

Improving Supply Chain of Local Products to Markets

Deepak Ratna Tuladhar

Parliamentary Committee on Agriculture and Water Resource

Daayitwa Summer Fellow 2017

ACKNOWLEDGEMENTS

My parents Mr. Tej Ratna Tuladhar and Mrs. Shova Tuladhar receive my sincere gratitude for continuously supporting me on my path of study and work.

I would like to thank my sisters for continually motivating me.

I would like to thank all the members of staffs and management from Daayitwa on helping me with the necessary help and support throughout the process of data collection for the research. Special thanks to Ms. Astha Joshi for her continuous support and supervision. The time she spared and her guidance on me will always be remembered.

I will have to mention my mentor Kaubin Wosti Neupane for his support for guiding in developing the research methodology.

I would also like to thank the Parliamentary Committee for Agriculture and Water Resource for taking the time out to provide me the feedbacks on my research design.

I am indebted to my supportive friends of Daayitwa 2017 fellows For their continuous support during the research, your expertise has been helpful throughout the process of the research.

Finally, I would like to thank my partner Jagriti Shrestha Tuladhar for her understanding love and support throughout and my colleagues from Farm to Finger Pvt Ltd.

This work is dedicated to every one mentioned above.

ABSTRACT

The main purpose of the research is to understand and study the stakeholders involved in the supply chain of vegetables from Dhading district to Kathmandu. This research tries to understand in detail the factors involved in the price hikes of vegetables in the supply chain in Kathmandu. This was done through a detailed study of all the stakeholders involved in it, including farmers, traders, collection centers, wholesalers, retailers and consumers. With focused research on the issues surrounding supply chain and likely causes of price hike, the research delivers recommendations on best ways to move forward through a simplified supply chain model.

LIST OF ABBREVIATIONS

ADS	Agriculture Development Strategy
AEDI	Agriculture Entrepreneurship Development Initiative
GDP	Gross Domestic Product
GoN	Government of Nepal
INGO	International Non-Government Organization
MFI	Micro Finance Institutions
MOAD	Ministry of Agriculture Development
NGO	Non-Government Organization
NPC	National Planning Commission
NRA	National Reconstruction Authority
SME	Small and Medium Enterprises
VDC	Village Development Committee

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I. INTRODUCTION

1.1 Study Background

Supply chain management is one of the core aspects of any business development in the current logistics based business. Supply chain management is the road between production to consumption. In words of Sotiris Ziagiari (Supply Chain Management, 2000) supply chain is the delivery of enhanced customer and economic value through synchronized management of the flow of physical goods and associated information from source to consumption. In the context of the supply chain of agricultural goods in Nepal, there are various issues that are caused by the complex transportation and storage problems in the rural parts of Nepal.

Although supply chain management relates to each and every product or service related economic activities this research will focus from the perspective of agriculture. According to the data provided by the Ministry of Agriculture in Nepal (MOAD, 2017), 66% of the population receives employment opportunities through channels revolving around agriculture and 33% of the annual GDP share was from agriculture, thus outlining the overall dependency of Nepal on agriculture. In Nepal, many research discuss exploitation of farmers as they did not receive a fair market share for the products they produced. The difference in the market shares not just deprives the farmers into further pursuing careers in agriculture but also limits their investment portfolio due to low return on investment (The Journal of Agriculture and Environment Vol 11, June 2010). Nepal, with its complex geographical setting, has always had issues trying to create a sustainable supply chain model from farms to the hands of consumers.

1.2 Background of Research

The repercussions of poor infrastructure, slow progress in economic development and slow construction of road connections between rural parts of Nepal can be seen relatively easily (OECD, 2010). This has hampered the supply chain process of the goods locally produced in those unconnected communities and places. The research revolved around the following dimensions:

1. Supply chain locations (inwards Dhading to Kathmandu)
2. Supply chain products (Vegetables)
3. Supply chain area
4. Price/quality variance in the products from other core suppliers to Kathmandu market
5. Price/quality variance in the cycle of production in the supply chain.
6. Channels involved in the supply chain.
7. Links between producers, market, government and the private sector.
8. Incentives for production
9. Barriers to market.

1.3 Research Area

The location determined for the research was an outcome of a preliminary research done by the author. Consumers of Kathmandu were chosen as the end users of the supply chain due to the centralized nature of the country. According to recent data, the population of Kathmandu accounts to 8.5% of the total population of Nepal (World Population, 2017). It is the most densely populated area in the country with massive consumption and need of agro products, mostly vegetables (Nepali Households Spending, 2017).

Reports suggest there is a lack of monitoring on the pricing of vegetables in the retail sector, even if the price of vegetables becomes cheaper in the wholesale market, the retail price does

not comply accordingly (The Rising Nepal, 01/28/2017). Thus the need to try and understand the reasons and scenario that impact the extreme change in the pricing structure of such fast-moving consumable goods in Nepal was required. Hon. Mohan Prasad Baral (Nepali Congress, Parliamentarian, Government of Nepal) explains that the current supply chain of agricultural goods in Nepal is weak because private sector is not drawn to invest in the Nepalese agro-economy. He also mentions that there is a need to motivate youth in agriculture so that innovative ideas can penetrate the traditional methods that have been used to fulfill the rapidly increasing demand.

1.4 Rationale for selection of Research Area

This research aims to study the biggest market for vegetable supply chain in Nepal which was found to be in Kathmandu. While researching the biggest supplier for the biggest market it was found to be Dhading. The complex geographical nature of the region and research done by SAMARTH NEPAL shows Dhading as the second biggest producer of vegetables with 75,458 metric tons of vegetables per year in the districts supplying/surrounding Kathmandu after Kavre which amounts to 133,678 metric tons (SAMARTH , 2015). Kavre, being declared as the potato super zone (Kantipur Post, 2017) more awareness into vegetable cultivation and market reach had been done by different governmental and non-governmental organizations. Dhading has the highest numbers of collection centres i.e. 70 (Samarth Nepal, 2017). These collection centres provide immense value as well as cost to local farmers and traders. Hence to focus on the cost and benefits surrounding the storage process, the research was designed around Dhading. The time frame of the supply chain of degradable products being very small, and such products being relatively vulnerable to several factors, the research also explored risks involved in the supply chain.

The research was more focused on the methods of the supply chain, it explored the reasons for use of informal channels, and the value added by them in the supply chain of these

products. The samples of these products seasonal products like beans, okra, and potatoes were used to analyse the difference in prices.

1.5 Purpose of Undertaking the Research

The need to understand and take prompt actions to simplify supply chain to yield maximum potential results is growing massively in the modern business ecosystem. World Bank states a country's ability to successfully and efficiently transport their goods from A to B can be a make or break factor in its development. Reliability and predictability are increasingly vital factors for successful business relationships - even more than the cost in many cases (Management, S. 2017). Reports, as outlined above, provide us with facts portraying the extremely harsh conditions for farmers because they do not receive a fair price for products while the consumers have always questioned the extreme increase in pricing of these goods.

1.6 Statement of the Problem

The major issue of the current supply chain scenario of Nepal is the massive variation in the pricing of FMCG (fast moving consumer goods) especially of the Nepali fruits and vegetables. Reports suggest the price of local vegetables and fruits in Kathmandu Valley, coming from nearby districts, are hiked by up to 200-300% (Krishi Bazar, 2017). Although most of these figures go into the cost of operation and to the several layers of mediators, farmers and consumers don't believe it is justifiable. Every key stakeholder in the supply chain are facing unique challenges. Despite the ongoing poverty alleviation programs in Nepal, the farmers have gained little or nothing so far (Krishibajar, 2017).

1.7 Research Questions

The primary aim of the research was to study the supply chain of vegetables from the district of Dhading to the capital city, Kathmandu. The research focused on production processes, mediators and costs involved in every phase of the supply chain. To do so various

stakeholders ranging from the farmers, government organizations, mediators, transport agencies, collection centers and consumers were interviewed. The research was designed with an assumption that rural farmers and urban consumers have been exploited due to unnecessary price hikes owing to the presence of intermediaries in the supply chain of vegetable products from Dhading to Kathmandu. Hence farmers are not able to get a good price for the production, and consumers are not able to get a good product for the price paid. The assumption was partly due to various media reports of unfair supply chain procedures in Nepal.

The research was designed to understand and recommend policies for the Parliamentary Committee of Agriculture and Water Resource to develop a sustainable supply chain model which distributes the benefits from the supply chain equally. Hence following themes were studied:

1. Current Supply chain process.
2. Problems of stakeholders involved.
3. Loopholes in the process of the supply chain.
4. Comparison between direct and indirect marketing.
5. Roles of co-operatives and collection centers in the supply chain.

The research focused to answer the following questions:

1. What is the barrier for private sector to go into local vegetable supply chain?
2. What are the major costs involved for the farmers and intermediaries and is there any method that can be used to reduce cost?

1.8 Aims and Objectives

Primary Aim:

1. To create evidence based policy recommendation for the Parliamentary Committee of Agriculture and Water Resource in Nepal.
2. Study of the supply chain of agricultural goods, mainly vegetables, from Dhading to Kathmandu (the meaning of the term 'supply chain,' used hereafter will be limited to supply chain of agricultural goods)

Secondary Aims:

1. To investigate the roles of all stakeholders involved.
2. To compare between individual marketing methods v/s collective marketing methods.
3. To analyse the reasons between price variations.
4. Understand barriers to entry for the private sector in the supply chain process.

Objectives:

1. Analyse various theories related to supply chain
2. Highlight the importance of creating a sustainable and replicable supply chain model in agriculture.
3. Collect relevant data to be able to study the supply chain situation.
4. Rate the change acceptance level of farmers.
5. Outline existing policies involved.
6. Distinguish the relevance of formal and informal sectors involved.
7. Explore the product-wise subsidies available in Dhading.
8. Find out risk reduction methods in the supply chain.
9. Find out about incentives for the farmers in production.
10. Find out about barriers to market for farmers.
11. Study the projected impact of decentralization of government to the traders and farmers involved.

1.9 Significance of Research

This research focuses on the various issues involved in the process of the supply chain of vegetables in the Nepalese market, specifically Dhading. This research is a case of a specific location and the issues surrounding that particular location. Hence giving future researchers a set format to be used to try this kind of research in other locations with similar dynamics in the agricultural scenario. This research aims to contribute to the government policy on the current supply chain scenario and be able to at least be a basis for future research. Hence this research bears an immense significance to be performed.

1.10 Hypothesis

“Farmers are being exploited in every corner by intermediaries”

This hypothesis was formed from preliminary research and media reports mentioned above.

1.11 Structure of Research

1.11.1 Chapter One: Introduction

This chapter gives the information about the aims and objectives of the research, giving information about the terms used throughout the research.

1.11.2 Chapter Two: Literature Review

This chapter contains the theories involved in the research. These theories are already produced by earlier researchers and will be the ground for this research.

1.11.3 Chapter Three: Research Methodology

This chapter will describe the methods used to fulfill the research in an organized way. This chapter should be able to explain the universal methods and describe the methods chosen by the author.

