Board, 2011

Dhading and Makwanpur districts are big suppliers of fresh ginger to the Kalimati market. Ginger also arrives to this market from Gorkha, Nuwakot, Sunsari, Kavre, Jhapa, Chitwan and Bhaktapur in reasonable quantities. Chinese ginger is also traded in the Kalimati market- especially during the off-season.

Markets including Birtamod, Biratnagar, Dharan, Inaruwa, Itahari, Rajbiraj, Lahan, and Siraha had a total demand of around 4,000 MT in 2007/8. The arrival at Birtamod market alone is about 279 MT. Dharan has an arrival of 2,775 MT out of which only 30 percent is consumed domestically (CADP, 2008). The following table presents the major market hubs for ginger according to the Development Regions.

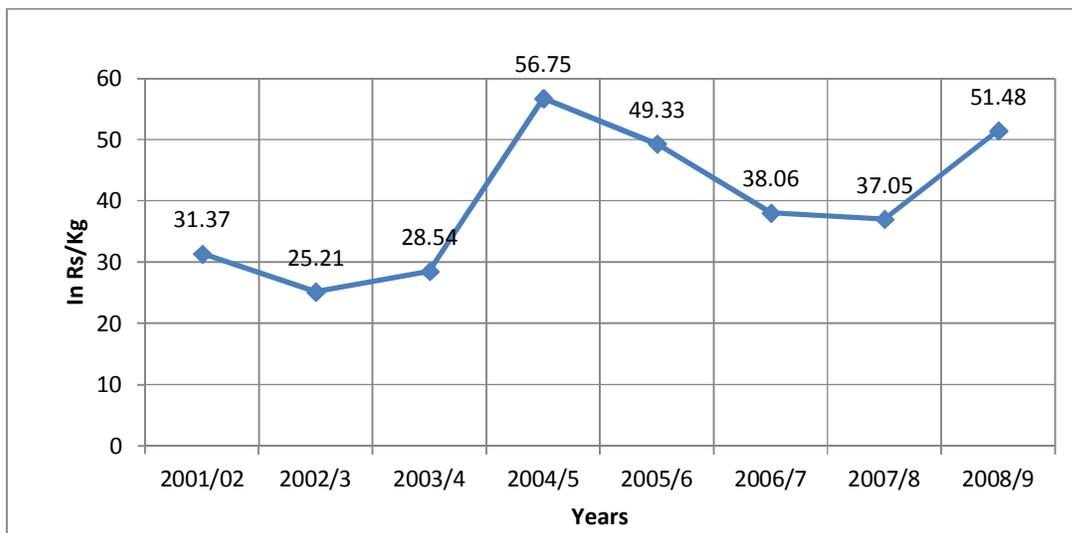
**Table 11: Development Region-wise Major Markets**

S N	Development Region	Major Markets
1	Eastern	Dhulabari, Dharan, Biratnagar
2	Central	Hetauda, Birgunj, Kathmandu
3	Western	Butwal, Bhairahawa
4	Mid-western	Tulsipur, Nepalgunj
5	Far-western	Dhangadhi, Mahendranagar

### **2.6.3 Price Trend**

In Nepal, the annual average price of ginger has been fluctuating. The price of ginger peaked during 2004/05 and later reached its lowest level in 2007/08. In recent years, the price has been increasing and reached 51.48 NPR per kg in 2008/09.

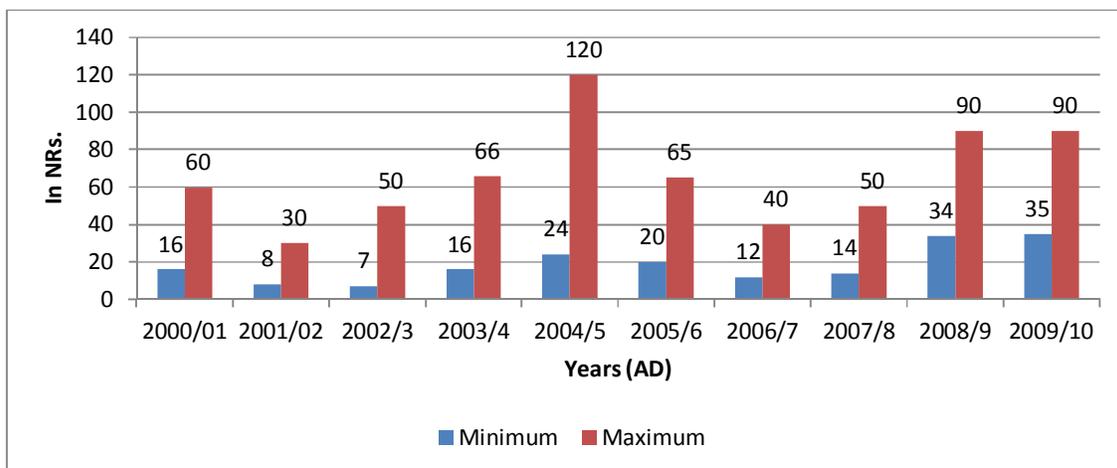
**Figure 4: National Annual Average Price Trend of Ginger**



Source: MOAC, 2009

The data from the Kalimati market also shows a similar trend of price over the years. The following figure illustrates the minimum and maximum price of fresh ginger in the Kalimati market from 2000/01 to 2009/10.

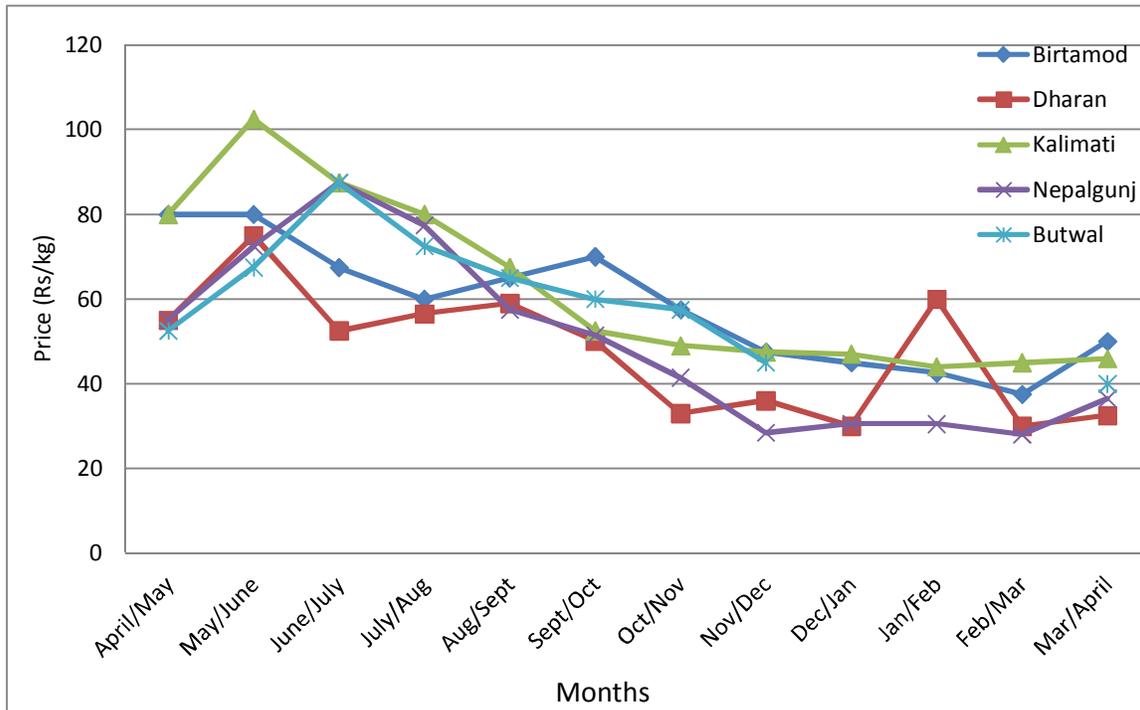
**Figure 5: Price Trend of Fresh Ginger in the Kalimati Market**



Source: Kalimati Market Development Board, 2011

The price of ginger also varies between months within a year. As with most agricultural products, the price of fresh ginger is high during the offseason (May to August) and low in the harvesting season (December to February). The monthly price trend of ginger in the major five wholesale markets of Nepal is illustrated in Figure 6.

**Figure 6: Monthly Wholesale Price Trend of Ginger in Various Markets of Nepal, 2010/11**



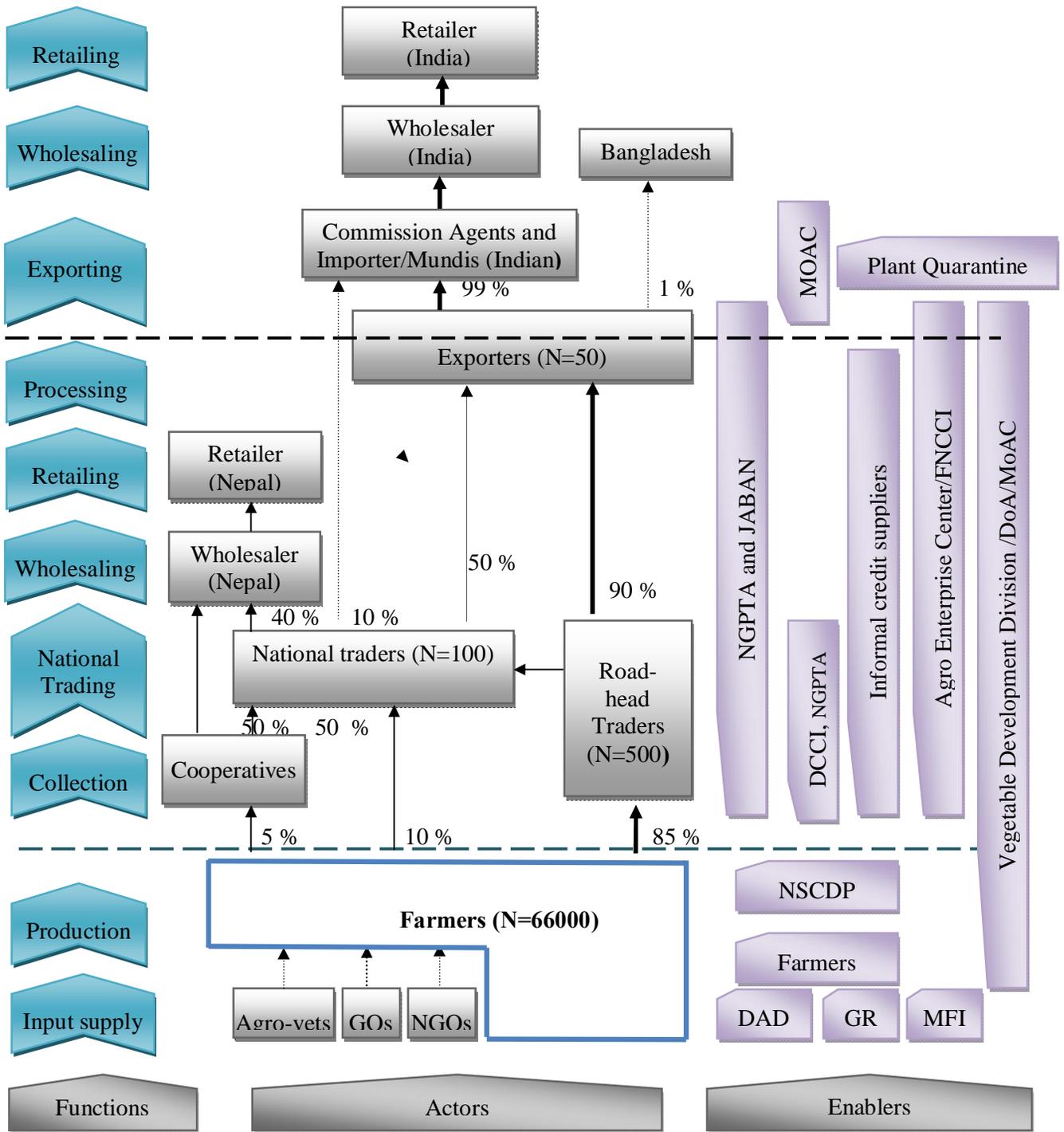
Seasonal variation in prices shows that if the farmers manage to stock their produce for four months, they will achieve significantly higher prices during the off-season.

### 3. VALUE CHAIN MAPPING

#### 3.1 Value Chain Map

The value chain map of ginger varies slightly from east to west. To make it more representative of the whole country, some adjustments were made. First, actors involved in this sector with their respective functions are listed and mapped accordingly. Secondly, the institutions that have been supporting this sector directly or indirectly are listed as enablers. The definition of each actor, flow of products within the chain and the relationship between various actors are presented in the following value chain maps of i) fresh ginger and ii) dried and processed ginger.

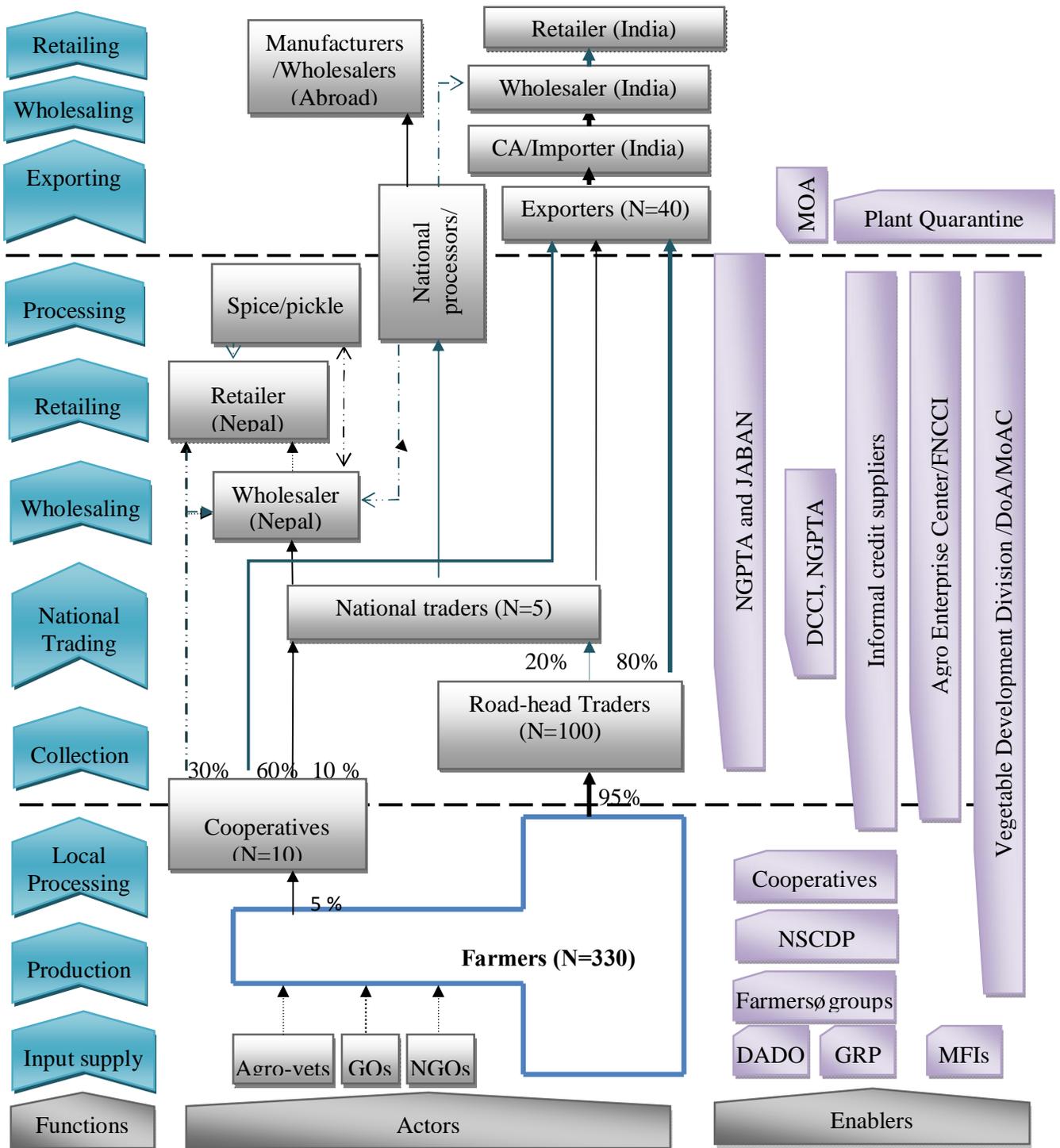
**Figure 7: Value Chain Map of Fresh Ginger<sup>1</sup>**



Source: Field Survey, 2011

<sup>1</sup> Indicative numbers are calculated based on interaction with stakeholders.

**Figure 8: Value Chain Map of Dried and Processed Ginger<sup>2</sup>**



Source: Field Survey, 2011

<sup>2</sup> Indicative numbers are calculated based on interaction with stakeholders.

### 3.2 Actors and Functions

The major functions involved in this sub-sector are input supply, production, and local processing at the farmers level; collection, domestic trading, and exporting at traders level; and processing and manufacturing for value addition at the processors/manufacturers level. Final processing and manufacturing is limited within Nepal. Some companies like Dabur Nepal, and Gorkha Ayurved have been using ginger as an ingredient in various products.

In a value chain, the actors include value chain operators and operational service providers together. Those functionaries who are directly involved in transactions or directly support the actors involved in transactions are the value chain actors. The actors are classified below:

**Input suppliers:** Input suppliers are those who provide inputs for the production and marketing of ginger. Seed, FYM and labor are the major inputs for ginger farming and are usually managed by farmers themselves. Pesticides, which are rarely used in ginger, are provided by agro-vets and chemical fertilizers are provided by fertilizer dealers existing in nearby market centers. Government agencies and non-governmental agencies provide technical knowledge and inputs to some extent to the farmers; however, the flow of information and inputs is not satisfactory. For traders, sacks and threads for packaging are the major inputs.

**Farmers:** In this study, the term 'farmer' refers to a person or his/her family members who have been growing and selling ginger and its products. Three types of farmers are engaged in ginger production: 1) small farmers with subsistence ginger production, 2) small commercial farmers characterized by small production volume but still targeting the market, and 3) large-scale commercial producers. The produce from small farmers generally does not enter the market, or enters in a very limited quantity, especially in the local retail market. Small and large-scale commercial farmers sell most of their produce to various market intermediaries. Farmers are also engaged in local processing of ginger, especially dried ginger (*Sutho*). There are 442 farmers' groups and 83 farmers' cooperative (excluding tea) in Ilam district (DADO, Ilam, 2065/66). Similarly, 333 farmers, including 97 related to ginger, and 38 cooperatives are reported in Surkhet district (DADO, Surkhet, 2065/66). Some cooperatives are engaged in processing and product development, as seen in Salyan, Surkhet (candy), and Palpa (dry slice).

**Local processors:** Ginger is locally processed into dry ginger (*Sutho*), candy, pickles, squash, and powder. *Sutho*, the main processed product at the local level, is mostly processed by the farmers themselves using traditional techniques and sold to either road-head traders or national traders. More than 75 percent of the production is traded as fresh, and the remaining is traded in dried form (ITC, 2007). Ginger candy, pickles, squash and other processed products are prepared by local cooperatives in very little quantity and sold locally or through local exhibitions. Some of the cooperatives sell their processed products (dry slice) to exporters in Kathmandu. Though the scope of value added in the through processing, both in increased price and though the creation of local employment, this is not a commercial practice in Nepal.

**Road-head traders:** Road-head traders are those traders located at road-heads who collect goods directly from farmers. Road-head traders are usually from the local community and conduct trading activity of various goods. Ginger is collected and stored until the truck load is collected. Sorting to some extent, such as removing the decayed and spoiled ginger, is done at

this level. Most of the ginger from road-head traders goes to exporters who primarily export to India, though some quantity goes to national traders. In Ilam, the major road-heads for ginger are Jeetpur, Mangalbare, Biblate, Ilam municipality, and Fikkal. In Salyan the major collection points are Ghodcharu, Srinagar, and Kapurkot. Similarly, Chhinchu, Ramghat, Birendranagar, Botechaur, and Sallibazar are the main collection points of Surkhet. In Palpa, road-head traders are mostly stationed in Dumre, Aaryabhajyang, Tahun, Batashe, and Bhairbathan.

**National Traders:** The traders who have been active in trade of ginger and its products at national market are called national traders. They get ginger both from cooperatives and road-head traders and sell the ginger to the national market, national level manufacturers, and exporters. Sometimes national traders provide ginger directly to Indian buyers. This is the case in the Nepalgunj region. They also sell ginger to the local markets.

**National processors/manufacturers:** The firms which are engaged in producing ginger products and other products using ginger as one of the ingredients are termed as national processors/manufacturers. There is evidence of ginger slices exported to Japan, US and EU markets from national level processors/manufacturers. The products using ginger as an ingredient, such as Ayurvedic medicine and food items, are sold locally to wholesalers or to wholesalers in India. Dabur Nepal, Gorkha Ayurved, Singh durbar Vaidyakhana, Male International, Coffee Plantec and local spice producers are some of the examples of national processors/manufactures.

**Exporters:** The firms which are engaged in export business of ginger and ginger products are regarded as exporters. The majority of the fresh dry ginger that is exported goes to India, while very small amount of ginger products are exported overseas. Some of the exporters also perform simple processing activities like washing, cleaning, and sorting. This is more common in the eastern region and rare in the west.

**Commission Agents:** Most of the ginger exported to India initially goes to Indian commission agents (CAs) who are based in major market hubs of India and border cities of Nepal. These commission agents usually charge 6 to 7 percent as commission on the total sales amount. Depending upon the relationship with the exporters, payment of 50 to 70 percent is made by the commission agent during delivery of the goods. The rest of the payment is made once the goods are sold completely by deducting the commission.

**Wholesalers:** Wholesalers are defined as those who sell the goods to retailers, hotels, industries, and institutional users. The minimum quantity sold by wholesalers in the Kalimati, and Kathmandu market is 5 kg at a time.

**Retailers:** Retailers are traders who purchase the goods from wholesalers and sell to end consumers. In each city, ginger is sold by vegetable shops, cycle vendors, and cart pullers.

### 3.3 End Markets

India, the major market for Nepalese ginger, is vast and dynamic. Most of the trading occurs in the northern part of India. Ginger from eastern Nepal mainly goes to Siliguri and Kolkata after washing at Naxalbari. Ginger from the mid- and far-western regions are mainly sent to Gorakhpur, Lucknow, Kanpur, Bareilly, and Banarash. Some ginger is also exported to Delhi,

Jaipur, and Amritsar markets. Characteristics of major end markets of Nepalese ginger are described below:

### **Delhi**

Ajatpur Mundi of Delhi is the biggest market in North India for ginger trade. This market normally prefers the fibreless variety. There are two types of practice in trade: direct buying or trading through commission agents. Cochin/Bangalore, Gujarat, Assam, and Orissa are the major suppliers of ginger to the Delhi market. Trading is mostly done through commission agents with the commission charge of about 7 percent. The quality of ginger is examined stepwise as size, form/shape, cleanliness, colour, fibre, and smell and/or taste. The best ranking gingers were big in size (15-20 cm long, 8-12 cm width, and 3-5 cm thick), grown in red or yellow soils, cleaned in water, and had a golden colour on the rhizome tips (Auetragul and Thapa, 2003). Ginger is packed in 60 kg gunny bags. Traders believe that gingers coming from Bangalore (Cochin), Dimapur, Tinsukia are better ones. In 21<sup>st</sup> July 2011, the average wholesale price of ginger in Delhi (Azadpur mundi) is recorded as IRs 30 per kg (Indicat Finance, 2011).

### **Naxalbari**

Naxalbari is the traditional market hub for Nepalese ginger. Most of the Nepalese ginger from the eastern region, especially Ilam, is exported to this market where washing is done. On an average, 2,500 to 3,000 truck loads per year of ginger is traded in Naxalbari. Kolkata is the major market for ginger from Naxalbari. Others markets are Gorakhpur, Lucknow, Delhi, and Amritsar. However, due to high competition with south Indian ginger, the trade in these latter cities has reduced in recent years. There are eight traders in Naxalbari conducting the washing process.

### **Siliguri**

The ginger for this market primarily comes from Sikkim, Assam, Darjeeling, and Nepal. Tentative ginger share from Nepal is 30 percent of the total trade of this market. An estimated ginger sale from Mallagari market, Siliguri is 400 MT per day during the main season (especially from October to December) and 120 MT per day during the offseason. Current selling price of ginger is IRs 25/kg for mother rhizome and IRs 18-20/kg for baby rhizome. Two traders from this market send mother rhizome ginger to Bangladesh in an average of 5-6 truck loads per day during harvesting season. Trading is mostly done through commission agents with the commission charge of about 6-7 percent.

### **Lucknow**

In this market, ginger comes from various parts of India and Nepal. Bangalore and Aurangabad (Maharashtra) are the major suppliers of fresh ginger, as their products are regarded as the best quality. Because ginger from Nepal is regarded as having relatively low quality, it is usually in greater demand when there is shortage of ginger from Bangalore type. This market prefers both types of ginger: Nashe and Boshe. Trading is done through commission agents with the commission charge of about 6-7 percent.