1.11.4 Chapter Four: Findings and Analysis

This is the main chapter of the research and will have all the data collected through the survey and interview and give a detailed analysis of the data acquired.

1.11.5 Chapter Five: Conclusion and Recommendations

This is the final chapter and will answer the research questions and explain the aims and objectives if they have been achieved. The chapter ends with recommendations for the organization and for future researchers on similar topic.

II. Literature Review

2.1 Introduction

Chapter two will try to explain current policies scenario surrounding the supply chain of local vegetables from Dhading to Kathmandu. It will try to understand various aspects of research already done in similar contexts. This will include but not be limited to reports from various government bodies, non-government bodies, and individual researchers.

Study of the supply chain has been one of the major topics in the growing logistics based industries. Reports suggest good supply chain management process brings in reduced expenses and increases productivity (The Rise of the Supply Chain Executive - Inbound Logistics. (2017)). According to the Agriculture Development Strategy of Nepal 2015- 2035,

over 4.2 million Nepalese depend on agriculture economy which provides over 665 of the population with employment.

2.2 Supply Chain

Nepal has over 3.2 million vegetable holdings accounting for over 69 percent of the total houses, contributing over Rs. 36 billion to the country's economy (CBS, 2010). With the constant rise in consumption of vegetables in the country, mainly in the capital, Kathmandu, vegetable farming has turned out to be an extremely important source of income and an effective tool for poverty reduction for rural communities. The instability in the political system has caused the slow development in the supply chain of vegetables. The other factor that cannot be ignored is the complex geographical situation of the country where the constant risk of floods and landslides prevent productions to circulate in a timely manner (Nepali Times, 2017).

2.3 Farmers

Nepal is a multi-cultural, multi-linguistic, multi-ethnic and multi-racial country (*Unity in Diversity, 2017*). However, farming connects these diverse communities. Nepal having almost 81% of its population in rural areas and 99% of that working population directly involved in agriculture (Farmlands and Farming in Nepal, 2017) gives us a picture of how dependent we are on agricultural economy. However reports give us a contradictory picture of unfair pricings for the farmers due to unstable supply chain (Bhattarai, 2015).

2.4 Co-operatives

In Nepal, where 90 percent of the population depend on agriculture for their livelihood, the country as a whole has had a food deficit for the last 26 years, mainly due to subsistence farming, small and fragmented land holding size, low agriculture input and productivity, uneconomical farming units, and lack of decentralized grassroots-based agricultural

developmental policies and programs. Widespread poverty, malnutrition, political instability, resource degradation, and a serious food deficit have become major national problems.

Agricultural policies and actions for raising farmers' living standards, achieving food security, and enhancing the natural resource base are urgently needed. Farmers need to begin thinking as a group and take unified action in order to achieve these overarching developmental goals and to sustain their livelihood and agriculture. Farmer cooperatives which are formed by the farmers, governed by the farmers, and run by the farmers in a democratic fashion are an ideal mechanism to increase agricultural production and farm income, enhance agricultural sustainability and food self-sufficiency while promoting Nepal's socio-economic development. Through cooperatives, farmers are empowered and economic growth is stimulated. Appropriate governmental policies, programs, rules/regulations, and support systems are essential for the success of farmer cooperatives (Canada Foundation for Nepal. (2007).

2.5 Agriculture marketing in Nepal

Nepal has a complex agricultural marketing scenario. Intermediaries are used to market local Nepalese products- vegetables and fruits- to the market. Given the limited involvement of the private sector in agro-marketing, intermediaries have been a reliable source for the farmers to supply the produces from the farmer's gate to the consumer's plate (Opennepal.net. (2017).

The research outlined that the current trend of setting up collection centers for vegetable goods on the outskirts of the capital valley has risen in the past few years. That has created a collection point for farmers to come and trade their produces with the traders who in turn supply it to the local traders in the valley, mainly Kalimati Bazaar. The price variation from the point of sale by farmers to the point of purchase by consumers can be as high as 300% in Nepalese agro supply chain.

2.6 Intermediaries

The traditional supply chain model of Nepal prominently includes intermediaries because of the complexity with transportation and accessibility for the farmers. However in the current market scenario, the use of intermediaries near markets has reduced due to the development in transport systems and building of collection centres by co-operatives with support from the government. The report by the Ministry of Agricultural Development (2017) gives us history of use of supply chain and how the use has declined in the past decade. Despite the decrease in the layers of intermediaries, most of the agro degradable goods still travel through an intermediary at some point of its lifecycle - from production to sale. This has created a better environment for farmers, with access to opportunities and reliable network, however, the process has been misused and several farmers misrepresented in several areas (Samarth-nepal.com, 2017).

2.7 Financial System in Supply Chain

Study of each and every variables in the supply chain will give a complete understanding of the financial situation of the actors involved. That will be able to give a picture of any risks involved in the process of the actions performed by them. The research was focused on comparing these two variables of profit ratio vs risk. The research focused on two major variables in the production cycle, one being small scale farmers and another one being the large farmers. The reason behind choosing these variables was due to reports suggesting producers with bigger market size can manipulate or influence the market according to their needs (Agriculture and rural development - European Commission, 2012). This ground label research might give an analysis of the situation of the culture of market in the region and give answer if that kind of situations exists or not.

To be able to decide with the farmers the research will decide random farmers from the list provided by the District Agriculture Development Office. As any other actors involved in the

supply chain can be variant according to the farmers themselves. This will give additional value to the research itself and just might give the status quo of the supply chain in the beginning of the supply chain.

2.8 Collective Marketing

Collective marketing is when a number of producers work together to create an impact on the supply chain and reduce any costs involved to make more profit. The research will justify it if it is true in the context of local farmers in Nepal with the cost benefit analysis of farmers using collective marketing as a means of marketing against those who use direct marketing as a tool. Reports suggest that most of the farmers living in areas surrounding the Prithivi Highway in Dhading district travel to the collection centres set in the highway belts.

Numerous co-operatives were set up in the past decade to address the growing demand of agricultural product. Hence groups created co-operatives to work on their interest, with some specializing in certain products only. The Tasmanian Institute of Agriculture describes collective marketing is where a number of growers work together to sell their combined crops. This may require additional storage, processing or packaging of the crop, with the costs shared by the collective. Collective marketing has the advantage of spreading costs over a larger crop volume, creating a larger presence in the marketplace, and focusing on marketing and sale.

2.9 Kalimati Bazaar

Kalimati Bazaar is one of the biggest marketplaces in Nepal. It was established in 1994 with the vision to be a collection centre to cater the vegetable and fruit needs of the Kathmandu valley and the surrounding districts. Ever since, it has been a hub for traders and buyers in the region due to the growing demand of agricultural goods with the increasing population of the capital city. It has also been the go-to place for marketers due to competitive prices for the products. The annual report for 2073 of the products and its sales from Kalimati shows a total

of 91 different agro products weighing a total of 1,34,000 metric tonnes. This data can be seen in table 1 in the appendix. The table shows us the massive capacity of the hub with over 134,000 metric tonnes of yearly trades (Kalimati market, 2017). Kalimati Bazaar creates a guideline for traders for the market price of the products. It updates daily according to the supply-demand structure formulated with guidance from the wholesalers in the market and publishes the pricing structure for the general public and traders. This helps with tracking the rates and its differences and keeps traders on check to avoid unfair pricing for the consumers.

III. Methodology

3.1 Introduction

The main purpose of this research was to find out the impact of every stakeholder in the supply chain of vegetables in the district of Dhading.

3.1.1 Research duration

The research duration was from 1 June, 2017 to 20 August 2017.

3.3 Research Methods

3.3.1 Quantitative Method

The research focused to find out the changes in prices from vegetable producers to consumers. To be able to calculate the differences and make recommendations data about the average pricing structure and the highs and lows of vegetable products was collected to analyze the price variance. Primary data was collected to understand pricing structure of local markets and markets in the city area from farmers. Few traders were interviewed to understand the price from source to the market. Besides this, records from the government agencies and co-operatives was studied to understand the financial analysis and the amounts and products being traded.

3.3.2 Qualitative Method

The research also focused on the qualitative method by doing group sessions between farmers and traders in the presence of co-operative to understand the issues they faced. Videos were collected and documented for further research. The data was collected in order to understand the problems local farmers and traders faced in the existing supply chain model.

3.4 Data Collection method and Strategy

For this research secondary data was collected from various sources like reports from Ministry of Agriculture, District Agriculture Development Office, SAMARTH Nepal and Kalimati Bazaar committee. These reports outlined the research strategy on the locations to be researched and to create a proper timeline of the field research in the district of Dhading.

3.4.1 Area of Study

The research was centred at Dhading district and the location was planned due to the maximum availability of collection centres in the district. The timeline of research is as follows with collection centres being the hub where interactions with farmers and traders were done. Table No . 2

S.No	Date	Farmer	Trader	Collection Centre	Location
1	23/07/2017	y			Dhading Besi
2	24/07/2017	y	y		Dhading Besi Markets
3	25/07/2017	y	y	Bhairawi Vegetables and Fruits Co-operative	Benighat
4	25/07/2017	y	y	Shree Krisak Vegetables and Fruits Co-operative	Charaundi

5	26/07/2017	y	y	Gramin Bikash Finance	Bishaltar, Benighat
6	26/07/2017	y	y	Sana Kishan Co-operative	Salyanghat, Benighat
7	27/07/2017	Y	Y	Salyanghat Co-operative for Vegetable and Fruits	Salyanghat, Benighat
8	27/07/2017	Y	Y	Okro vegetables and fruits Co-operative	Jogimara, Majhimtar
9	28/07/2017	y	y	Malekhu Co-operative	Malekhu Bazaar, Benighat
10	28/07/2017	Y	Y	Janabhawana Co-Operative	Khatauti River, Jogimara
11	29/07/2017	Y	Y	Bung Chung Fruits and Vegetables Co-operative	Sallanga, Bunchun
12	29/08/2017	Y	Y	Jana Adarsha Co-operative	Gahuribazaar, Gajuri
13	29/07/2018	Y	Y	Navajyoti Fruits and Vegetables Co-operative	Naubise, Dharkebazaar
14	30/07/2017	N	N	Kalimati Bazaar	Kalimati, Kathmandu

The map of Dhading District is as follows:



3.4.2 Research Design

Descriptive and analytical research approach was used to complete the research of the supply chain. The identification of the intermediaries was descriptive in nature while analytical approach catered the impacts for farmers, traders, co-operatives and consumers.

3.4.3 Pre-departure arrangements

For the purpose of the research information about the geographical nature of the location to plan a timely travel and stay in the field was required. Local District Agriculture Development Office staff were contacted to pre-plan the field research and then a meeting

was held with the staff at Dhading Besi to connect more and take advice on the Do's and Don'ts.

3.5. Survey and Interview Design

Two different survey questions were prepared for the farmers and intermediaries.

3.5.1 Survey

As the research focused on the implications of intermediaries on the farmers, different sets of questions were prepared for both stakeholders. The questionnaires were based on the Women Rural Enterprise Accelerator Project (WREAP) Assessment provided by Daayitwa. The questions focused on the problems that the farmers and intermediaries found relevant to them and any policy that might benefit them in long run. Data was collected from 11 collection centres located in the highway belt of Dhading. The collection centres operated daily and the farmers traded their products there.