**Table 12: Price of Fresh Ginger in Lucknow Market**

Origin	Present price (IRs)	Last year's price (IRs)
Bangalore	28-30	35
Aurangabad	21-22	28
Nepal	17-18	20-22

Source: Interaction with buyers of Dobagga Mundi, Lucknow, June, 2011

## **Gorakhpur**

This is the main market for Nepalese ginger from the western development region. In this market, trading is mostly done through commission agents with the commission charge of about 7 percent. Both types (Nashe and Boshe) of ginger are traded in this market. South Indian ginger is the main competitor of Nepalese ginger in this market. In 21<sup>st</sup> July 2011, the average wholesale price of ginger in Gorakhpur is recorded If. 32.6 per kg (Indicat Finance, 2011).

### **3.4 Enablers and Facilitators**

In a value chain, the enabler includes all chain-specific actors providing regular support services or representing the common interest of the value chain actors. Functions at the enabler level include, for example, public research and technology development, agreement on professional standards, promotional services, joint marketing or advocacy, and other support service providers.

#### **Enablers in production and local processing functions**

For the farmers, District Agriculture Development Offices (DADOs), Nepal Agriculture Research Council (NARC), and National Spice development program under Vegetable Development Directorate are working to develop and disseminate different technologies in ginger farming and processing. Similarly, cooperatives and farmers' groups are facilitating the collective selling of ginger. Microfinance institutions and cooperatives assist farmers by providing loans during plantation time. Some NGOs are involved in providing technical and financial assistance to cooperatives for local processing of ginger and producing products like ginger candy, ginger squash, and pickles.

#### **Enablers in trading and export functions**

At the traders' level, Business Membership Organizations (BMOs) like Jadibuti Association of Nepal (JABAN), Nepal Ginger Producer and Traders Association (NGPTA), and District Chamber of Commerce and Industries (DCCI) are providing support to businesses. Agro Enterprise Centre (AEC) is working in the area of market development by providing market information, facilitation for market linkages, etc. Agriculture Information and Communication Centre, Directorate of Agribusiness Promotion and Marketing Development, National Plant Quarantine Program, National Agribusiness Promotion Program, and Agri-Commodity Export Promotion Program also facilitate in trading activities by providing technology and establishing collection center and export related supports. Similarly, Trade and Export Promotion Centre assists in export of goods and maintains the export data. At a higher level, the Ministry of Agriculture and Cooperative (MOAC), Department of Agriculture (DOA), Ministry of Commerce and Supplies, Federation of Nepalese Chamber of Commerce and Industries (FNCCI) and Ministry of Commerce support business through lobbying, policy formulation, and bilateral trade agreements. The details on each enablers and facilitators are described in following headings:

##### **3.4.1 Public Actors**

**Department of Agriculture:** District Agriculture Development Office (DADO) operates under Department of Agriculture of the Ministry of Agriculture and Cooperative and is functional in all 75 districts. DADOs are at the center of all activities related to agriculture in associated districts. In ginger, DADOs are implementing various activities on promotion mainly focussing at the production level. Group formation, technical advice to growers, technology demonstrations, and trainings are some of their activities. Due to budgetary

constraints, DADOs are unable to provide the level of support to farmers previously expected.

**Ginger and Cardamom development section/Vegetable Development Directorate (VDD):** The objective of this agency is to promote spices by improving production and productivity, promoting export of spices, substituting spice imports, and increasing farmers' income. Collection and selection of varieties, technology generation, production and distribution of quality planting materials, and providing training and technical know-how to the farmers are some of the key activities of this section.

**Spice Development Centre, Panchkhal:** In relation to ginger, the objectives of this centre are the selection and production of high yielding ginger varieties. However, access to this service is currently lacking.

**National Spices Development Program:** This is the national program of spice crops with the mandate to promote the spice sector, including ginger. This program has very limited field programs.

**Nepal Agricultural Research Council (NARC):** NARC is responsible for agriculture research in Nepal. National Ginger Research Program, situated in Kapurkot, Salyan, carries out research explicitly in ginger production, processing, and storage technologies. It has recommended one ginger variety (Kapurkot- One) and also produces breeders' seed.

**Plant Protection Directorate:** The PPD is designed as the government agency responsible for the program implementation in the Plant Protection Sector and is responsible for three national level programs: the office of Registrar of Pesticides, the National Plant Quarantine Program, and Regional Plant Protection Laboratories. Regarding the export of ginger, the plant quarantine offices work on legal formalities of export.

**Nepal Agriculture Research and Development Fund (NARDEF):** NARDEF funds various research and development projects conducted by government extension offices, NARC, and different NGOs.

**Trade and Export Promotion Centre (TEPC):** The Government of Nepal established TEPC, a national trade promotion organization, in November 2006, with the objective of promoting foreign trade, particularly export trade.

### ***3.4.2 Government Projects***

**Project for Agricultural Commercialization and Trade (PACT):** The development objective of the PACT for Nepal is to improve the competitiveness of smallholder farmers and the agribusiness sector in selected commodity value chains in 25 districts (Bara, Chitwan, Sarlahi, Dhanusha, Kavre, Parsa, Rautahat, Mahottari, Dhading, Kathmandu, Lalitpur, Rupandehi, Nawalparasi, Syangya, Palpa, Kaski, Tanahu, Kapilvastu, Lamjung, Dang, Banke, Bardiya, Surkhet, Kailali, and Kanchanpur). PACT covers these components: agriculture and rural business development; sanitary and phyto-sanitary facilities; food quality management; and project management, monitoring and evaluation.

**Commercial Agriculture Development Project (CADP):** CADP has commenced in operations from 2007 with the objective of reducing poverty in 11 districts (Taplejung,

Dhankuta, Ilam, Panchthar, Tehrathum, Udaypur, Jhapa, Morang, Saptari, Siraha, and Sunsari) in the eastern development region of Nepal. The project aims to accelerate the process of agricultural commercialization in the eastern development region by building on earlier project initiatives and responding to the needs of stakeholders by strengthening linkages and ensuring fair benefits to disadvantaged communities and women.

**High Value Agriculture Project (HVAP):** The HVAP project formally launched this year, concentrating its activities in the mid-western development region. The project primarily focuses on Inclusive Business (IB) approach whereby it seeks to mitigate poverty by incorporating lower income communities within the supply chain of larger and more established companies. Ginger is one of the priority sub sectors of this project. The project is implemented in 10 Midwestern districts, namely Surkhet, Salyan, Jajarkot, Dailekh, Jumla, Kalikot, Dolpa, Humla, Mugu, and Achham. Sixty-six thousand households from 114 Village Development Committees (VDCs) will benefit from the project.

**WTO-STDF:** Ministry of Commerce and Supplies, Ministry of Agriculture and Cooperatives, Food and Agriculture Organization Office - Nepal, Agro Enterprise Centre, and the Federation of Nepalese Chamber of Commerce and Industry are jointly launching a project named "Enhancing Sanitary and Phyto-sanitary capacity in Nepalese ginger exports through Public Private Partnerships." This project will be launched in eastern Nepal in the local partnership of the Nepal Ginger Producers and Traders Association (NGPTA).

### *3.4.3 Non-government Organizations and Projects*

**ANSAB:** Established in 1992, ANSAB (Asia Network for Sustainable Agriculture and Bioresources) is a civil society organization working in South Asia with headquarters in Kathmandu, Nepal. It is committed to biodiversity conservation and economic development through community-based, enterprise-oriented solutions. Since 2000, ANSAB has been providing market information of ginger collecting from various major market centres of Nepal and India. Apart from that, ANSAB provides various supports to farmers, processors, exporters in production, business planning, processing, trading, and export of the products.

**AEC/FNCCI:** FNCCI created the Agro Enterprise Center (AEC) as an autonomous unit in September 1991. It has its own optimal guidelines and policies, and program approval is given by a separate Board comprising of FNCCI executive members, representative from District Chambers of Commerce and Industry, Commodity Associations, and permanent invitees from various related government agencies or who are donors. The mission of this center 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.

**NGPTA:** Nepal Ginger Producers and Traders Association (NGPTA), established in 2005, includes 36 farmer groups and 27 traders (mostly from the eastern region) and plans to extend branches in 22 districts of Nepal. NGPTA works mostly in facilitation activities for the trade of ginger.

**JABAN:** Jadibuti Association of Nepal (JABAN), established in 1998 and located in Nepalgunj, is an association of traders and processors. As a supporting organization to NTFP, JABAN provides market information regularly. Recently, JABAN established a laboratory facility with a Gas Chromatography (GC) machine with the support of the Government of Nepal. JABAN is mostly focussed in the western part of the country.

**MEDEP:** The Micro-Enterprise Development Programme (MEDEP), started in 1998, is a multi-donor funded poverty reduction initiative implemented by the Government of Nepal, with the technical and financial support of UNDP. The program helps improve the livelihood of the poor and excluded communities by creating various income generating opportunities through skill development trainings, and provides support to establish small business enterprises. Specifically in the ginger sector, MEDEP provides training to micro-entrepreneurs for producing and marketing various ginger products like candy, squash, powder, pickle etc.

**Mercy Corps:** Mercy Corps works in Nepal to help communities achieve greater prosperity, decrease social marginalization, and improve environmental sustainability. While integrating cross-cutting themes such as youth engagement, community participation, market strengthening, and social inclusion, Mercy Corps projects aim to strengthen local agricultural economies and reduce risk of disaster. Mercy Corps designs its projects with the recognition that facilitating private, public, and civic sector partnerships is a key aspect of sustainability. Regarding ginger, it supports farmers and traders in the eastern development region of Nepal.

### 3.5 Policy Framework

Trade policy (2009) has highly prioritized ginger and categorized it under the high-potential export items group. It also planned programs for the commercialization of ginger farming. Under this, it will provide capital, technology, and seeds in cooperation with the concerned agency in the production pocket, ensuring markets for ginger, certification systems and promotional programs, trainings, and assistance in processing and transportation.

The government of Nepal launched Nepal Trade Integration Strategy (NTIS) on June 24, 2010 with the objectives of strengthening trade negotiations, technical capacity of domestic non-tariff barriers and other business institutions, export capacity, and GON's capacity to coordinate and manage Trade-Related Technical Assistance and Aid for Trade. The NTIS plans to use ginger, along with tea, lentils, and cardamom, to build a competitive export supply capacity by Good Agriculture Practices (GAPs), Integrated Pest Management (IPM) and Quality Management System (QMS) along with Third Party Certification (TPC) programs. For this, it will launch internationally acceptable traceability systems based on GAP certification run through TPC, for which it has suggested policy and regulatory developments/reforms. The possible timeframe suggested is 2 years. The report also claims to introduce a new improved variety by the Ginger Research Centre/NARC, suitable for Nepal's soil and climate. The strategy paper has also prioritized value addition activities of ginger as high and proposed various actions to achieve it.

Nepal enjoys free access to India's market for ginger trade. However, it faces restrictive non-tariff measures. The exporters who export ginger to India are facing problems of unofficial payment and are also hurt by the unstable Indian government policy regarding agriculture commodity trade. Major Indian markets such as Gorakhpur, Lucknow, and Siliguri, create export problems by imposing import ban time in the name of PFA and quarantine, particularly when they have their own ample production supply (Ghimire, 2009).

### 3.6 Vertical and Horizontal Linkages

**Vertical Linkages:** Vertical linkages can be attained through cooperation between the different players or firms, and they have the benefits of transferring skills from one player to another, as well as reducing transactions costs. Considering the ginger value chain, vertical linkages exist between cooperatives and growers in some pockets. In some cases, buyers are providing credit while purchasing seeds. In the case of ginger candy, Himalayan Naturals has provided some technical skills and buyback guarantee of the products from one cooperative of Ramghat, Surkhet. There is good relationship seen between exporters of dry ginger and some cooperatives of Palpa also. However, when looked nationally, there is still a very poor vertical linkage between producers and traders.

**Horizontal linkages:** This is the relationship among different players operating at the same level of a value chain. It can be seen at the producers' level where there are various ginger production groups in production pockets. Group members organize meetings periodically and share information about the status of production, input procurements, and output marketing. Nevertheless, there is little evidence of collective marketing practice in Nepal. As a result, they do not benefit from horizontal linkages that can help them generate economies of scale, which can improve their competitiveness and bargaining power. At the traders' level, they are more united BMOs like JABAN (which fixes the price of products in weekly basis) and NGPTA.

### 3.7 Value Chain Governance

The trading of ginger is mainly governed by Indian importers, as about 99 percent of the total product is exported to India (ITC, 2010). There is greater complaint from traders towards farmers for supplying unclean and ungraded product.

In most cases, the business relations between the various operational actors are of free market exchange. The uncoordinated transactions (short-term spot market relationships) are prominent among them. Contract farming is also not seen in ginger. There have been a few instances where the Indian buyers have offered the national buyers some advance payment, which is transferred down to local traders. However, there is rare incidence of advance payment provision to the producers (Ghimire, 2009). The transaction pattern in export market is mainly on commission basis, where the commission agents charge 6-7 percent as commission.

Due to the lack of a proper market information system and minimal bargaining power, farmers are forced to sell their product at the price offered by traders. Traders usually refer to Indian markets for price fixation. In some cases, there are conflicts among the traders and exporters regarding payment and failure to keep their commitment.

Overall, the governance of the ginger value chain is buyer-driven with minimum trust between various actors. Traders are always complaining that the farmers are not providing quality product while farmers are blaming the traders for offering low prices.

## 4. COMPETITIVENESS ANALYSIS

Competitive analysis examines ginger commercialization through export promotion and diversification of existing industry levels in order to determine the nature of the challenges the sub sector faces. This analysis identifies strengths, weakness, opportunities, and threats where strengths and weaknesses refer to the internal factors governing the ginger sub sector, while opportunities and threats encompasses the external factors influencing the business environment.

**Table 13: SWOT Analysis of Ginger Sub-sector**

Strengths	Weakness
<p><b>Production</b></p> <ul style="list-style-type: none"> <li>• Fourth largest producer globally</li> <li>• Climatic suitability and traditionally cultivated</li> <li>• Possibility of inter cropping with maize, bean, and vegetables</li> <li>• Opportunity for organic production</li> <li>• Ginger storing practices adapted by farmers in the pit is easy and affordable</li> <li>• Rural communities attracted by prospect of ginger farming and marketing</li> <li>• Practice of mother rhizome harvesting in eastern part of the country</li> </ul> <p><b>Processing</b></p> <ul style="list-style-type: none"> <li>• Rich in oleoresin and oil</li> <li>• Fair demand of processed products within Nepal</li> <li>• Good demand of dry ginger in international market</li> </ul> <p><b>Marketing</b></p> <ul style="list-style-type: none"> <li>• Well-established value chain and availability traders at different levels.</li> <li>• Farmers have established cooperative societies to better market their crop</li> <li>• Nepalese ginger preferred by consumers in domestic and export markets.</li> <li>• Nepalese ginger well suited for preparing Chutney ó a favorite food in northern India.</li> </ul> <p><b>Enabling environment (Policy and Institutions)</b></p> <ul style="list-style-type: none"> <li>• One of the priority products of NTIS</li> <li>• Availability of BMOs like NGPTA, AEC/FNCCI</li> <li>• Government focus on cooperative approach</li> <li>• Availability of research and extension services</li> </ul>	<p><b>Production</b></p> <ul style="list-style-type: none"> <li>• Lack of proper knowledge and techniques in production, grading, packaging and post harvest handling</li> <li>• No permanent solution to the problems of rhizome rot disease</li> <li>• High cost of inputs (fertilizer, pesticides) and no subsidy from government</li> <li>• Loss of up to 30 percent in the field and in storage due to rhizome rot disease</li> </ul> <p><b>Processing</b></p> <ul style="list-style-type: none"> <li>• Traditionally processed Sutho, below quality requirement of manufacturers of national level (Dabur Nepal) and abroad</li> <li>• Ginger processing technology unknown by most of the farmers</li> <li>• Lack of washing facilities</li> </ul> <p><b>Marketing</b></p> <ul style="list-style-type: none"> <li>• Lack of collective marketing practices</li> <li>• Minimum collection and storage facilities</li> <li>• Lack of reliable market information</li> <li>• Intermittent listing of ginger as a restricted item by India</li> </ul> <p><b>Enabling environment (Policy and Institutions)</b></p> <ul style="list-style-type: none"> <li>• Insufficient infrastructure ó roads, irrigation, inputs, credit, quality seeds</li> <li>• Porter transport cost from farm to road head high due to labor shortage</li> <li>• Insufficient ginger marketing awareness and knowledge</li> </ul>

Opportunities	Threats
<p><b>Production</b></p> <ul style="list-style-type: none"> <li>• Opportunity to increase area and productivity</li> <li>• Availability of quality seed production</li> <li>• Availability of private sector service providers (Agrovets)</li> <li>• Possibility to harvest mother rhizome throughout the country</li> <li>• Opportunity to produce ginger organically- Nepali ginger branded and promoted as organic and grown traditionally will command a premium price in international markets</li> </ul> <p><b>Processing</b></p> <ul style="list-style-type: none"> <li>• Increasing use of crop by Ayurveda pharmaceutical industries in Nepal and India</li> <li>• High potential of product diversification</li> <li>• Processing technologies available in India</li> <li>• Washing technology is available in India</li> </ul> <p><b>Marketing</b></p> <ul style="list-style-type: none"> <li>• Large scale demand for Nepal produced ginger in Northern India ó scope to further enhance supply</li> <li>• Attractive price in Bangladesh, Pakistan, Middle East and East Asian countries</li> </ul> <p><b>Enabling environment (Policy and Institutions)</b></p> <ul style="list-style-type: none"> <li>• Government has defined ginger as a high value crop and policies are supportive</li> <li>• DFTQC has technical capacity to provide technical support on ginger processing</li> <li>• The DoA has set up a Ginger and Spice Development Program technically equipped to provide services to the farmers</li> <li>• NGO's providing farmer support</li> <li>• DoA is providing marketing information services to the producers/traders.</li> <li>• Provision of incentives in national budget for processor/exporter to minimize cost</li> <li>• Government highlighted Value chain aspect of commercialization in Three-years Interim Plan (2010-13)</li> <li>• Can enjoy opportunity of provision for preferential trading and subsidies to LDCs given by WTO and SAPTA</li> <li>• High potential for reducing poverty and employment creation through value chain</li> </ul>	<p><b>Production</b></p> <ul style="list-style-type: none"> <li>• Famers of production pockets stopped to produce due to infestation of rhizome rot disease</li> </ul> <p><b>Processing</b></p> <ul style="list-style-type: none"> <li>• Availability of cheap processed products supplied by India in Nepalese market</li> <li>• Imported equipment for processing</li> </ul> <p><b>Marketing</b></p> <ul style="list-style-type: none"> <li>• Very dramatic price fluctuation</li> <li>• India has been imposing non tariff barriers in the name of adulteration and food safety</li> <li>• Indian government's discouragement of import from Nepal whenever Indian ginger production is high</li> <li>• More efficient and enhanced production expected from the hilly areas of India</li> <li>• More efficient and enhanced production expected from Tibet</li> <li>• Ginger from Cochin, Bangalore, Assam, Guwahati and Uttarakhanda are major competitors of Nepali ginger in Indian markets</li> <li>• Bangalore ginger is considered to have good quality with proportionate and big fingers.</li> <li>• Cochin ginger have high starch content and are assumed of good quality</li> <li>• In global market, Chinese ginger is the major competitor for Nepali ginger, which is attractive in appearance</li> </ul> <p><b>Enabling environment (Policy and Institutions)</b></p> <ul style="list-style-type: none"> <li>• Costly power sources</li> <li>• Poor quality of agricultural roads</li> </ul>

Source: Field study and the review of previous studies

## 5. CONSTRAINTS AND OPPORTUNITIES

### 5.1 Constraints

#### 5.1.1 Input Supply

**Quality seeds:** Seed is the major input component in ginger cultivation, as it incurs around half of the production cost. Most of the farmers are cultivating local varieties by using traditionally grown rhizomes. During this study, most of the farmers were asking about quality seed (high productivity, disease free, and fibreless) suppliers and their locations. Support from DADO and other projects for quality seed supply is infrequent, and there is a lack of a reliable and well-functioning seed supply chain.

**Plant protection measures:** Although there is high infestation of rhizome rot disease in most of the production pockets, neither agro-vets nor farmers know appropriate plant protection measures to manage it. Pesticides found at the local level are ineffective. Though agro-vets are an important actor of this value chain, they are neither trained on plant protection measures of ginger nor do they have reliable information on it.

#### 5.1.2 Production

**Rhizome rot disease:** Rhizome rot is a complex problem caused by multiple factors. The disease is spread by the use of infected seed pieces from the previous crop. This disease is found in almost all ginger growing areas of Nepal. Most farmers of Ramghat, Surkhet ó formerly a major production pocket ó have given up growing ginger because of this disease.

**Low productivity:** Though Nepal is in a good position in terms of national average productivity due to a high seed rate (4 to 6 MT/ha against the recommended rate of 1.6 to 2.4 MT/ha), the yield variation is very high. Growing areas like Malneta, Salyan have very high yield percentage, up to 30 MT/ha, which is more than double as compared to the average productivity of Salyan district itself. Likewise, western and central development regions have low productivity as compared to eastern and far-western development regions.

**Cultivation practices:** Ginger farming in Nepal is predominantly traditional: rain fed and cultivated in marginal, sloped land with conventional practices. This results in high per unit cost of production and low returns. Although there is research in crop production and plant protection measures, farmers are slow to adopt these measures.

**Knowledge on seed production and storage:** Ginger producers are not adopting recommended seed production practices. Normally, farmers select seed from the main crop they produce and keep it for the next season in pit stores.

**Practice on post-harvest handling:** In order to make ginger competitive, post-harvest handling practices like cleaning, sorting, grading, and packaging are regarded as pre-requisites. Even though these activities are simple and executable at farmers' level, these practices are lacking. Moreover, there is no ginger washing facility in Nepal. Washing is only available in the eastern border city Naxalbari, India. The washed ginger is more competitive than non-washed.

**Collective marketing practices and low bargaining power:** Collective bargaining increases the power of producers during procurement of inputs as well as when selling the goods. It also helps to increase the volume of ginger during each transaction and decreases the

transaction and transportation costs. However, most of the farmers do ginger marketing individually despite the existence of formal and informal groups. Apart from that, farmers are devoid of reliable and timely market information. As such, they are losing the bargaining power with their respective buyers.

**Minimum support from GOs and NGOs:** Producers are not satisfied with the research and extension services provided by government agencies. Some of the projects implemented by government and development agencies are short lived and could not impact significantly at producer levels.

### *5.1.3 Processing*

**Lack of cleaning/washing facility:** From the fresh consumption market perspective, the quality of Nepali ginger is considered inferior to Indian and Chinese ginger due to its high fibre contents and dirty appearance. Due to the lack of washing facilities, Nepali ginger is not cleaned properly and is unattractive, resulting in a lower market price.

**Inefficient processing technology:** Sutho (dry ginger) is the major processed product made out of fresh ginger. Nepalese farmers make Sutho by using their traditional skills, which is labor intensive and tedious. Lack of ginger peelers and the mechanical dryers are the major post-harvest problem. Ginger Research Program (GRP) under Nepal Agricultural Research Council (NARC) at Kapurkot, Salyan is responsible for addressing the problems on ginger. Hence, the GRP, in association with Agricultural Engineering Division (AED) under NARC, has attempted to develop a ginger peeler and a dryer under Hill Agriculture Research Project. However, the result was not encouraging<sup>3</sup>. Other products like candy, powder, and squash are also lacking the appropriate technology to maintain the shelf life of the products and increase efficiency of production.

Regarding processing technology, the ginger slicing and drying technology is one of the constraints for the exporters at Kathmandu. Slicing and solar drying is labor intensive, and as such, not suitable for mass processing, which results in high per unit cost of production of sliced ginger (NPRs. 250 / kg<sup>4</sup> of dried slice) making it less competitive in the global market.

### *5.1.4 Marketing*

**Low quality of product:** Rhizome with low fibre content, large size, equal fingers, and a clean and waxy appearance are considered the features of high quality ginger in international markets. Most of the produce of Nepal is high in fibre contents and not proportionate in shape. And because there is limited opportunity and practice of proper cleaning, sorting, and grading of ginger, Nepalese ginger is less competitive in international markets compared to Indian and Chinese ginger.

**Multiple taxes and unofficial payments during transportation:** As per the Local Self-Governance act (1999), there is a provision for raising taxes by the DDC from where the ginger originated. However, various DDC along the transportation chain are charging taxes illegally. Similarly, many political groups are charging money unofficially during transportation to export.

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<sup>3</sup> [http://unapcaem.org/Activities\\_percent20Files/A20/8\\_percent20Nepal.pdf](http://unapcaem.org/Activities_percent20Files/A20/8_percent20Nepal.pdf)

<sup>4</sup> According to Rameshwor Panta, Male International

**Storage and collection centers:** Ginger is a seasonal crop and perishable in nature. Due to the lack of proper storage facilities, traders are forced to sell the product immediately after collection from farmers. Similarly, there are limited collection centers at production sites and hence difficulty in handling the product properly.

**High and uneven custom clearance charge:** The actual formal cost of custom clearance per truck is NPRs. 678 and NPRs. 3,200 in Nepali and Indian custom respectively but exporters are paying NPRs. 4,500 to NPRs. 25,000 per truck from various custom points. Exporters who use Bhairahawa custom are paying highest cost while the cost of custom clearance is lowest in Kakarbhitta.