3.5.2 Interview

Interviews were taken from the traders and co-operative staffs in the 11 collection centres. This was primarily to understand the problems that traders and co-operatives face during the trading. Interviews also gave the space to participants to open up and provide relevant information. Interviews were also conducted with the government officials from District Agriculture Development Office in Dhading and Ministry of Agriculture Development office in Kathmandu. Short interviews with the staff at the Kalimati Vegetable Centre were also conducted.

3.6 Expected Map of Supply Chain

The Initial Expected Map of Supply Chain based on preliminary research was as follows:

- Farmers
- Collection Centres / Local Traders / Cooperatives
- Trader/Wholesaler (Dhading Beshi)
- Regional Traders (Dhading)
- Transportation
- National Retailers/Wholesalers (Kathmandu)
- Local Retailers (Kathmandu)
- Consumers (Kathmandu)

The research was not limited to the above mentioned stakeholders in the supply chain and traced other stakeholders involved. It also explored the unseen reasons for price jumps.

Recommendations from the Office of Hon. Mohan Prasad Baral were used to collect the data from authorised government agencies. This data was used to construct the questionnaire.

After determining the farmers and area of research with consultations from the governing body of DCCI and DDOS, ground level research began.

3.7 Sample Size

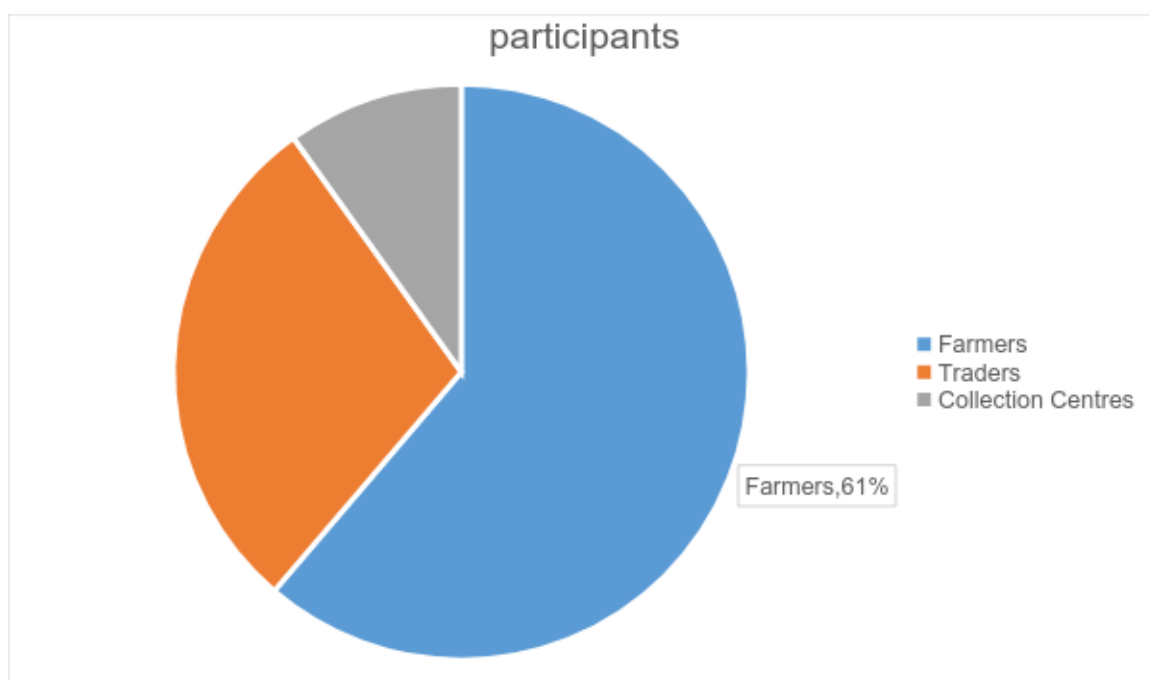
The sample size of the research is as follows:

Table No 3

S.No	Location	Farmers	Intermediaries	Collection Centres
1	Dhading Besi	5	2	
2	Charaundi	5	3	1

3	Naubise	7	2	1
4	Benighat	32	15	5
5	Jogimara	12	7	2
6	Bunchun	2	1	1
7	Gajuri	5	2	1
	Total	68	32	11

Figure No 1



3.11 Ethical issues of Research

Research involving direct interactions with the farmers and uneducated bring unfair expectations from them. A regular research on the same locations might demotivate the farmers and traders if they are not incentivised. As the researcher carried a formal letter from a government body under the name of a parliamentarian accessibility might have been easier. For a freelancer researcher this might not be the case in the future. Besides, there were times when during the research hostile situations had arisen between few farmers and traders due to the questionnaire structure and due to the research being conducted in the same location but differently.

3.12 Limitations of Research

As the research was focused on the supply chain of vegetables from the district of Dhading to Kathmandu these findings might not reflect other areas or locations due to difference in geographical context or the market reach. However, the methods used might be replicated and the supply chain scenario discussed are the closest in every commercial farming locations. Some limitations are as follows:

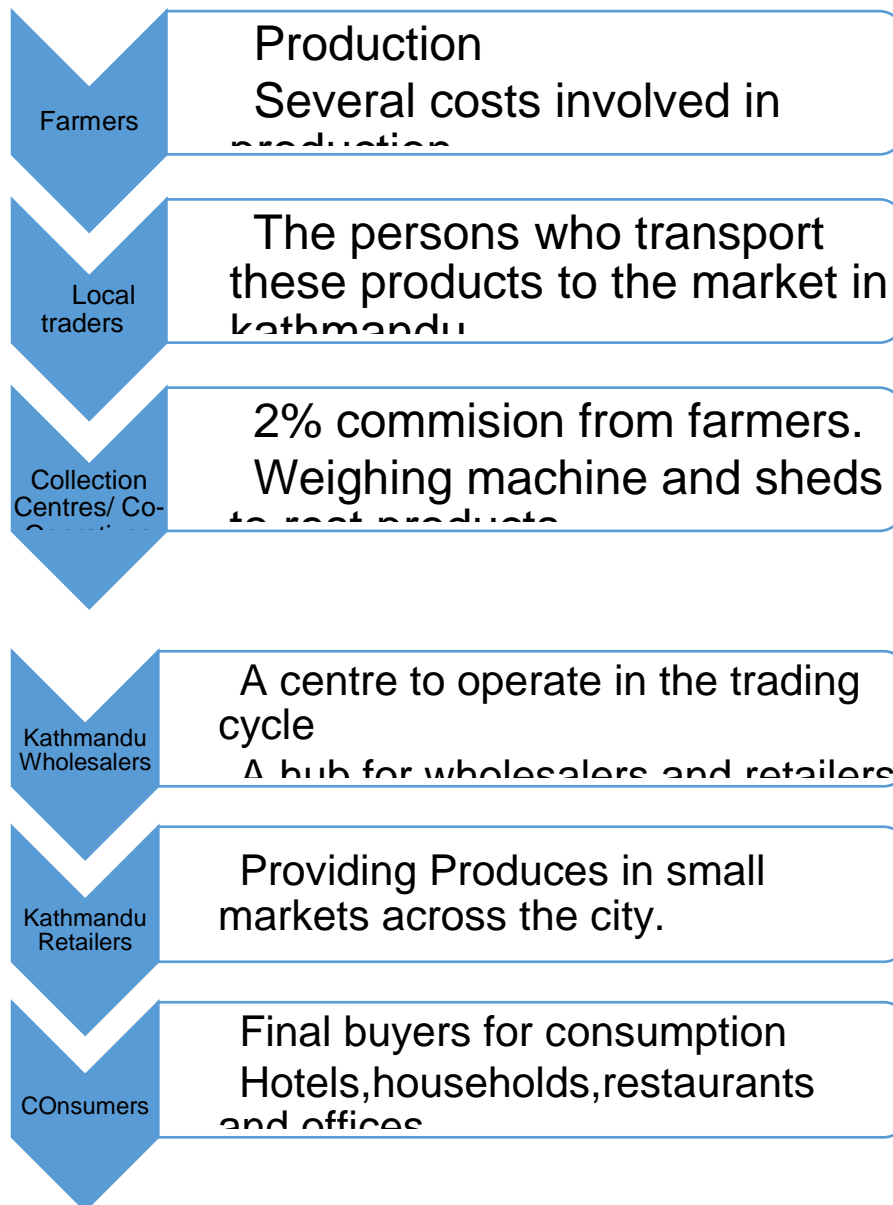
- There may be misrepresentation due to wrong selection of respondents, as the respondents were random.
- Topic was extremely vast but the timeline for the research was extremely short for the content to be added. This research might have been broader and more productive had it been conducted in a longer time.

- In some cases several farmers had contradictory response regarding the intermediaries giving confusion on which data to be addressed.
- The budget for the field research was limited due to limited activities that could be performed.

IV. Analysis of Findings or Evidence

4.1.1 Actors involved in the Supply chain

The research found out the supply chain model active in the context of agriculture goods from the collection centres in the highway belt in Dhading district to Kathmandu. The model is described in diagram created below:



4.2 Farmers

A total of 68 farmers were interviewed during the research, 32 of them were interviewed in one-on-one conversations, and the rest in closed group sessions. The interviews were conducted in various collection centres in Dhading.

For the research to be more precise, data collection was selective of age and gender. However as the visual for the collection centres showed that there was high number of female farmers actively involved in transportation of vegetables from their farms to the collection centres, it was noticed that they had extremely low knowledge about supply chain and lack of interest

in being involved in the research. The farmer's perspective of the research at the beginning was alienated due to regular research done by several government and non-government agencies. However the reason behind this particular research most of the times helped in collecting farmers together to discuss issues.

Of the thirty two farmers interviewed individually, thirty of them had minimal education the other two were returnees to Nepal after few years stay in the Gulf region.

4.2.1 Key Challenges

The research had a question for the farmers to discuss on the key challenges. Some of the listed and common challenges listed by the farmers are as follows.

1. Lack of irrigation
2. Lack of quality pesticides
3. Lack of quality seeds
4. Lack of seeds during production time
5. Lack of labour to cultivate due to rising labour cost and decreasing labourers to work in the farm.
6. Fluctuating pricing structure of the products.
7. Lack of market reach
8. Lack of trainings and knowledge about technology and innovative farming methods

4.2.1.1 Lack of Quality Seeds and Pesticides

The most common issue collected from the research was that of lack of quality pesticides and seeds. Almost all the farmers agreed to the statement that they are not being able to get quality seeds and pesticides at value price and on time. Yek Bahadur Kandel from Benighat shared that he constantly travelled to Kathmandu to buy seeds at Rs. 120 which would cost him Rs. 260 at his village from the local co-operative vendor. On the other hand Sambhu

Kandel from Gajuri shared that due to irregular supply of pesticides in the past, the soil in the farmlands has degraded and required more pesticides than usual and the government kept pushing to stop the use of pesticides and go organic. He added that this was not possible at this time due to the hand to mouth situation of the farmers and the need for growing quantity is in demand. Few farmers did state that various Radio and Television channels which broadcast agriculture related news have been helpful to broaden their knowledge on newer techniques, seeds and pesticides. However the seed varieties broadcasted are not easily accessible and these demand seeds costs more than the ones provided by local vendors.