**Access to limited market centers:** There are only a few cases of ginger export beyond India. Bangladesh and Pakistan are the promising export destination countries in South Asia other than India. However, to export ginger in those countries, the ginger must pass through India, which has been creating many barriers during export. In addition, Japan, EU, and US markets have specific requirements which are not easy to meet.

**Difficult to get PFA test certificate:** A food safety analytical report, which is issued by Prevention of Food Adulteration (PFA) Authority, is required to export ginger in India. The certifying agencies are distantly located in state capitals like Lucknow, Kolkata so that it is difficult to get the certificate on time. During study, it was noted that it takes about 2-3 days from sample collection to receiving the pass.

**Limited access to finance:** Due to the shortage of operational capital during the ginger harvesting season, local traders need to get advance payments from their respective buyers. Because of this, traders are forced to sell their products as per the price offered by their respective buyers. There are always difficulties attaining loans from commercial banks for ginger trading.

**Other constraints:** Minimum trust in buyers offered price, irregular supply by farmers, labor scarcity, and volatile market price are other constraints faced by traders.

## 5.2 Opportunities

### 5.2.1 Input Supply

**Good demand of quality inputs:** There is good demand of quality seeds and effective plant protection measures from ginger growers. There is a clear opportunity to develop a seed supply chain that can benefit this sector. Malneta, Hetauda region, and some VDCs of Palpa are the potential quality seed producing areas to develop as a seed pocket and link to the producers of ginger.

### 5.2.2 Production

**Improved post-harvest practices:** Cleaning, sorting, and grading are the basic post-harvest handling practices which can be easily adopted at farmers level. These simple practices can add value to the product resulting in higher revenues.

**High scope to increase area and productivity:** All the mid-hill districts of Nepal are suitable for ginger cultivation, and therefore there is great potential to increase the area of cultivation. Similarly, productivity can be significantly increased by introducing high

yielding varieties and improved cultivation practices like use of quality seeds, proper mulching, weeding, and disease management.

**Mother rhizome harvesting:** There is the practice of mother rhizome harvesting in eastern part of the country which is not practiced by the farmers of central and western Nepal. The harvesting of mother rhizome can provide significant return in cost of production as it is sold in the offseason.

### *5.2.3 Processing*

**Product diversification:** This study objectively looks at developing value added products in different value chain points of ginger for better market penetration and economic gain of the primary producers. It is found that departmental stores in Kathmandu are importing ginger products like paste, powder, slices mixed with vinegar, etc. from India and Thailand. Apart from that there is also high demand of powder, pickles, and dry ginger. If Nepalese processors can make those products, they will easily access the market, which is more profitable than selling it fresh.

**Availability of other projects:** There is availability of program and projects like CADP, PACT, HVAP, Mercy Corps, SNV, and WTO-STDF which are focussing their activities in the ginger sector. Greater collaboration would result in meaningful, easy access to processing activities at farmers' and traders' level.

### *5.2.4 Marketing*

**Value addition through cleaning, grading & sorting:** To make the products competitive in regional markets, simple activities like cleaning, grading, sorting, and proper packaging can be done. These activities would increase the shelf life of the products and help generate premium price in the markets.

**Opportunity for import substitution:** As Nepal is exporting fresh ginger at a low price and importing value added products from regional and international market at a high price, there is an opportunity to substitute the imports. For example, Nepal is also importing fresh ginger from China, which can be substituted by developing storage facilities.

**Market diversification:** Most of the ginger from Nepal is exported to India. ITC data shows that about 99 percent of ginger was exported to India in 2009, however, per unit price of ginger in Indian market is low compared to other South Asia, East Asian and Middle East countries. According to ITC 2010, the exported unit value (USD/MT) for Nepalese ginger in India is USD 205. In this context, the market diversification can be a good opportunity for Nepalese ginger. South Asian countries like Pakistan and Bangladesh are the 3<sup>rd</sup> and 5<sup>th</sup> biggest importers of the ginger worldwide and have imported ginger with the unit value of USD 878 and USD 1,556 respectively. Similarly, Arabian countries, Japan, Malaysia, USA, UK and Netherlands can be the potential markets for the export of Nepali ginger, as they have good demand of ginger with high unit value.

**Employment for women and poor in primary processing center:** In the eastern region, the ginger from Nepal is washed in Naxalbari, a bordering town in India. No such processing centre is reported in the western region. According to an exporter in Naxalbari, a single processing center can provide employment to approx 50 people for 10 months. Most of the workers in such processing centers are found to be women or the poor. Establishment of such

processing centers within Nepal would generate employment opportunities for thousands of women and poor.

**Inward flow of foreign currency:** Nepal, being the fourth largest producer of ginger, also enjoys being one of the biggest exporters. The export of ginger has contributed 0.59 percent in the total export in FY 2008/9 and has become a source of foreign currency earning. To date, most of the export is to India; however, Nepalese ginger can also penetrate markets in neighbouring countries, as well as abroad, where the unit value is quite higher. Even trading with India, the Nepalese ginger can achieve increased unit price by becoming competitive with Indian and Chinese gingers with further processing and quality improvement.

## 6. STRATEGIC AREAS FOR INTERVENTION

The strategic interventions for this project are divided as short term and long term. The effects of the short-term strategies will be seen as outcomes of the NEAT project while the interventions in long-term strategy will be helpful to the ginger sector of Nepal, with outcomes seen beyond the project period.

### 6.1 Short-term Interventions

#### 6.1.1 Production

**Facilitate quality production and post-harvest handling:** Improved cultivation practices with superior seeds, timely plantation, and seed treatment can help to increase the productivity of ginger. The points to be considered for successful cultivation of ginger are listed in Annex 10. Similarly, simple processing activities like cleaning, sorting and grading can generate additional income to the producers. Therefore producers should be trained on quality production and post-harvest handling practices in order to gain additional benefits.

**Assist the Government of Nepal to declare seed production pockets:** Malneta of Salyan, Harna Madi of Makawanpur, and Khanigoun of Palpa have been producing good quality ginger. If these pockets, including some others potential areas, are declared as ginger seed production pockets by the Government of Nepal, farmers from other places will also be benefitted. In this process, NEAT Activity can support DADOs of the project districts to declare seed production pockets and advertise them through government and private sector channels. Respective DADOs can support the project by collecting the demand for quality seed and linking them with the seed producers.

**Introduce mother rhizome harvesting practice in the western part of the country:** With the introduction of mother rhizome harvesting practices, farmers of the western part of the country can get additional benefit by selling mother rhizome during the off-season. However, proper care should be taken during mother rhizome harvesting, otherwise disease infestation may increase.

**Entrepreneurship development and business planning:** Due to the lack of entrepreneurial skills and business knowledge, farmers become frustrated when the price falls in a particular year. Farmers usually refer to the price of the previous year as a benchmark and expect the same price when they cultivate. Therefore, there is a need to educate farmers and FBOs on business planning and provide entrepreneurship development training. In this process, NEAT activity can train the FBOs representatives as local resource persons (LRPs), who can then train the small farmers. For this purpose, recently developed toolkit modules of ANSAB - business planning, entrepreneurship development, and LRP development - can be used.

**Conduct study tour of the farmers:** Farmers of Assam, Bangalore and Cochin of India and China are well equipped with improved knowledge of ginger cultivation. As a result, the farmers from these areas to produce better quality ginger. Therefore, there is a need to arrange a study tour of leader farmers to the production pockets of India and China.

**Develop linkage with MFIs:** Farmers need external finance, primarily during seed procurement. Therefore, it is recommended to develop linkages between micro-finance institutions of the project pockets and production groups.

### *6.1.2 Processing*

**Support to establish rhizome washing facilities:** Since Nepali ginger is not washed before marketing, it looks dirty and is less competitive in the markets. Constructing a simple washing facility, such as the one in Naxalbari India, can increase the competitiveness of the Nepali ginger. The washing facilities can be built in Butwal and Nepalgunj regions. In Butwal region, a lead trader, Mr. Ram P. Pokharel, and the ginger processing cooperative of Palpa are interested in forming a partnership for building a ginger washing facility. In Nepalgunj region, Duduwakhla is one of the potential sites on which to build ginger washing facility, since this is the central point of far-west and mid-west regions of Nepal for ginger. For local partnership, JABAN is interested in forming a partnership with NEAT Activity. This facility will not only add value to the product but also create employment at local the level, especially for women and disadvantaged groups.

**Introduce improved technology on Sutho making:** During this study, the price of Cochin, a type of Sutho in Lucknow, was IRs 260/kg, while the cost of Nepali Sutho was from IRs 136 to 190/kg depending upon the quality. The Cochin type is attractive in appearance, with some skins, while the Nepali type is without skin and blackish in colour. If the technology of the Cochin area is introduced in Nepal, farmers will get significantly higher prices.

**Introduce efficient slicing and drying technology:** During our study, members of the ginger cooperative of Palpa and members of an export company, Male International, expressed that the present cost of processing is very high due to inefficient slicing and drying technology. Ginger cooperative of Palpa also has the similar experience on slicing and drying. Male International mentioned that the Nepali sliced ginger is not competitive in international markets due to the high cost of processing, despite its fair demand. At present, peeling and slicing of ginger is done manually. The solar dryer is rarely used and the dryers are not designed for commercial purpose. This has resulted in increased processing cost. Exporters are looking for the mechanical technology of slicing and drying in large scale, which reduces the unit cost of production. Therefore, it is recommended to NEAT Activity to provide ginger slicing and drying technology to the entrepreneurs who are mostly involved in processing and export.

**Support diversification of products:** Product diversification can be targeted both for national and international markets. Since departmental stores of Kathmandu are importing ginger products, it is necessary to transfer the value addition technology at local level and link them to departmental stores, groceries, and retailers. Himalayan Naturals, a Kathmandu-based community-private partnership company, has recently introduced ginger candy in the Kathmandu market, and the demand of the candy is not fulfilled. If the company is interested in partnering with NEAT in order to gain efficient candy making technology.

### **6.1.3 Marketing**

**Support to establish collection and storage facilities:** Local traders are collecting ginger from farmers at their surroundings and keeping the ginger in front of grocery shops until a truck load is collected. There is no facility where farmers can deliver products and traders can easily sort, grade, and package the products. Collection centers should be built at the road heads of ginger production pockets. In addition, because the price during the offseason is almost double the price during the main season, farmers need low-cost storage at the local level.

**Conduct exposure visit of the traders:** There is huge market potential of ginger in Bangladesh, Pakistan and Middle East. However, Nepalese exporters have limited access to these countries. A visit to these destination markets would provide exporters with an understanding of the buyers' requirements and enable them to establish a good business relationships.

**Facilitate to conduct business meetings:** There is great mistrust between farmers and their buyers regarding price and quality of the products. To increase the trust between buyers and farmers, frequent interaction meetings are required. Similarly, to increase the trust between exporters and international buyers, series of meetings are required. This type of meeting can be facilitated by FNCCI by inviting their counterparts from India, Bangladesh, and the Middle East.

**Support to participate in the trade fairs and exhibitions:** To diversify the market, participation in international trade fairs and exhibition is essential. During the project period, NEAT Activity can help exporters participate at international trade fairs and exhibitions, such as the World Spice Congress on February 12, 2012 in Pune, India.

### **6.1.4 Policy and Institutions**

**Strengthen Nepal Ginger Producer and Traders Association:** Though NGPTA is a national level association of ginger traders and producers, most of the members are from the eastern part of the country. To raise the collective voice of the actors of this sector, the membership of the association should be expanded to the western part of the country as well. In this process, NEAT Activity can support NGPTA to establish secretarial office in Kathmandu and facilitate an increase in the membership pool.

**Visit China to understand their policy and practices in the ginger subsector:** The Chinese are far ahead in terms of production and export of ginger globally, and they are progressing exponentially each year. Since China is the major competitor of Nepali ginger, Nepali policy makers and entrepreneurs should be educated on their production, post-harvest handling, storage, and marketing intelligence. The ginger sector of Nepal can benefit with a visit of a group of policy makers, exporters, and farmers from Nepal to China.

**Form a task force:** A task force should be developed, including government officials, traders, farmers and other stakeholders, in order to address the issues of the ginger subsector.

## **6.2 Long-term Interventions**

### **6.2.1 Production**

**Work on Rhizome rot disease management:** Rhizome rot is regarded as the number one reason for loss in ginger production. About 30 percent of ginger is reported to be lost in the

field and during storage due to this disease (NTIS, 2010). The disease is prevalent throughout Nepal and because of the disease many farmers have discontinued ginger cultivation. The disease spread unintentionally by the use of infected seed pieces from the previous crop, although the seeds may appear normal and healthy. The Ginger Research Program (GRP) has focused its research on rhizome rot disease management. However, they have not been successful in controlling this devastating disease. Concerned authorities like GRP and Plant Pathology Division under NARC should conduct research to address the present problem, and extension offices of DoA should disseminate the appropriate technology to control this disease. In this process, NEAT Activity can assist GRP in research and awareness campaigns, and support disease remedy measures such as seed treatment.

**Facilitate production of quality seeds and introduction of high yielding varieties:** Most of the ginger produced in Nepal is highly fibrous and less competitive than the fibreless varieties. In addition, Nepalese ginger varieties are mostly native and are cultivated traditionally. There are quality seeds available within some part of Nepal which can produce good rhizome with a fatty appearance, which would be sold at a higher price at market. Similarly, the productivity of local seeds is comparatively low and is also prone to disease. Therefore, facilitation should be done to produce high yielding and disease resistant varieties of ginger seeds. For this purpose, activities should be conducted in joint collaboration with NARC and government extension offices.

**Support NARC for producing seedlings from tissue culture:** Since the major cost of ginger production is the seed itself, reducing the seed rate can make this sector more competitive. There is some research in India regarding tissue culture on ginger. In-depth information on tissue culture should be collected through NARC and these practices should be adopted in Nepal.

**Create and strengthen producer group organizations:** There are many groups in study areas formed by government offices and development agencies. While most of the groups are idle, some of the groups and cooperatives are performing regular savings and credit activities. To involve the producer groups in marketing activities, there should be community-private-public partnerships.

### *6.2.2 Processing and Marketing*

**Initiate auction markets:** Ginger is a seasonal crop and produces high volume in its main season. To make the marketing systematized, the government can introduce auction market centers in strategic places in order to bring buyers and sellers together to make transaction in a transparent way. Ginger washing centers can be designed with a space for auctioning.

**Support in branding and export facilitation:** Nepal has a unique position in the international market due to lower use of pesticides and traditionally grown crops. To make the most of this advantage, the government can set the Nepalese standard for export with systematic monitoring activities and support to exporters. For this purpose, Nepal can brand ginger as a Himalayan product or organic product, and explore the market niches where a premium price can be charged.

**Initiate to work on GAPs and GMPs:** Over the long term, Nepali ginger can be targeted to the more profitable markets of EU, USA and Japan. To introduce the product in these markets, Good Agricultural Practices (GAPs) and Good Manufacturing Practices (GMPs)

will be the pre-requisite. Therefore NEAT Activity can start the work on these areas. Some entrepreneurs (e.g. Dr. Umed Pun) have good relationships with Japan for organic ginger.

### ***6.2.3 Policy and Institution***

**Movement of Nepali trucks in India:** Nepalese trucks are not allowed inside India, whereas Indian trucks can easily enter Nepal. This has limited the Nepalese traders with no option than to do *palti* (transfer from one truck to another truck) at the border and bear the extra expenses of loading and unloading. The transportation policy should be reviewed.

**Quarantine Labs:** Nepalese quarantine labs should be upgraded and bilateral talks should be conducted in order to accredit Nepali labs with India. Once the labs are accredited, exporters will not face hassles such as the PFA test in India. There is also the need to enforce for implementation of sub article 6 in protocol 2 of Nepal India Bilateral treaty, which refers to the accreditation of the certificate issued by Nepal in India.

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## 8. ANNEXES

### Annex 1: Quality Standards for Export

In herbs and spices, there are two major international standards, those set by the United States and the European Union (EU). Standards relying on the same general parameters also exist in the countries responsible for growing herbs and spices, for example the Indian Spice Board. These standards are influenced by the standards set by the major importing countries. There are various types of tests which make up the range of international standards. Some of them are cleanliness, ash level, acid insoluble ash (AIA), volatile oil (V/O) determination, moisture content, microbial measures, pesticides level, mycotoxin levels and particle size.<sup>5</sup>

The American Spice Trade Association (ASTA) has established standards for Cleanliness Specifications in terms of permitted amounts of extraneous matter or filth, mould (visible), insects excreta and insect damaged materials. It has become a standard for most exporting countries. Importing countries that do not have specified standards may use ASTA's specifications (FAO). Most producing countries have built up their facilities to meet the requirements as per ASTA Cleanliness Specifications.

#### ASTA Cleanliness Specifications for Ginger

Whole insects, dead	Excreta, Mammalian	Excreta, others	Mould	Insect Defiled/Infested	Extraneous/Foreign Matter <sup>6</sup>
by count	by mg/kg	by mg/kg	No more than 3 percent mouldy pieces and/or insect infested pieces by weight		percent by weight
4	6.6	6.6			1.00

The US government specification for dry ginger and powder is as follows:<sup>7</sup>

#### US Government Specification for Dry Ginger and Powder

Total Ash (percentw/w) max	Acid Insoluble Ash (percentw/w) max	Moisture (percentw/w) max	Volatile oil (v/w) min	Crude fibre max (percent)	Starch min (percent)
7	1	12	1.5	8	42

EU member countries such as UK, Germany, and the Netherlands have their own specifications. But standards in Europe are typified by the standards set by the European Spice Association (ESA) which draw both on national standards and international standards issued by the ISO (International Standards Organization). The following table presents minimum quality standards for ginger set by ESA.

<sup>5</sup> Handbook of Herbs and Spices, Volume 1, K.V. Peter, Woodhead Publishing, 2001

<sup>6</sup> Extraneous matter includes but is not restricted to : stones, dirt, wire, string, stems, sticks, non toxic foreign seeds, excreta, manure, and animal contamination

<sup>7</sup> Handbook of Herbs and Spices, P.A. Vasala, Kerala Agriculture University

## European Spice Association (ESA) Minimum Quality Standards for Ginger

Total Ash (percentw/w) max	Acid Insoluble Ash (percentw/w) max	Moisture (percentw/w) max	Volatile oil (v/w) min
(ISO)	(ESA)	(ISO)	(ISO)
8	2	12	1.5

As per the ESA, the extraneous matter and foreign matter should not exceed 1 percent and 2 percent respectively; should be free from live and/or dead insects, insect fragments, and rodent contamination visible to naked eye. In microbial analysis, Salmonella must be absent in (at least) 25 gm of material, yeast and mould maximum up to  $10^6$ /g and E. coli maximum up to  $10^3$ /g. The European Union has fixed limits for aflatoxin and it should not exceed 10 ppb in total.

To be sold as ðorganicö, a product must be grown following organic agriculture practices and be certified by an accredited certification body. The International Federation of Organic Agriculture Movement (IFOAM) has established organic production, processing and trading standards, and tried to harmonize certification system worldwide. However, countries can have their own standards such as Japanese Agriculture Standards (JAS) of Japan, EU organic standards, US organic standards. To comply with organic standards and practices, the operator must document all farming and post-harvest activities including farm field map, field history, activity register, input records including purchase, output records including sales, harvest records, storage records, pest control records, movement records, equipment cleaning and labelling. All such documents must meet specific standards that are enumerated in directives issued by the certification agencies.

In the processing plant, the operator must present an ðorganic handling planö which shows how contamination from prohibited materials and commingling with non-organic products will be prevented. This includes a detailed description of the process, receiving and storage of ingredients and finished products, cleaning and sanitation of the processing equipment, facilities pest management, and a documentary ðpaper trailö that must permanently record all of the above.

In India, the Bureau of Indian Standards (BIS) has AGMARK grading system for dry ginger and ginger powder. It categorizes ginger to different grades based on the size of rhizome, extraneous matter, lime content as calcium oxide and very light pieces.

### Annex 2: World Export Trend of Ginger (‘000 USD)

Exporters	2006	2007	2008	2009	2010	CAGR (percent) <sup>8</sup>
World	247,925	264,694	337,925	409,203	647,834	27.14
China	168,155	153,299	212,024	281,637	434,920	26.82
Nigeria	0	11,588	11,420	12,861	48,420	60.30
Netherlands	13,430	16,179	21,470	23,289	36,830	28.69
Thailand	8,998	14,891	26,019	24,932	28,679	33.61

<sup>8</sup> CAGR: Compound Annual Growth Rate

Ethiopia	5,438	6,313	6,237	6,599	22,791	43.08
India	11,196	8,951	10,520	11,499	13,839	5.44
Brazil	5,417	6,466	4,708	3,892	8,426	11.68
Nepal				5211 (1.27 percent)	6240 (1.43 percent)	19.75
UK	799	1,748	2,937	3,057	4,262	51.97
Peru	11	347	1,351	1,697	4,233	342.91
Germany	3,168	2,721	3,251	2,928	4,027	6.18

Source: ITC, 2011

### Annex 3: World Export Trend of Ginger (MT)

Exporters	2006	2007	2008	2009	2010	CAGR (percent)
World	375,517	422,931	2193568	494373	459,525	5.18
China	280,368	273,337	265,766	340,055	299,978	1.70
Thailand	16,753	29,922	39,137	49,808	31,383	16.99
Nepal				26,724 (5.4 %)	30,416 (6.62 %)	13.82
Nigeria	0	9,524	7,322	7,364	23,563	35.25
Netherlands	7,640	8,810	9,776	18,196	19,998	27.20
Ethiopia	6,320	9,859	10,396	10,752	10,268	12.90
Myanmar	626	237	3,668	1,001	7,359	85.17
India	11,095	9,689	8,308	8,342	6,861	-11.32
Brazil	7,078	7,290	3,865	3,952	6,238	-3.11
Indonesia	1,712	3,859	11,137	7,326	4,212	25.24
Peru	85	261	566	775	2227	126.24

Source: ITC, 2011

### Annex 4: World Export (Trade Indicators)

Export	Unit value (USD/MT) in 2010	Annual growth in value (2006-2010) (percent)	Annual growth in qty (2006-2010) (percent)	Annual growth in value (2009-2010) (percent)	Share in world exports (percent)
World		28	6	61	100
China	1,450	29	4	54	67.1
Nigeria	2,055		31	276	7.5
Netherlands	1,842	27	30	58	5.7
Thailand	914	33	19	15	4.4
Ethiopia	2,220	34	11	245	3.5
India		11	0	32	2.1
Brazil	1,351	4	-8	116	1.3
Nepal	205			20	1
UK	3,385	48	46	39	0.7
Peru	1,901	285	114	149	0.7
Germany	4,182	6	2	38	0.6

Source: ITC, 2011

## Annex 5: World Import (Trade indicators)

Importers	Import value 2010 (USD'000)	Qty in 2010	Value (USD/MT)	Annual growth in value (2006-2010) (percent)	Annual growth in qty (2006-2010) (percent)	Annual growth in value (2009-2010) (percent)	Share in world imports (percent)
World	635,044			23	5	58	100
Japan	96,795	65,366	1,481	5	-8	31	15.2
USA	68,778	44,122	1,559	24	8	59	10.8
Pakistan	46,407	52,885	878	16	0	41	7.3
Netherlands	43,712	23,265	1,879	31	10	98	6.9
Bangladesh	41,997	26,995	1,556	74	25	41	6.6
Malaysia	37,307	34,578	1,079	38	9	77	5.9
UAE	36,272	22,916	1,583	45	9	70	5.7
UK	34,944	18,902	1,849	18	7	44	5.5
Germany	27,463	8,404	3,268	26	17	72	4.3
India	25,171	38,481	654	79	40	194	4
Saudi Arabia	24,715	18,914	1307	37	5	82	3.9

Source: ITC, 2011

## Annex 6: List of the Lead Firms/Exporters/Processors/Traders

SN	Name/ Company	Title	Address	Phone	Volume (Truck=12-15 MT)	Remarks
<b>Exporters of Eastern Region</b>						
1	Sanjeeb Shah	Exporter	Dhulabari, Jhapa	9742002223	500	Exported to Bangladesh 150 MT
2	Manorath Adhikari	Exporter	Fikkal/ Dhulabari	9852673672	300-350	
3	Durga Rai	Exporter	Fikkal/ Dhulabari	9742600443	300	
4	Gobinda Poudel	Exporter	Dhulabari	9852674089	300-325	
5	Sun Thapa	Exporter	Ilam	023 543648	200-250	
6	Lal Babu Shaha	Exporter	Dhulabari	9742601355	50	
7	Vinod Padiwal	Exporter	Kikkal/ Nakalbari	9742600598	100-120	
8	Dina Shaha	Exporter	Dhulabari	9742612521	125-150	
9	Khadga Baral	Exporter	Fikkal	027 540235	75-100	
10	Dinesh Shaha	Exporter	Dhulabari	9742008568	30-50	