4.2.1.2 Lack of Irrigation

Different locations had different major issues ranging from problems of monkey to lack of roads but the one that had a greater impact was the lack of proper irrigation. Few respondents shared that the water source had dried due to the earthquake and few of the farmers had to solely rely on rainwater for irrigation, which could be unpredictable. Irrigation according to them provides them with the opportunity to go for off season vegetable farming and create better livelihood for them.

4.2.1.3 Labour Cost

The rise in the labour cost has been one of the major issues for the farmers who plan to go into bigger scale. Most of the farmers interviewed were semi commercial who were capable to cultivate their own lands, however those who had uncultivated farmlands were limited due to the rising cost of labour and at the same time lack of labour. According to them people are more interested in easier jobs in the city than in the farms.

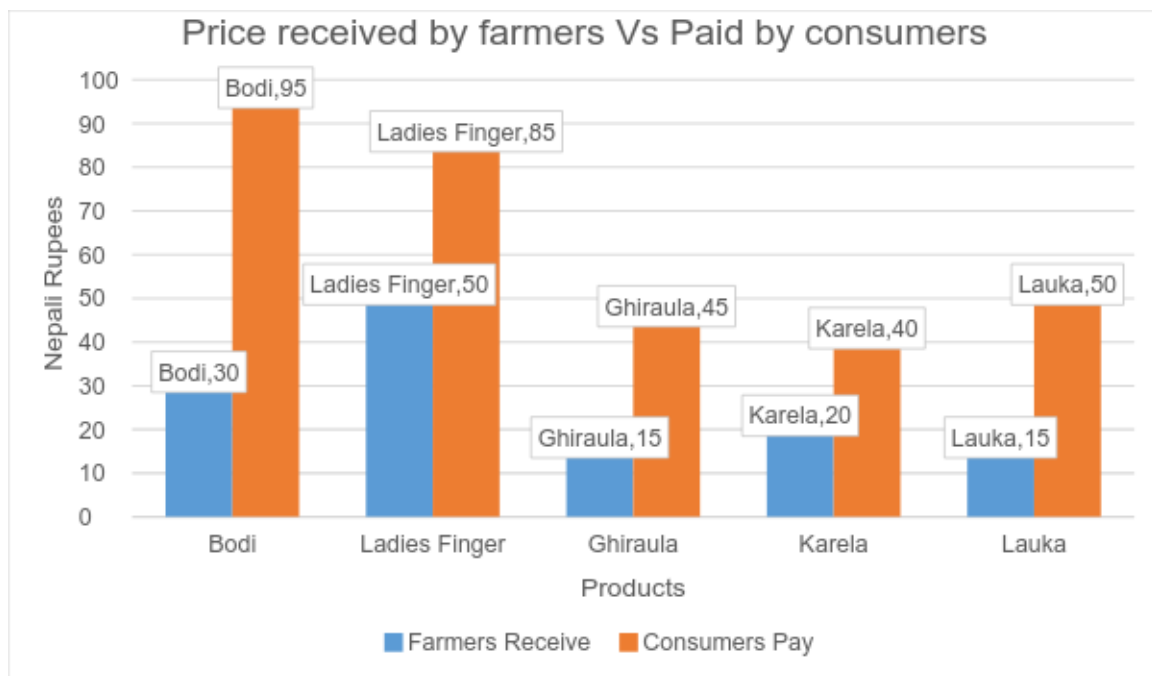
4.2.1.4 Fluctuating Price of Products

The price for the goods produced by the farmers is not constant. Farmers have limited access to market price for their produce and rely on the traders to bid the price. The price for the

products, according to the research, was found to be ranging from as low as two rupees to 100 rupees for vegetables at certain time.

4.2.2 Products Researched

As the research was scheduled on timely basis, the products were selected on the basis of the season and the price on that time period. The average price among the farmers from different collection centres and their products of which financial data was collected are as follows:



4.2.3 Farmers marketing directly

For the research, farmers that choose direct marketing as tool of marketing their products were studied. For this, the city of Dhading Besi was chosen as the preliminary research suggested that location to have prominent direct marketers. The reason for them to follow direct marketing was that the village was located near the city, and it had easier access to market for the farmers. They had already set up timelines. The farmers described the process

as ‘betting’ on the day. They travel to the city with a load full of products and try and sell it to the final consumers on their door steps at the market price, if they cannot sell it by evening, they sell it to the local traders at minimal price. The consumers prefer to purchase from the farmers directly but they lack reliability of the products and time.

4.2.4 Access to Finance

Most of the farmers were wary about the idea of financing their produces. Some of the participants of the focus group discussion shared about the issues relating to access to finance. It was found out that most of them have limited reach to the banks and some of them had limited documentations which are primarily required by the financing agencies. The requirement for collateral for finance also pushed some farmers away from getting involved into mass production. Lack of knowledge about opportunities of financing production was realised as the main issue.

4.2.5 Cost of the Farmers

The basic costs, ignoring the cost of livelihood for the farmers to produce their goods are ploughing, seed, transplantation, irrigation, fertilizer, pesticides, harvesting and threshing, and transportation. These costs are variable costs as the harvest produced fluctuates regularly prohibiting farmers from making any kind of forecast for future investment, thus limiting long term planning for small scale farmers.

4.2.6 Buyback

During the research there were certain areas/collection centres where the trend of traders providing seeds in return for informal contract requiring the farmer to commit to sell the final produce to the same trader was found. When cross examined these trends limited the farmers’ bargaining power. Though it provided the farmer with financial security, it was understood in

case of loss of harvest, the farmers still had to bear the cost of seeds, which was however a rare case, but still left the burden of risk on the farmers.

4.2.7 Facilities by the government

As stated above District Agriculture Development Office (DADO) of Dhading has initiated a 10 year long Prime Minister's Agriculture Modernisation Project. This project is determined to focus on productivity with quality in the agriculture development in the region. The farmers of the Dhading have a lot to gain out of it. However, it was found during the field research that most of the farmers were unaware about the project even six months into its initiation.

4.3 Intermediaries and Collection Centres

In the context of Nepal, intermediaries or local traders play an important role in the supply chain of local products. When the market has limited access to the producers, intermediaries are the ones taking the risk and reaching out to the the farmers to collect and transport their goods. This research had a close communication with the local traders who had direct link with the farmers. These traders were interviewed at the collection centre- with several traders at once or in some cases individually in order to try and understand limitations in terms of scaling up on the volume of products they traded. For this, 32 traders were interacted with at 11 collection centres.

4.3.1 Key issues of Intermediaries and Collection Centres

The key issues of collection centres and Intermediaries are as follows:

- Lack of organised transportation vehicles or transport agencies
- Lack of quality produce from the farmers
- Unstable pricing structure directly influenced by the produce from India

- Lack of storage facility
- Lack of options of market place
- Monopoly of one market
- No access to major market stalls

4.3.2 Storage

The entire highway belt that provides majority of the products to the Kathmandu valley does not have any storage facility. Farmers believe that having a cold storage for seasonal products can provide better pricing for the produce. The seasonal transfer of vegetables from the neighbouring country India influenced the market price drastically. They supply in large quantities which reduced the demand and hence directly impacted the market price, and has been one of the major reasons of low price for the farmers.

4.3.3 Barrier to entry for new traders

During the research of the eleven collection centres, three of the collection centres were found to be in critical stage. The farmers were not getting competitive price due to trader's carteling where they did not allow new traders into the premises of the collection centres. Communication with farmers and the co-operatives pointed out that new traders had to go through the local traders to purchase any goods from the farmers in those particular collection centres. Though in the rest of the eight collection centres the farmers described the situation as open to bidding by the traders. They paid the farmers according to demand and whoever paid more got to make the purchase from the farmers. In the three aforementioned collection centres, research showed that farmers were getting half the money for the same produce from that of the farmers trading in eight other collection centre few miles away which showed the rampant exploitation of farmers

Furthermore, misuse of infrastructure was also observed. For example, at one of the three locations the shed created to store farm produce in the initiative of the government eight years ago was found to be used for chicken farming. Upon inquiry it was found that the chicken farm had actively been in operation since 7 years and the rent went to the local trader who had set up the collection centre in front of his house.

4.3.4 Commissions from Collection Centres

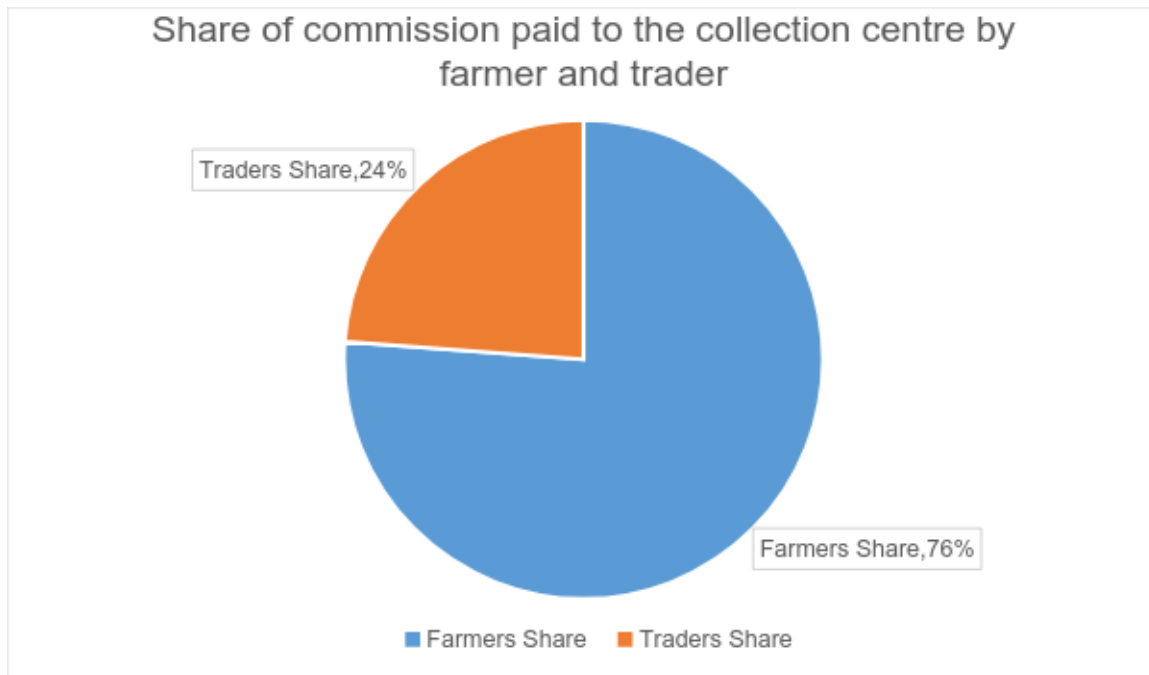
The research found out that every collection centre charged two percent of the sales price from the farmers, but only few of the collection centres charged from the traders, the highest amount charged traders was five rupees per crate. A crate contains on average twenty kgs of stock. To compare the cost share assuming a farmer travels with 20kg of beans and the rate is set at NRs 40 then the farmer pays two percent of total sales which is NRs 16

$$\text{Total sales} = 20\text{kg} * \text{NRs } 40 = 800$$

$$2\% \text{ of } 800 = 16 \text{ (Commission to collection centre)}$$

However for the same quantity the traders bear only five rupees.