11	Narendra Khadka	Exporter	Dhulabari	9842711994	Occasional	Chairman, NGPTA
12	Rajesh Bhandari	Exporter	Fikkal		150	
13	Mahendra Karki	Exporter	Fikkal		50-60	
14	Nirmal Shrestha	Exporter	Fikkal		60-75	
15	Narayan Koirala	Exporter	Panchthar		40-50	
16	Tika Ram Bhandari	Exporter	Panchthar		50-70	
17	Surya Gurung	Exporter	Panchthar		40-50	
18	Manoj Shah	Exporter	Biratnagar		75-100	
19	Deepak Shaha	Exporter	Dharan		75-100	
<b>Exporters of Butwal Region</b>						
20	Ambika Prasad	Exporter	Butwal	40843/ 9857021205	50-100	
21	Subash Jaishawal	Exporter	Bhalwari, Rupandehi	9847066487	150-200	
22	Ganga Sagar Jaishawal	Exporter	Bhairahawa	9847037881	100-150	
23	Ram Prasad Pokhrel	Exporter	Dumre, Palpa	9857060007	250-300	
<b>Traders/Processors and Exporters</b>						
24	Krishna G C	Processors	Parbhash, Palpa			Cooperative
25	Tula Bahadur Adhikari	Processor	Bhairabsthan, Palpa	9747005329		Processing Cooperative
26	Rameshwor Panta	Exporter	Lalitpur	9851043387		Male International
27	Gopal Sharma	Trader	Lalitpur	9851126196/ 01- 5006566		Himalayan Naturals / Candy
28	Shiva Dayal Sony	Sutho supplier	Tulsipur, Dang			Supplies to Dabur Nepal and exports to India
29	Rajesh Jain	Sutho supplier	Nepalgunj	081 520829	30	Supplies to Dabur Nepal and exports to India
30	Yakub Ansari	Sutho Exporter	Nepalgunj		30	
31	Miraj Enterprises	Sutho Exporter			25	

<b>Exporters of Nepalgunj Region</b>						
32	Om Prakash Dhakal	Trader	Tulsipur, Dang	9857820134		
33	Sakil Ahemad	Exporter	Nepalgunj			
34	Tanka P Sharma	Exporter	Nepalgunj	9858021166		
35	Iqball Ahamad Ansari	Exporter	Nepalgunj	081-521245		
36	Gulab Warish	Exporter	Nepalgunj	9848023503		
37	Meraaj Ansari	Exporter	Nepalgunj	081521461		
38	Rakesh Kumar Mittal	Exporter	Nepalgunj	081-520481		
39	Mohamad Saphik Halwai	Exporter	Nepalgunj	081-520273		
40	Mohamad Umar Halwai	Exporter	Nepalgunj	081-524237		
41	Gyan P Sharma	Exporter	Kapurkot			
42	Min Bdr Gurung	Exporter	Kapurkot			
43	Khadga B Buda	Exporter	Surkhet			

### Annex 7: Listing of the Indian Buyers

SN	Name/ Company	Title	Address	Phone	Email	Remarks
1	Chothmal Joshi	Importer	Siliguri, India	998320 84446		Dry ginger
2	P.C. Jain	Importer	Siliguri, India	0353-2504640		Dry ginger
3	Bhojraj Jain	Importer	Siliguri, India	0353-2502090		Dry ginger
4	Sunil Kumar	Importer	Siliguri, India	0353-2529922		Dry ginger
5	Ashok Kumar	Importer	Lucknow, India	0522-2269152		Dry ginger
6	Mr. K.K. Gupta	Importer	Lucknow, India	0-93359 06714		Dry ginger
7	Mr. Jain	Importer	Lucknow, India	0522-2265216		Dry ginger
8	Mr. S.P. Singh	Importer	Bahraich, India	0-94151 65008		Dry ginger
9	Saamir International / Maqbool Hasan	Importer	Delhi, India	43524267, 65814046, 9811228514, 9811487867	<a href="mailto:pureherbs@rediffmail.com">pureherbs@rediffmail.com</a> <a href="mailto:maqbool786@gmail.com">maqbool786@gmail.com</a>	Dry and fresh ginger
10	International Traders / Mr. Saket Agrawal	Importer	Delhi, India	23952004, 23953598, 23969501	<a href="mailto:herbsindia@vsnl.com">herbsindia@vsnl.com</a>	Dry and fresh ginger
11	Shiree Lal Anil Kumar/ Mr. Anil Kumar	Commission Agent	Delhi, India	23975582, 23926573, 9811136992		Dry and fresh ginger
12	Urmila Traders	Commission Agent	Delhi, India	23976511, 55154698		Dry and fresh ginger
13	Radhika Traders	Commission Agent	Delhi, India	+91-11- 23976511/ 27313589		Dry and fresh ginger

### Annex 8: List of the Major Production and or Collection Pockets

District	Pockets
Ilam	Jeetpur, Mangalbare, Nepaltar, Puwakhola, Biblate, Dhobidhara, Chureghati, Gola kharka, Til Kani, Aaitabare, Godak, Fikkal, Tinghare Bhalu Jhoda, Jhatke Puwakhola
Dhankuta	Nigale, Khoku, Aankhisalla, Chummahng
Dang	Syuja, Saiga, Loharpani, Kabre, Hansipur
Salyan	Ghodcharu, Srinagar, Kapurkot, Malta/Dharkhani, Marke, Bapukhola, Jhulneta
Surkhet	Chhinchu, Ramghat, Botechaur, Pamka, Sallibazaar, Awalching
Dailekh	Piladi, Sarenpani, Baraha, Sedi, Goganpani
Palpa	Dumre, Aaryabhanjyang, Batashe, Bhairabsthan, Tahun, Silwa, Mityal, Barandi

### Annex 9: List of the Participants of Private Sector Dialogue Meeting (PSDM)

SN	Name of Participants	Organization	Address	Telephone
1	Shanta Gyawali	Jadibuti Association of Nepal (JABAN)	Guleria, Bardiya,	9848045535
2	Durga Prasad Upreti	Agriculture commodity Export Promotion Program	Kathmandu	9741150733
3	Narendra Kumar Khadka	NGPTA	Dhulabari, Jhapa	9851069351
4	Balkrishna Thapa	Ginger Trader	Hetauda	9845070361
5	Indra Budathoki	NGPTA	Dhulabari, Jhapa	9842704402
6	Amar Bahadur BC	Ginger Trader	Lakuri, Dailekh	9848061071
7	Bhimnath Sharma	DADO, Rupandehi	Bhairahawa	9847023081
8	Ganesh C. Dhakal	Regional Plant Quarantine Office, Rupandehi	Bhairahawa	9847281540
9	Ram Prasad Pokhrel	Exporter	Palpa	9857060007
10	Pashupati Bashyal	Ginger farmer and trader	Palpa	9747001816
11	Bhuwan Raj Bhatta	NEAT Project	Butwal	9841243955
12	Tilak Raj Gyawali	Ginger trader (Dry ginger)	Aaryabhanjyang, Palpa	9847039767
13	Yubaraj Shrestha	Ginger trader (Dry ginger)	Aaryabhanjyang, Palpa	9847028080
14	Shiva Neupane	NEAT Project	Butwal	9841393539
15	Krishna Bahadur GC	Ginger Producer Cooperative Association	Palpa	9847438591
16	Om Prasad Dhakal	Ginger trader	Tulsipur, Dang	9857820134
17	Ishwori P. Shrestha	Ginger trader	Palpa	9847171499
18	Ganga Sagar Gaisawal	Ginger trader	Bhairahawa	9847037881
19	Menu Kumar Shrestha	NEAT Project	Palpa	9851115196
20	Badri Khanal	Ministry of Agriculture and Cooperative	Kathmandu	9841811355
21	Niraj Jaisawal	Ginger trader	Bhairahawa	9847066487
22	Nainanda Kafle	Haatbazar Traders Association	Butwal	987148999
23	Bir Bahadur Rana	Bhairab Ginger Producer Cooperative Association	Palpa	9847112527
24	Gopal Prasad Sharma	Himalayan Naturals	Lalitpur	9851126196
25	Kabir Ratna Sthapit	ANSAB	Kathmandu	9849275909
26	Sashidhar parajuli	GIZ/Include	Butwal	9847403505
27	Sanjay Kumar Sharma	Clearing Agent	Bhairahawa	9847030037
28	Pradeep K. Pathak	Clearing Agent	Bhairahawa	9857020606

29	Ghanashyam Bhusal	Wholesaler	Butwal	9857028129
30	Dr. B. B Mathema	NEAT Project	Kathmandu	9851108452
31	Nabin Hada	USAID/Nepal	Kathmandu	9801008803
32	Dr. Bhishma Subedi	ANSAB	Kathmandu	9851044031
33	Edwin de Korte	NEAT Project	Kathmandu	9849653635
34	Puspa Lal Ghimire	ANSAB	Kathmandu	9851051225
35	Rewati Raman Poudel	DADO, Palpa	Palpa	075-520294
36	Kiran C Adhikay	ANSAB	Kathmandu	9851115672
37	Dr. Rohit Raj Chhetri	BCCI	Butwal	9857025738
38	Khadga Jung Gurung	IDE Nepal	Butwal	071-437380
39	Anantajibi Ghimire	NEAT Project	Kathmandu	9741195574

### Annex 10: Tips for Successful Ginger Cultivation

1. Due attention should be given to seed selection. Select healthy and vigorous rhizome for seed purpose
2. Grow high yielding ginger variety ó Kapurkot Aduwa ó 1
3. Seed treatment with Indofil M 45 (Mancozeb) @ 0.25 percent + Bavistin (Carbendazim) 0.1 percent solution prior to storage and planting is necessary. One hour dipping of ginger seed rhizome in solution followed by shade drying in the treatment process.
4. At least 3 years crop rotation is necessary. Growing finger millet or pole bean prior to ginger is beneficial to minimize rhizome rot disease and to increase yield.
5. Non-water logging condition is required. Make raised bed for water drainage and to reduce the disease severity.
6. Use of Timur dust in furrow @ 3 kg/Ropani at planting time helps to minimize the rhizome rot disease.
7. Plant the ginger crop as early as possible starting from March on wards in mid-hills.
8. Fertilize with well rotten FYM @ 30 MT/ha and NPK @ 75:50:50 kg/ha.
9. Compulsory mulching immediately after planting with available plant materials like dry pine, dry grasses, rice husk etc.
10. Weeding manually as per requirement is suggested.
11. Don't forget Rhizome rot disease caused by *Pythium spp* and *Fusarium spp* is very destructive for ginger. It may cause upto 75 percent yield loss. This disease is both soil and seed born in nature. To control this, the first 5 points should be followed strictly.

Source: GRP, 2009

### Annex 11: List of Actors interested in working with NEAT

SN	Name/ Company	Title	Address	Phone
1	Sanjeeb Shah	Exporter	Dhulabari, Jhapa	9742002223
2	Manorath Adhikari	Exporter	Fikkal/ Dhulabari	9852673672
3	Durga Rai	Exporter	Fikkal/ Dhulabari	9742600443
4	Gobinda Poudel	Exporter	Dhulabari	9852674089
5	Sun Thapa	Exporter	Ilam	023 543648
6	Lal Babu Shaha	Exporter	Dhulabari	9742601355
7	Vinod Pediwal	Exporter	Kikkal/ Nakalbari	9742600598
8	Dina Shaha	Exporter	Dhulabari	9742612521
9	Khadga Baral	Exporter	Fikkal	027 540235
10	Dinesh Shaha	Exporter	Dhulabari	9742008568
11	Narendra Khadka	Exporter	Dhulabari	9842711994
12	Narendra K Khadka	Exporter	Dhulabari	9851069351
13	Ambika Prashad	Exporter	Butwal	071-540843/ 9857021205
14	Subash Jaishawal	Exporter	Bhalwari, Rupandehi	9847066487
15	Ganga Sagar Jaishawal	Exporter	Bhairahawa	9847037881
16	Ram Prasad Pokhrel	Exporter	Dumre, Palpa	9857060007
17	Krishna G C	Processors	Palpa	9847036900
18	Tula Bahadur Adhikari	Processor	Bhairabsthan, Palpa	9747005329
19	Rameshwor Panta	Exporter	Lalitpur	9851043387
20	Gopal Sharma	Trader	Lalitpur	9851126196/ 01- 5006566
21	Rajesh Jain	Sutho Supplier	Nepalgunj	081 520829
22	Yakub Ansari	Sutho Exporter	Nepalgunj	
23	Om Prakash Dhakal	Trader	Tulsipur, Dang	9857820134
24	Sakil Ahemad	Exporter	Nepalgunj	
25	Tanka P Sharma	Exporter	Nepalgunj	9858021166
26	Meraaj Ansari	Exporter	Nepalgunj	081521461
27	Gyan P Sharma	Exporter	Kapurkot	
28	Min Bdr Gurung	Exporter	Kapurkot	
30	Madhukar Thapa Chhetri	Chairperson	JABAN, Nepalgunj	9848028045
31	Narendra Kr Khadka	Chairperson	NGPTA, Jhapa	9851069351