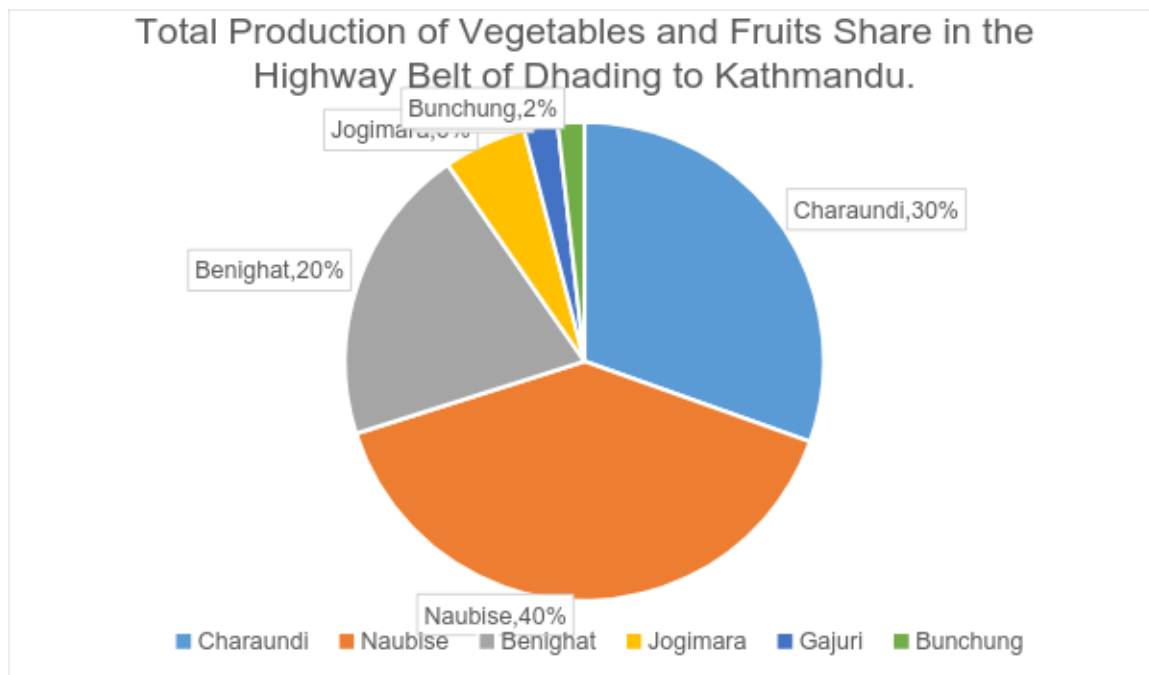
The share of the commission distribution is as follows



NRs.40 was taken as an average for the price of the product because the average price of most of the products during the research was instructed to be NRs. 40. This shows the unfair practice in the co-operative/ collection centres policy where the farmers were on the losing side.

4.3.5 Market stalls

From the 11 collection centres that were researched, a total of over 14000 tons of vegetables and fruits were circulated last year. With such a large volume being circulated from just 11 collection centres operated by the co-operatives, only one of them had stall in Kalimati Bazaar, the biggest market in Nepal. The representatives of the collection centres/ co-operatives portrayed that they constrained growth as it was unlikely for them to get a stall at a major market. Accessibility to such stalls is important as they are one of the major hubs for the products and can create a link to trade by themselves. The share of market between the collection centres in Dhading belt are as follows:



The above data collected from the yearly report of the Agriculture Development Committee shows that when we combine the production share of vegetables and fruit in the highway belt of Dhading, Benighat, Charaundi and Naubise, it carries ninety percent of the produce. However vendors from these locations are deprived of potential market place at Kalimati Bazaar as the market is accessible only through multiple layers of traders.

4.3.6 Objectives of Collection Centres

The research found out that these collection centres were established initially by forming of groups between the farmers for the sole purpose of simplifying marketing needs of the farmers and traders. However, this initial purpose was found to be unfulfilled in most of the collection centre. Interaction with the co-operative member from Salyanghat revealed that when the collection centres attempted to play the role of buyer and trader, the traders manipulated the pricing structure of neighbouring collection centres and stopped it. This move of the collection centres would have reduced the layers of intermediaries and formalised the trade, however, the traders have a strong collective group which gives them monopoly.

4.3.7 Collective Marketing

The research found that in most cases farmers had good knowledge of the system and roles of the traders and the collection centres in the supply chain. Most of the collection centres had open trader scenario. Even though local traders had the competitive advantage over other traders, the collection centres were found to have no barrier for newcomers in the trading business. Evidence collected from farmers pointed out that arrival of new trader meant the price for the vegetables grew in favour of the farmers. This also pointed out the monopoly in the market. Collective marketing has created a hub for farmers and made it easier for all the stakeholders in the district to work together. If we put aside the cases of misrepresentations by traders and co-operatives to the farmers, the collection centres can be said to have created a conducive space for farmers. The market linkage has been made stronger, and the value for their produce has been better than what it was before the establishment of collection centres.

4.3.8 Loss

The interviews and group sessions with the local traders gave a view of the quality of the product. They shared that the farmers were not being able to produce quality goods that could compete with the ones produced in India. Though many reasons might be there it was understood the products have to be traded in the standard they are picked from. Quality issues arose time and again, and it was estimated that 10-15 percent loss had be borne by the traders on the purchased products in the process of transportation. The most common loss factor was weight loss due to the time spent in a hot environment in the vehicles enroute to the market place at the highway.

4.3.9 Transportation

As mentioned above, the transportation of goods from the collection centres to the market in the capital has been an issue of concern for the traders. Due to the absence of regulations for

transport methods, the traders have to use local vehicles rather than vehicles specifically made to transport agro goods. This leads to weight loss of the products due to unfavourable temperature inside the vehicle for the produce. Another issue with the current transportation methods is the lack of ownership in transportation leading to product damages during transportation. The cost for the products transportation was identified to be NRs 2 per kg. On average eight tons of vegetables and fruits was transported from the collection centres which required hiring two to three vehicles in the off season and up to ten vehicles otherwise.

4.3.10 Value addition to the products

The research found that the collection centres were essential as they provided a conducive environment to farmers to trade their products. The traders provided a collective marketing method to the farmers with access to transportation and market. The access to both transportation and market would not have been possible for farmers owing to limited finance and network. The collection centres on the other hand were also equipped with weighing machines, a shed to store their produce, and also a centre to exchange knowledge about various products. Furthermore, co-operatives involved in running the collection centre had a seed and pesticide shop setup. As stated above, the price for the products of pesticides was comparatively higher than the ones in the market of Kathmandu but it was easier for farmers to access them at the collection centre. Besides it was understood the co-operatives regularly involved with the farmers on training them on the market and its demands.

4.3.11 Indian Market

The research found that the market fluctuation for the produce was entirely due to the supply demand scenario. Any kind of irregularities in the Kathmandu to India track impacted the number of vehicles transporting the goods to Nepal, hence limiting the quantity in the market leading to rise in demand and hence rise in price. However these cases were rare. On most occasions few vegetable products and fruits are affected regularly by the market from India.

News of transportation of Indian stock automatically reduces the price for the Nepalese stocks.

4.3.12 Taxation on Collection Centres

According to the report created by the Dhading Agriculture Development Office in Dhading the total sales from the eleven collection centres of the highway belt to Kathmandu was over NRs 400 million. Every collection centre charged two percent flat rate on trades done by farmers which amounted to over NRs 8 million. As the money collected from the traders could not be accounted for, we have to consider the fact that such money can have figures similar to the one pointed out above. As pointed earlier Charaundi collection centre accounts for thirty percent of the market and that figure gives NRs 2.4 million.

Charaundi collection centre is run by Farmers Development Fruits and Vegetable Co-operative. Farmers who were members of the collection centre shared that they never received bonuses. When inquired with the representatives of the co-operative they stated that the total financial collection from the collection centre including the collection from the local traders accounted to around NRs. 1 million. Thus the research was limited in finding out reasons for discrepancy in government reports and information revealed by cooperatives in Dhading. This requires that the government resolve the issue of conflicting data through immediate research work.

4.3.13 Missing Tax Money From The Traders

From among the thousands of collection centres, the research focused on eleven of them and that accounted to over fourteen thousand metric tons of agricultural goods.

Calculating the average weight of the products traded,

Total sales/total weight = average price of product per kg.

NRs.400,000,000/14,000,000 kg =NRs. 28.5 per kg

As reported earlier the traders are charged on average five rupees per crate. A crate contains on average 20 kg. Hence to calculate an average cost of goods in a crate,

Total weight in crate * average price per kg = total cost of crate

20*28.5= NRs. 570

Hence the value of an average crate is around five hundred and seventy rupees.

As we know the total weight transported from the eleven collection centres is at fourteen hundred thousand and the weight per crate is twenty we can calculate the total crates at,

1400000/20 = 700,000

The research found that to avoid the risk of loss, traders marked-up the products by 25% while selling to different vendors. 25 percent of total sales of 400,000,000 is 100,000,000.

Hence we have a figure of hundred million rupees of profit made by informal sector which is unaccounted for and untaxed by the country. These figures are from the government's report.

Though the average price and weights are accurate, according to the research the losses of transportation and costs of operations by the informal sectors has not been included due to limitations.