### Annex 12: List of people contacted

SN	Name	Type of Actor	Address	Contact Number
<b>Traders/Processors/Exporters</b>				
1	Sanjeeb Shah	Exporter	Dhulabari, Jhapa	9742002223
2	Manorath Adhikari	Exporter	Fikkal/ Dhulabari	9852673672
3	Durga Rai	Exporter	Fikkal/ Dhulabari	9742600443
4	Gobinda Poudel	Exporter	Dhulabari	9852674089
5	Sun Thapa	Exporter	Ilam	023 543648
6	Lal Babu Shaha	Exporter	Dhulabari	9742601355
7	Vinod Pediwal	Exporter	Kikkal/ Nakalbari	9742600598
8	Dina Shaha	Exporter	Dhulabari	9742612521
9	Khadga Baral	Exporter	Fikkal	027 540235
10	Dinesh Shaha	Exporter	Dhulabari	9742008568
11	Deepak Shaha	Exporter	Dharan	
12	Ambika Prashad	Exporter	Butwal	071 540843/ 9857021205
13	Subash Jaishawal	Exporter	Bhalwari, Rupandehi	9847066487
14	Ganga Sagar Jaishawal	Exporter	Bhairahawa	9847037881
15	Ram Prasad Pokhrel	Exporter	Dumre, Palpa	9857060007
16	Tula Bahadur Adhikari	Processor	Bhairabsthan, Palpa	9747005329
17	Rameshwor Panta	Exporter	Male International, Lalitpur	9851043387
18	Gopal Sharma	Trader	Himalayan Naturals, Lalitpur	9851126196/ 01- 5006566
19	Shiva Dayal Sony	Sutho Supplier	Tulsipur, Dang	
20	Rajesh Jain	Sutho Supplier	Nepalgunj	081 520829
21	Yakub Ansari	Sutho Exporter	Nepalgunj	
22	Om Prakash Dhakal	Trader	Tulsipur, Dang	9857820134
23	Sakil Ahemad	Exporter	Nepalgunj	
24	Tanka P Sharma	Exporter	Nepalgunj	9848253592
25	Iqball Ahamad Ansari	Exporter	Nepalgunj	081-521245
26	Gulab Warish	Exporter	Nepalgunj	9848023503
27	Meraaj Ansari	Exporter	Nepalgunj	081-521461
28	Rakesh Kumar Mittal	Exporter	Nepalgunj	081-520481
29	Mohamad Saphik Halwai	Exporter	Nepalgunj	081-520273
30	Mohamad Umar Halwai	Exporter	Nepalgunj	081-524237
31	Gyan P Sharma	Trader	Kapurkot	
32	Min Bdr Gurung	Trader	Kapurkot	
33	Khadga B Buda	Trader	Surkhet	
34	Balkrishna Thapa	Trader	Hetauda	9845070361

35	Amar Bahadur BC	Trader	Lakuri, Dailekh	9848061071
36	Ram Prasad Pokhrel	Exporter	Palpa	9857060007
37	Pashupati Bashyal	Farmer and Local trader	Palpa	9747001816
38	Tilak Raj Gyawali	Trader	Aaryabhanjyang, Palpa	9847039767
39	Yubaraj Shrestha	Trader	Aaryabhanjyang, Palpa	9847028080
40	Krishna Bahadur GC	Processor	Ginger Producer Cooperative Association, Palpa	9847438591
41	Om Prasad Dhakal	Trader	Tulsipur, Dang	9857820134
42	Ishwori P. Shrestha	Trader	Aaryabhanjyang, Palpa	9847171499
43	Ganga Sagar Gaisawal	Exporter	Bhairahawa	9847037881
44	Nainanda Kafle	Chairman	Haatbazar Traders Association. Butwal	987148999
45	Bir Bahadur Rana		Bhairab Ginger Producer Cooperative Association, Palpa	9847112527
46	Kanta Prasad Shah	Trader	Gudary Vegetable Mandi, Biratnagar	
47	Vijaya Gupta	Trader	Gudary Vegetable Mandi, Biratnagar	
48	Tej Bahadur Ari	Chairman	Agriculture market center Kapurkot	9758500479
49	Prem Kumar Aacharya	Founding member	Agriculture market center, Kapurkot	9748508464
50	Sovakar Sharma	Trader	Agriculture market center, Kapurkot	
51	Churna Bahadur Gharti	Trader	Agriculture market center, Kapurkot	
52	Bir Bahadur Rana	Member	Bhairab Aaduwa Utpadak Sahakari, Batase, Palpa	
53	Tula Bahadur Aadhikari	Chairman	Bhairab Aaduwa Utpadak Sahakari, Batase, Palpa	
54	Babu Kawadiya	Chairman /Vegetable W/S	Rani Talau Sabji Mandi, Nepalganj	
55	Ganga Bahadur Buda	W/S	Ratanagla	9848107098
56	Rijwan Raya	Secretary	Rani Talu Sabji Mandi, Nepalganj	
57	Gobinda Nath Yogi	Trader	Himali suppliers, Ratanagla	9758002290
58	Parsuram Khadka	W/S	President, Kalika tarkari samuha, Harre	9848050475
59	Sushila Oli	Treasure	Kalika tarkari samuha, Harre	9848138374
60	Md. Aakram	Vegetable W/S	Aakram Tarkari Pasal, Nepalganj	

<b>Enabling and Facilitating Organizations (GOs, NGOs and BMOs)</b>				
1	Gopal P Shrestha	Director	VDD, Khumaltar, Lalitpur	01-5523701
2	Bhim Nath Sharma	Officer	DADO, Rupandehi	9847023081
3	Narendra Kumar Khadka	Chairperson	NGPTA, Dhulabari, Jhapa	9851069351
4	Indra Budathoki	Secretary	NGPTA, Dhulabari, Jhapa	9842704402
5	Durga Prasad Upreti	Marketing Specialist	Agriculture Commodity Export Promotion Program, Kathmandu	9741150733
6	Maqbool Ali	Agriculture Economist		
7	Ganesh C. Dhakal	Office Chief	Regional Plant Quarantine Office, Bhairahawa	9847281540
8	Kishor Man Shrestha	DADO	DADO, Nepalganj	081-520225/027
9	Sharada Gaywali	Technician	DADO, Nepalganj	081-520225/027
10	Bhuwan Raj Bhatta	Regional Manager	NEAT, Butwal	9841243955
11	Shanta Gyawali	Member	JABAN, Nepalgunj	9848045535
12	Shiva Neupane	Ginger Expert	NEAT, Butwal	9841811355
13	Bhuwan Poudel	District Manager	NEAT, Guleria	9755000008
14	Chandra Devkota	Regional Manager	NEAT, Ghorahi	9845055388
15	Namoona Acharya	Program Officer	NEAT, Ghorahi	9845056000
16	Sanjay Kumar Sharma	Clearing Agent	Bhairahawa	9847030037
17	Pradeep K. Pathak	Clearing Agent	Bhairahawa	9857020606
18	Menu Kumar Shrestha		NEAT, Palpa	
19	Badri Khanal	Agriculture Economist	Ministry of Agriculture, Kathmandu	
20	Sashidhar Parajuli		GIZ/INCLUDE, Butwal	9847403505
21	Dr. B. B Mathema	DCOP	NEAT, Kathmandu	9851108452
22	Nabin Hada	AID Project Development Specialist	Kathmandu	9801008803
23	Edwin de Korte	Horticulture Advisor	Kathmandu	9849653635
24	Rewati Raman Poudel	DADO	DADO, Palpa	
25	Dr. Rohit Raj Chhetri	Acting Chairman	BCCI, Butwal	
26	Khadga Jung Gurung	Project Manager	IDE-Nepal, Butwal	

27	Anantajibi Ghimire		Kathmandu	9741195574
28	Dulal Chandra Roy		Kakarbhitta	
29	Ramesh Kumar Shrestha	ED	TEPC, Kathmandu	01-5525464
30	Badri Narasingha Adhikari	Sr. Officer	TEPC, Kathmandu	01-5525464
31	Pradip Maharjan	CEO	AEC, Kathmandu	4262245, 4262260, 4267005
32	Shila Thapa	Deputy Director	AEC, Kathmandu	
33	Faindra Pandey		AEC, Kathmandu	
34	Pradhymna Pandey	Officer	WTO Section, MoAC	4211687, 9851125554
35	Hem Lal Devkota	Officer	Singhadurbar, Kathmandu	9841284508
37	Raju Ghimire	Extension Officer	Agriculture Extension Directorate, Kathmandu	5524914, 5523602
38	Devendra Man Pradhan	Regional Chief	Trade and export promotion center, Surkhet	
39	Mitra Raj Pyakurel	Officer	CCI, Surkhet	
40	Prabal Sahi	Chairman	Babu and Sahi Sabji Mandi, Surkhet	
41	Santi Sharma	Chairman	CCI, Dailekh	
42	Lakchhman Shrestha	Ex-Chairman	CCI, Dailekh	
43	Ganesh Khadka	Vice chairman	CCI, Dailekh	
44	Dr. Hari Bahadur KC	DADO	DADO, Dailekh	9841401287
45	Shilpa Kuwar		Link Helvetas, Dailekh	9848062987
46	Sarita Thapa		LILI, Helvetas, Dailekh	9848232212
47	Govinda Pandit		Link Helvetas, Jajarkot Office	9748028301
48	Shyam Deo Chaudhari		SSM-P, Helvetas	9741115685
49	Bhuvan Bhatta	Regional Manager	NEAT, Butwal	9841243955
50	Virendra Nath Upraity	Regional Manager	NEAT, Nepalganj	9841150151
51	Durga Prasad Acharya	Marketing Specialist	NEAT, Kathmandu	9845111452
52	Ganesh Chandra Dhakal	Sr. Plant Quarantine Officer	Bhairahawa	071-520371
53	Aamar Bahadur Malla	Computer Operater	Custom office, Sunauli	
54	Sangharsa Raj	Field Staff	NEAT, Salyan	9841575995

55	Dr. D B Shakya	Business Enabling Environment Manager	NEAT, Kathmandu	9851066062
56	Dr. Murari Gautam	Trade and Fiscal Policy Manager	NEAT, Kathmandu	9841325382
57	Damodar Kanel	PGA Advisor	SNV Nepal	01-5523444/9849029673
58	Roshan Basnet	Scientist	GRP, Dailekh	9813688170

### Annex 13: Cost/Benefit Analysis of Ginger Sector

Note: No = No immediate benefit; Low = Immediate benefits will be less than the initial costs; Medium = Benefits will be similar to the initial costs; High = Benefits exceeding costs

SN	Intervention	Cost (USD)	Benefits			Remarks
			Year 1	Year 2	Beyond project period	
<b>A</b>	<b>Short term</b>					
1	Facilitate for quality production and post-harvest handling	100,000	Medium	High	High	Training and demonstration
2	Assist the Government of Nepal to declare seed production pockets	30,000	Low	Medium	High	Study, meeting and workshop
3	Introduce mother rhizome harvesting practice in western part of the country	15,000	Low	High	High	Training
4	Entrepreneurship development and business planning	200,000	Low	High	High	Selected 60 FBOs of NEAT to increase the competitiveness including market linkages
5	Conduct exposure visit of the farmers	10,000	Low	Medium	High	Visit to India
6	Develop linkage with MFIs	10,000	Low	Medium	High	Meeting and agreement with MFIs
7	Support to establish rhizome washing facilities	100,000	Low	High	High	Infrastructures and capacity building
8	Introduce improved technology on Sutho making	40,000	Low	Medium	High	Training in South India and introduction of technology
9	Introduce efficient slicing and drying technology	50,000	Low	Medium	High	Study and machinery support
10	Support to diversify the products	100,000	Low	Medium	High	Product development (Candy, powder, paste) and marketing
11	Support to establish collection and storage facilities	100,000	Low	High	High	20 centres
12	Conduct exposure visit of the traders	50,000	Low	Medium	High	India, Pakistan, Bangladesh and Middle East
13	Facilitate to conduct business meetings	20,000	Low	Medium	High	2 Meetings
14	Support to participate in the trade fairs and exhibitions	20,000	Low	Low	High	2 Trade fairs

15	Strengthen Nepal Ginger Producer and Traders Association	20,000	Low	Low	High	Training, exposure and office equipments including network development
16	Visit China to know their policy and practices in ginger sub sector	20,000	Low	Low	High	
17	Form a task force	10,000	Low	Medium	High	Series of meetings
<b>B</b>	<b>Long term</b>					
1	Work on Rhizome rot disease management	20,000	No	No	High	
2	Facilitate to produce quality seeds & introduce high yielding varieties	20,000	Low	High	High	Seed production package and demonstration of new variety
3	Support NARC for producing seedlings from tissue culture		No	No	High	
4	Initiate auction market	50,000	Low	High	High	Selection of market centre and meeting with government and initiate at least 3 (East, West and Midwest region)
5	Support in branding and export facilitation		No	Low	High	
6	Initiate to work on GAPs and GMPs	30,000	No	Low	High	Develop the guideline
7	Movement of Nepali trucks in India	10,000	Low	High	High	Meetings with Indian counter parts
8	Quarantine Labs	25,000	Low	Medium	High	5 labs