4.3.14 Monitoring of Collection Centres

The research found that three of the collection centres had control over the pricing for the farmers. This contradicted the statement on the annual report of District Agriculture Development Office where one of the collection centre was reported to have been out of business for four years already, but a completely new private party was found to be involved in providing with the premises and working unofficially as a collection centre. On the other hand the collection centre in Bunchun was renting its premises to a chicken farm for the past

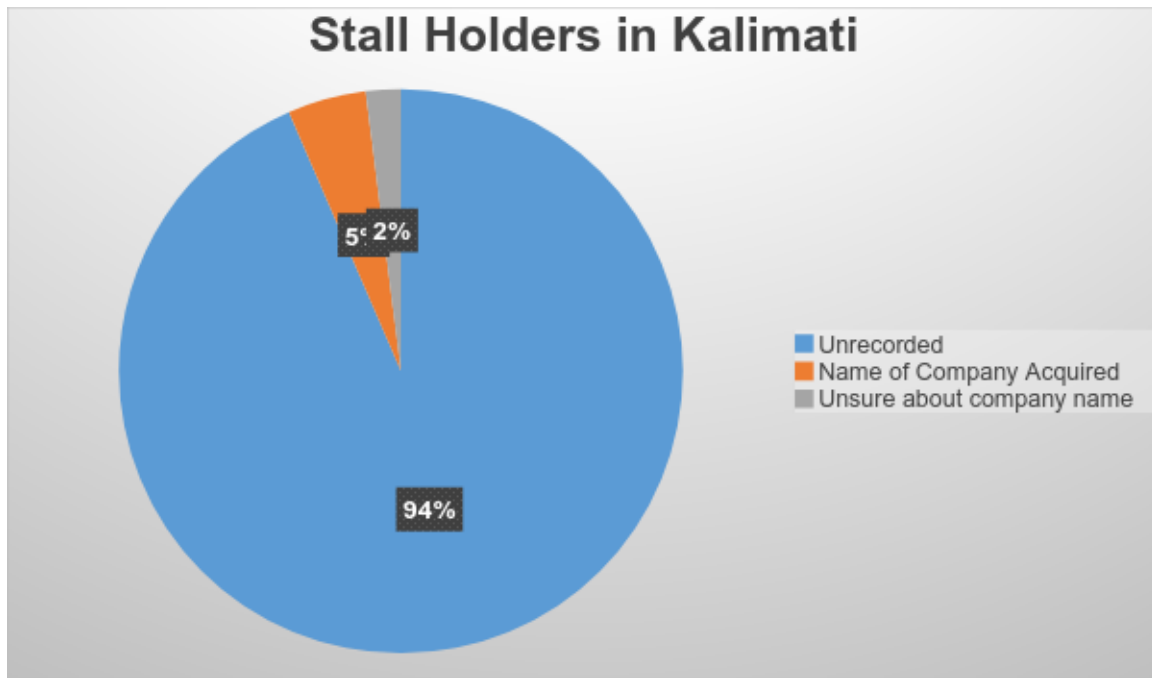
seven years. The research wants to point the lack of monitoring by the government which has collected data from these not functioning and wrongly functioning entities.

4.4 Kathmandu Market (Kalimati Bazaar)

During field research in Dhading, several interviews with the farmers, local intermediaries and staffs from the collection centres operated by co-operatives were conducted. The farmers showed low awareness level about Kalimati Bazaar. The intermediaries and collection centres pointed out that the monopoly of the Kalimati Bazaar traders was the main cause of unregularised pricing of agriculture products. Kalimati Bazaar stands as the heart of the supply chain of local vegetables and fruits to the Kathmandu valley. Majority of the products traded from Kalimati are transported from India a total of over 27% (Freshplaza.com (2017), whereas Dhading district accounts to 18%.

4.4.1 Ownership

Kalimati Bazaar has over 400 stalls in its premises. To be able to create a database after collecting a random list of stall owners, a thorough communication with 26 stall owners with the means of telephone was done. The research focused on registration procedures. It was found that eight of the stall owners had confusion on the name of the company under which they had registered for PAN. Everyone were persistent on their tax duties. Though the means to verify that fell on the limitations of the research, doing a thorough review of them would have led to a concrete information on operations of the market.



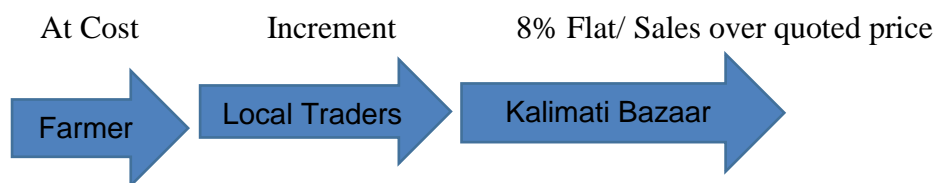
This showed that there was a need for a deeper research on every stall holders. Of the twenty six stall owners' data collected, eight of them had problems remembering the name of the organisation under which they have registered for tax purposes. That means over 30% respondents didn't have a good response to the research. This data gives a disturbing picture even though the respondents accounted for only 6.5% of total population of the stall owners in Kalimati Bazaar. Though the sample size was small the findings still cannot be ignored.

4.4.2 Overstocked

The stalls in Kalimati Bazaar were found to be extremely overstocked during visits. The vegetables and fruits were piled up on each other making a large heap in certain areas. Waste management was not well organised. The stock was not stacked in proper crates and hence risk of damages to the goods could clearly be seen. Though it could be seen that refurbishment work was being done, it was still limited to any kind of to go environment. This can be attributed to the fact that the Kalimati Bazaar alone caters to over 70% of the Kathmandu valley's demand of vegetables and fruits, and the workforce there is constantly active during busy periods of early mornings.

4.4.3 Commissions

The research focused on the pricing of the products and wanted to establish and find out if there were any non regular price hikes of the products. During the research it was found that though most of the traders in the market of Kalimati had their own sources, newcomers had to go for a flat eight percent model. Any new traders had to first find potential stalls to market their products as the stall holders did not want to pay for the products rather would let the traders to use the stalls for eight percent of the sales.



Besides the eight percent a fixed market rate is fixed by the stall owners which at point of sales if the stall owners can sell it for more than that, they keep the remainder of the money as well as the 8%. Besides that, if the market does not perform as expected and any degradable products that do not sale for the price indicated are sold at a discounted price to the retailers, this reduction in cost are to be accounted for by the local traders again. Hence the stall owners work in a zero percent risk basis whereas the traders have high risk of products loss as well as price loss.

4.4.4 Taxation

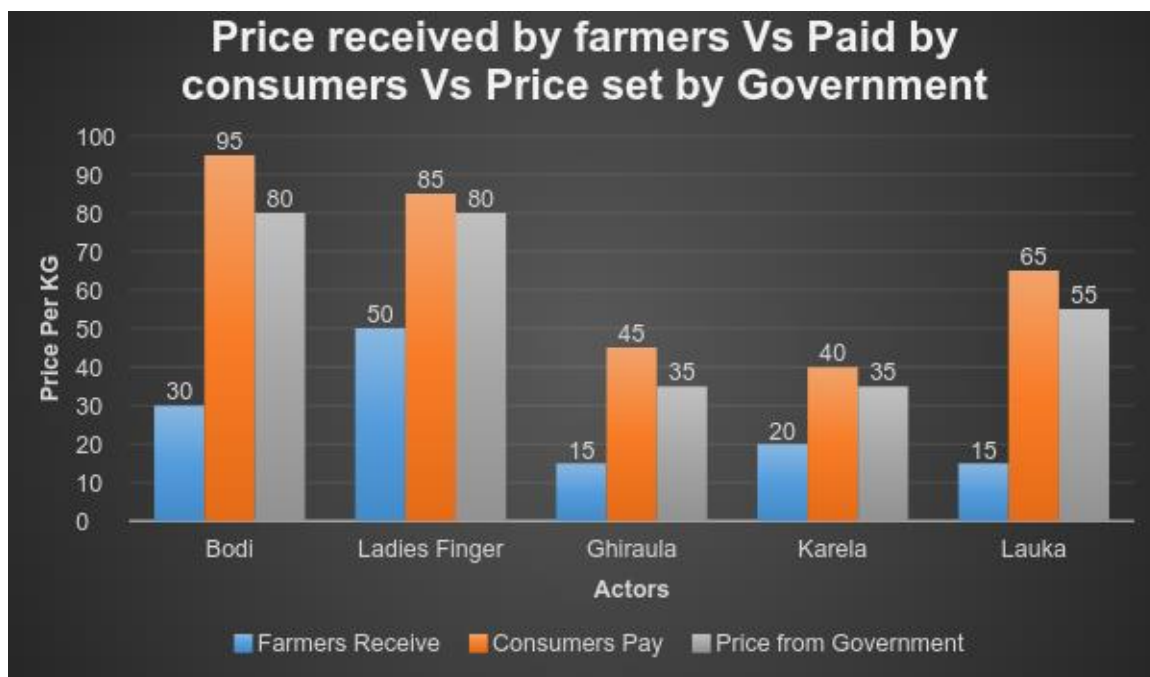
Kalimati Bazaar accounts to over one lakh and thirty five thousand tons of vegetable and fruit products in the year 2073/2074. When inquired from the stall owners though the basic requirement from the government of owning a PAN. No was found to be fulfilled. Any documentation or knowledge of tax paid was limited. Lack of information was a challenge for the research and lack of interaction from the stall owners with hostile welcoming environment was observed.

4.4.5 Monitoring

Research found a lack of monitoring on the premises of the Kalimati Bazaar during un-official inspection. As per the accusations by local traders and co-operatives in the Dhading highway belt that suggested that the stall owners do not themselves trade but rent it out to other layer of vendor. Even though such reports could be seen from articles and news there was found to be a lack of inspection methods. With limited resources on identity of the stall owners and the organisations involved in it the limitation to prove or disapprove the theory of third party renting of the stalls was found.

4.4.6 Pricing Structure and Its Issues

Kalimati Bazaar being the hub of the national market for agriculture degradable goods provides a baseline for the highest and lowest price at which a good can be wholesaled for a retailer and retailed for a consumer. This pricing structure however was found to be not actively used. Though the pricing is distributed among the stall owners, national media and many other Daily newspapers. The limitation of implementing it has been found as a problem. Stall owners and local retailers pointed that the pricing structure of the government lacks the cost of loss and transportation involved to it. The research was limited to verify that statement. The product price different of the products the research followed and the price set by government are as follows.



4.5 Retailers

Retailers are the backbone of trade. The retail industry of agriculture and fruits in Kathmandu lands on corner shops, carts and in some cases cycles and footpaths. The structure of retail marketing is a daily business in Kathmandu. Local retailers in Kathmandu travel to the big markets like Kalimati before the sunrise and select goods with negotiations and transport it to their hubs.

4.5.1 Loss

The local retailers were found to be facing problems of quality leading to losses. As the supply chain of products that reaches the retailers can be over 2 days in certain cases it was found that the life cycle of those degradable goods already shortened. Thus they were the ones found to be hiking the prices the most.

4.5.2 Price Hikes

Research found that the price hikes are unregulated by the retailers. When interviewed a total of 15 retail corner shops they had limited knowledge about the pricing structure of the government for maximum retail price for the consumers. Though they insisted the price fluctuates with the age of the products the pricing was found to be 5 to 10 rupees more than the maximum set by the government.

4.5.3 Tax Loss

Most of the local retailers were found to be carts in junctions and corner shops. These retailers of fruits and vegetables were found to be taxed by the local councils but are not legally registered to perform business and hence do not have to carry the burden of tax. Thus loss for the government's collection.

4.5.4 Mega Store

We can see that mega stores and chain stores like Bhatbhateni, KK Mart and Big mart getting into agriculture supply chain. Research showed that Bhatbhateni has even structured an investment into production of the vegetables. These pricings were found to be a bit over priced in the stores but had the luxury to avoid un necessary bargains as these stores have fixed pricing un the products they sell.

4.6 Consumers

The last key to the supply chain of vegetables is with the final consumers. These are the major stakeholders who has the power to buy or reject goods depending on their needs. They are the ones who create the demand. Providing quality product to be able to have a healthy relationship is the target of the retailers. The research had inquiries with few consumers and wanted to learn about what they thought about government's maximum chargeable amount.

4.6.1 Bargains

The research found that most of the consumers from households want to avoid a long conversation on bargains. The casual thought because of the bargain trends with retail is that if you don't bargain the best you are always losing money. Though the government sets minimum and maximum price for the products it doesn't stand accordingly and pricing is unregulated.

4.6.2 Lack of information on agriculture Policy

The consumers when approached about if they had any knowledge about the government's agriculture strategy and the governments pricing structure. The research found consumers are less interested in these matters as the final small household consumers have smaller issues.

V. Conclusion

5.1 Introduction

The research had a set goals before and during the research process. Certain goals and information's were added and certain goals were removed as the research progressed to make it more replicable as well as transparent at all levels. To be able to create a evidence based policy recommendation was the major goal of the research besides that the aims and objectives and the research questions and its conclusions are as follows,

5.1.1 Aims and Objective

The major aim of the research was preparing a policy recommendation which has been stated in Chapter six of the research. Though there has been numerous policies being created by the local governing body as well as new policies and plans projected by the central government there is lack of knowledge about actions and implementations. The research does not question the implications of the actions but questions acknowledgement by the required stakeholders about the policies so that they stay knowledgeable and learn more in the process.

The Supply chain of vegetables from Dhading to Kathmandu was found to be similar than expected. Though there are several issues with the local intermediaries, stall owners and local retailers. The research concludes that transparency has been a problem between the stakeholders not leading to a healthy work environment. Transportation of agricultural goods from the farm to the finger of the consumers through various means of intermediaries be it formal or informal. The intermediaries are the key players on the table and are the ones to affect the price the consumers pay and the price that the farmers make from their products. The intermediaries are an unregulated and an extremely needed evil in the supply chain. The intermediaries be it the stakeholders in the stalls or the local ones take as much advantage of irregular situations in their own favour.

Though direct marketing for the farmers may sound more profitable it is extremely difficult for the farmers to reach the market by themselves. We have to understand that the farmer's expertise is production and they have invested a lot of time, effort and money on it. If exploited might result them to seeking other options of income generation.

The price variations is due to unregulated structure of the supply chain. The co-operatives are not monitored properly nor are the stall holders in the capital. Informal sectors are already untraceable. Hence a portion of supply chain of local vegetables in Kathmandu is in a mess. The local traders in Dhading prohibit new traders in certain locations. Thus that system has to be

stopped to open fair pricing model and to create competition on the market so that the farmers can get better competitive price.

The transportation of vegetable goods are in critical condition with low standard vehicles used for it. Thus leading to loss of goods. The other losses incurred are due to the improper stock management by stall owners at the Kalimati Market.

The tax loopholes were found in the supply chain of Local products. The local traders,retailers and stall owners need to have thorough knowledge of TAX and its benefit to the country.

Commission system of work is the new trend in the global market and national big markets. We have to understand that pricing of these products can be commissioned at certain rate but having said that any entity involved have to bear a certain risk of trade if not equal.

For the farmers to be more productive and if the vision of a government in this role is development and modernization of farmers then the tools and techniques of farmers are not being done properly. Traditional methods are still used.

5.1.2 Research questions

The research questions and their answers are as follows,

1. What is the barrier for Private sector to go into local vegetable supply chain?

Private sector or formal sectors find it extremely difficult to enter into this Agriculture supply chain. There was found to be several layers of problems for new entrants ranging from barriers to the farmers, barriers to stalls in the capital lack of proper transportation facilities. Until these problems are not addressed new entrants which create competition and lead to benefit of farmers and consumers can get limited. The research found positive works being

done for poverty elevation with the means of agriculture as a source of income. However to enter the market and for new entrants it's not a lucrative entry point.

2. What are the major costs involved for the farmers and intermediaries and is there any methods that can be used to reduce cost?

Farmers have a list of costs of production with unfair pricing structure of seeds and pesticides in the area. The price of seeds and pesticides being unregulated by the governing body led to the initial cost of production to be higher. There is room to reduce that from government's initiative on marginalising the costs. The other costs the farmers have to bear is two percent tax from the collection centre. The collection centre provides a minimum structure for resting of stock and a weighing machine. Though that would limit the amount a collection centre collects it would have been wiser if that two percent would be charged from the traders and not the farmers. This would give farmers a competitive edge. As during negotiation and market competition they don't have to bear the cost.

5.1.3 Hypothesis

Before we began we had a hypothesis of Farmers being exploited in every corner by intermediaries. The research found that farmers have been exploited by a certain degree but not limited to the intermediaries. The collection centres have been a game changer for farmer since establishment but now that its existence has created an operational level work it was still charging for minimal amounts. The calculation of loss from the intermediaries could be sensed at high level. Thus the hypothesis can be approved leading to further in-depth research

quantitatively but justification of the cost with the value provided by intermediaries was limited by this research.

CHAPTER SIX

Policy Recommendations

Policy recommendation was one of the primary goal of the research. As part of the aim and objective of the research and an urge for evidence policy was realised.

6.1 Strategic Interventions

The government implemented the Agriculture development strategy 2015-2035 and that can be set as a guideline for the positive work to be done in the Nepalese agriculture scenario. But to begin with the strategy should be started to be implemented. The government's target expenditure for poverty alleviation through agriculture stands at over fifty billion US dollar. There should be organised plan publicly available for monthly expenditure plans and target interventions from the government.

6.2 Transportation

The transportation of agricultural goods at the moment have been tendered to different entities. Though no proof of irregularities on the tenders were found farmers did convey the collection centres being involved in the process. The current transportation vehicles and process have accounted for major quality and product loss in the process of transportation. The government should start regularising on this with intervening on which vehicles are not

allowed to use for the transportation of agro goods. To be more precise they should include with minimum requirement of being licensed as an agricultural goods transport vehicle.

6.3 Inspections

The lack of inspections from the government could be seen at all the stakeholders in the supply chain. The government should create plans on effectively inspecting the big players in the supply chain of agricultural goods in Nepal. For this the most effective way would be to annually send secret observers to variant locations and create report. The fixed price of agricultural goods are being implemented by the government with the maximum and minimum chargeable price but this is not implemented by the stall owners and local retailers. A strong inspection on this needs to be required and policy on plans to try and reduce such activities are to be developed.

6.4 Stall Ownership

The stall ownership even though intervened several times in the past has a limited work being done. Identification of the stall owners and the staffs involved in every stalls is a problem to be able to determine if they are renting it out to third party and misusing it. Thus to be able to properly manage them, A certificate or ID cards of every stall owners are to be distributed and they have to wear it at all times so that external parties know they are working with direct stall owners rather than another layer of trader.

6.5 Informal to Formal

The government is losing billions in the informal sector and Agriculture plays a major part of it. The government should intervene where possible to regularise these. The best possible

ways to do them are to create entry requirements in the major markets. The ones with trading licence of agriculture goods can only transport goods from the local market to the wholesale market. Thus these cards being required at collection centres aswell. For this the government should channelize the authentication of local trade as a business. This will also create a level of commitment from the local traders due to liabilities to the government of work performed. This shall also open doors for new entrants. Leading to better competition among traders which leads to price for farmers and price for consumers.

6.6

Fixed price set by government need to implemented more accurately

List of Traders interviewed

Vegetable and Fruits traders in Kalimati Vegetable Market

1.Name of the organization : Ratan Nagar

Name of Proprietor : Bhimsen Shahi Thakuri

Trading Commodity : Fresh Vegetables

Address : Shop no Ac-11, Kalimati, Kathmandu, Nepal

Mobile No : 9851069159

2. Name of the organization : Tungan Multiple Cooperative Limited

Name of Proprietor : Khem Prasad Ghimire

Trading Commodity : Fresh Vegetables

Address : Shop no Ac-14, Kalimati, Kathmandu, Nepal

Mobile No : 9841310904

3. Name of Proprietor : Dilip Kumar Shrestha

Trading Commodity : Fresh Vegetables

Address : Shop no Ac- 08, Kalimati, Kathmandu, Nepal

Mobile No : 9841347301

4. Name of Proprietor : Bharat Khanal

Trading Commodity : Fruits

Address : Kalimati, Kathmandu, Nepal

Mobile No : 9851074821

5. Name of Proprietor : Deependra Shrestha

Trading Commodity : Potato, Onion

Address : Shop no 515, Kalimati, Kathmandu, Nepal

Mobile No : 9851043141

6. Name of Proprietor : Tej Prasad Khandel

Trading Commodity : Garlic, Ginger

Address : Shop no 518, Kalimati, Kathmandu, Nepal

Mobile No : 9851077761

7. Name of Proprietor : Prahlad Bhandari

Trading Commodity : Potato, Onion

Address : Shop no 531, Kalimati, Kathmandu, Nepal

Mobile No : 9851091345

8. Name of Proprietor : Dhangiraj Upreti

Trading Commodity : Potato, Onion

Address : Shop no 543, Kalimati, Kathmandu, Nepal

Mobile No : 9851061552

9. Name of Proprietor : Girjapati Gupta

Trading Commodity : Potato, Onion

Address : Shop no 506, Kalimati, Kathmandu, Nepal

Mobile No : 9851044761

10. Name of Proprietor : Ujjwal karki

Trading Commodity : Potato, Onion

Address : Shop no 551, Kalimati, Kathmandu, Nepal

Mobile No : 9841264436

11. Name of Proprietor : Indramaya Khadagi

Trading Commodity : Fresh Vegetables

Address : Shop no 606 Kalimati, Kathmandu, Nepal

Mobile No : 9851067157

12. Name of Proprietor : Arjun Silwal

Trading Commodity : Fresh Vegetables

Address : Shop no 607, Kalimati, Kathmandu, Nepal

Mobile No : 9841178670

13. Name of Proprietor : Bhimsen Bhandari

Trading Commodity : Fresh Vegetables

Address : Shop no 616, Kalimati, Kathmandu, Nepal

Mobile No : 9851044347

14. Name of Proprietor : Badrilal Shrestha

Trading Commodity : Fresh Vegetables

Address : Shop no 642, Kalimati, Kathmandu, Nepal

Mobile No : 9851037491

15. Name of Proprietor : Hari Prasad Sharma

Trading Commodity : Lemon

Address : Shop no 725, Kalimati, Kathmandu, Nepal

Mobile No : 9851062315

16. Name of Proprietor : Bharat Prasad Khatiwada

Trading Commodity : Fresh Vegetables

Address : Shop no 746, Kalimati, Kathmandu, Nepal

Mobile No : 9851017550

17. Name of Proprietor : Bhagwan Chandra Upreti

Trading Commodity : Fresh Vegetables

Address : Shop no 749, Kalimati, Kathmandu, Nepal

Mobile No : 9851066552

18 .Name of Proprietor : Gita Prasad Acharya

Trading Commodity : Fresh Vegetables

Address : Shop no 753, Kalimati, Kathmandu, Nepal

Mobile No : 9851009635

19. Name of Proprietor : Nar Bahadur Remi Magar

Trading Commodity : Fresh vegetables

Address : Shop no 758, Kalimati, Kathmandu, Nepal

Mobile No : 9851069163

20. Name of Proprietor : Dhalak Prasad Pokharel

Trading Commodity : Fresh Vegetables

Address : Shop no 761, Kalimati, Kathmandu, Nepal

Mobile No : 9849737710

21. Name of Proprietor : Bharat

Trading Commodity : Mushroom

Address : Kalimati, Kathmandu, Nepal

Mobile No : 9851064376

22. Name of Proprietor : Bhim B Shrestha

Trading Commodity : Fresh Vegetables

Address : Kalimati, Kathmandu, Nepal

Mobile No : 6851091627

23. Name of Proprietor : Durgalal Shrestha

Trading Commodity : Fresh Vegetables

Address : Kalimati, Kathmandu, Nepal

Mobile No : 951006415

24. Name of Proprietor : Ganesh Shrestha

Trading Commodity : Garlic, Ginger

Address : Kalimati, Kathmandu, Nepal

Mobile No : 9851052380

25. Name of Proprietor : Ram Krishna Duwa

Trading Commodity : Organic Vegetables

Address : Shop no 712, Kalimati, Kathmandu, Nepal

Mobile No : 9851037252

26. Name of Proprietor : Shambhu Jaiswal

Trading Commodity : Fresh Vegetables

Address : Kalimati, Kathmandu, Nepal

Mobile No : 9841499924

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Appendices

Table No 1.

S.N	Products	Baisakh	Jestha	Ashar	Shrawan	Bhadra	Ashoj
1	Tomato Big	231595	40300	24350	45650	126500	8750
2	Tomato Small	2686320	2706935	1246370	1286025	1563515	1924420
3	Potato Red	2765410	4848190	5116430	6655396	5983440	5724450
4	Potato White	325970	151400	4000	63000	25750	211570
5	Onion Dry	2452780	2685088	2040892	2495740	2390100	2506360
6	Carrot	207625	167955	95900	131460	112915	67390
7	Cabbage	698600	435770	1044150	1542630	1470305	1345905
8	Cauli Local	943750	629700	745870	956840	1200710	1260405
9	Cauli Terai	27200	9850	500	5500	4700	600
10	Raddish Red	5000	2000	-	-	-	-
11	Raddish White	283465	305855	540910	555695	397165	559765
12	Brinjal Long	261440	405725	273135	189075	181850	112725
13	Brinjal Round	-	-	-	-	-	-

IMPROVING SUPPLY CHAIN OF LOCAL PRODUCTS TO MARKET

14	Cow pea	948855	909515	594260	625535	424740	485650
15	Green Peas	61770	2740	-	4100	-	-
16	French Bean	302650	327475	260345	344355	220700	174250
17	Sword Bean	-	14000	-	-	-	-
18	Soyabean Green	-	950	12735	15100	19825	31800
19	Bitter Gourd	600020	627750	741175	678390	411980	227365
20	Bottle Gourd	251265	392050	439150	502520	343790	288825
21	Pointed Gourd	459610	444680	486980	430960	391800	399980
22	Snake Gourd	5000	16850	89100	36200	21500	4000
23	Smooth Gourd	334680	545355	470710	539050	283370	131800
24	Sponge Gourd	-	-	1000	-	-	-
25	Pumpkin	157500	96000	79500	92000	30700	51000
26	Squash	220270	305300	479990	224260	343070	485900
27	Turnip	-	-	-	-	-	-
28	Okara	616200	668395	412750	743910	371945	212150
29	Sweet	-	-	-	-	-	-

	Potato						
30	Barela	7650	5800	6000	-	-	-
31	Arum	7000	-	-	500	11000	24500
32	Christophin e	-	31200	176960	362600	780635	527425
33	Brd Leaf Mustard	188600	101100	95503	104700	106800	76800
34	Spinach Leaf	69200	60800	55100	43500	31300	32000
35	Cress Leaf	64700	57100	52100	38800	30600	30300
36	Mustard Leaf	17800	38300	26400	13500	15000	18100
37	Fenugreek Leaf	62600	56600	49200	36180	31300	29600
38	Onion Green	274800	141950	46700	28400	43900	79000
39	Bakula	3800	-	-	-	-	-
40	Yam	-	-	-	1000	-	-
41	Mushroom	114452	105500	98700	105000	72150	56200
42	Asparagus	-	16430	18850	18400	3200	300
43	Neuro	5470	30500	56050	80370	77750	14750
44	Brocauli	41000	36700	10600	50	50	-
45	Sugarbeet	1450	1450	2150	2130	1900	550
46	Drumstick	1000	-	-	-	-	-

47	Bauhania flower	-	-	-	-	-	-
48	Red Cabbage	4900	3250	1600	1550	1450	1280
49	Lettuce	1490	1550	1450	1950	1430	1330
50	Knolkhol	1460	900	790	520	320	30
51	Celery	900	970	890	980	800	1100
52	Parseley	960	940	1900	970	830	1120
53	Fennel Leaf	1910	1500	1460	1690	1390	1790
54	Mint	2460	2800	3610	2310	1760	1470
55	Turnip A	11800	8730	11900	11750	10700	11800
56	Maize	-	-	-	500	340	-
57	Tamarind	-	-	23500	500	-	-
58	Bamboo Shoot	-	-	7000	10000	10000	3000
59	Tofu	7400	7500	7600	8300	7130	8030
60	Apple	62930	59981	39670	85960	131050	81460
61	Banana	83370	144240	151540	210500	167300	266380
62	Lime	256915	304785	338150	304395	255420	217730
63	Pomegranat e	13370	16740	8560	14575	12700	12625
64	Mango	48910	434970	714920	198755	1000	-
65	Grapes	18690	4970	200	200	-	50
66	Orange	52280	1740	-	-	-	6160

67	Water Melon	1379350	411100	51000	36320	51900	15930
68	Sweet Orange	5090	5300	1670	7450	13130	26170
69	Mandarin	-	-	-	-	-	-
70	Pineapple	7980	8270	6890	8980	8780	5305
71	Cucumber	738695	879915	772140	721990	831919	763735
72	Jack Fruit	268160	236035	245855	181000	6200	-
73	Lemon	-	-	-	-	-	-
74	Pear	3100	390	600	13450	4910	1260
75	Papaya	187440	65080	23610	79720	24810	14610
76	Guava	-	800	-	3400	23500	21850
77	Mombin	-	-	-	-	2450	-
78	Litchi	500	56540	14912	-	-	-
79	Sugarcane	300	-	-	-	-	-
80	Ginger	121630	175150	106890	188640	184430	316250
81	Chilli Dry	1880	400	800	-	-	-
82	Chilli Green	434490	472710	202010	84660	117990	173050
83	Capsicum	122925	312350	132925	31375	65625	25250
84	Garlic Green	9050	18900	16800	11200	12100	6200
85	Coriander Green	32750	52430	53800	31410	23250	19920
86	Garlic Dry	59800	59100	86000	54200	59000	70000

	Chinese						
87	Garlic Dry Nepali	78900	34100	37150	10200	76700	2350
88	Clive Dry	2200	-	-	-	-	-
89	Clive Green	1120	860	1110	950	7280	1040
90	Fish Fresh	327000	296000	345000	290000	321000	302000
91	Other	48010	42950	31750	54275	40300	78050
		2010661	2154720	1934016	2166314	2000484	1956291
		2	4	7	6	9	0

Products		Kartik	Mangsir	Poush	Magh	Falgun	Chaitra	Weight KG
1	Tomato Big	6000	-	174287 6	489475	162508 5	867555	4730991
2	Tomato Small	269509 0	2409880	161609 4	278257 1	210545 0	208002 2	1368910 7
3	Potato Red	550640 0	5080204	540169 0	470251 8	534803 8	418614 0	3022499 0
4	Potato White	164850	21000	131683 0	248222 2	395780	104760	4485442
5	Onion Dry	189189 6	2766740	250005 8	273174 4	280696 0	259856 0	1529595 8
6	Carrot	39560	126700	244065	429895	594190	567845	2002255

IMPROVING SUPPLY CHAIN OF LOCAL PRODUCTS TO MARKET

7	Cabbage	982090	1073970	115841 0	137103 0	137109 7	104640 0	7002997
8	Cauli Local	123831 0	1708865	234587 0	190689 0	255621 0	203764 0	1179378 5
9	Cauli Terai	102140	684500	914280	105497 0	187790	14000	2957680
10	Raddish Red	-	8000	128940	71100	44000	46100	298140
11	Raddish White	441346	330196	235975	558135	599845	481035	2646532
12	Brinjal Long	152825	300153	115500	97300	60040	217350	943168
13	Brinjal Round	-	-	59500	40000	38500	88100	226100
14	Cow pea	199375	225000	146300	113800	5500	150640	840615
15	Green Peas	5400	87460	840250	817810	497335	314850	2563105
16	French Bean	214125	259700	255160	263000	299165	172425	1463575
17	Sword Bean	-	6000	49450	286250	177300	545900	1064900
18	Soyabea n Green	2000	-	2000	2000	-	4000	10000
19	Bitter Gourd	369545	206300	114600	161175	85225	274725	1211570

20	Bottle Gourd	167450	89300	17800	13150	15500	213525	516725
21	Pointed Gourd	221420	178800	84000	4000	-	151770	639990
22	Snake Gourd	-	-	10000	-	-	-	10000
23	Smooth Gourd	54375	-	-	-	2000	9200	65575
24	Sponge Gourd	-	-	-	-	8000	-	8000
25	Pumpkin	83000	64000	130524	186463	127725	144407	736119
26	Squash	325530	233800	195800	38200	82650	176200	1052180
27	Turnip	-	-	-	100	-	-	100
28	Okara	118575	182000	51600	94800	186700	413470	1047145
29	Sweet Potato	103950	9500	250750	-	-	5000	369200
30	Barela	208705	177085	76500	45475	112095	83400	703260
31	Arum	150275	40450	88400	-	-	-	279125
32	Christop hine	234555	72970	18350	10000	31000	-	366875
33	Brd Leaf Mustard	94800	112500	174330	108070	146000	223022	858722
34	Spinach Leaf	33700	44830	67300	75500	91500	103000	415830

IMPROVING SUPPLY CHAIN OF LOCAL PRODUCTS TO MARKET

35	Cress Leaf	32300	40630	66700	102000	91000	103000	435630
36	Mustard Leaf	16600	8500	12530	7060	29000	40200	113890
37	Fenugree k Leaf	31500	42700	56300	65800	89500	100200	386000
38	Onion Green	72350	96150	135300	141950	129600	140300	715650
39	Bakula	400	15450	47000	20925	13400	25680	122855
40	Yam	48500	105600	743000	63800	28000	2700	991600
41	Mushroo m	69820	80100	86575	94275	94800	78025	503595
42	Asparag us	-	-	2000	13000	-	1000	16000
43	Neuro	-	-	-	-	-	1000	1000
44	Brocauli	50	34330	84600	133700	132100	29050	413830
45	Sugarbee t	-	-	1860	1030	8280	6440	17610
46	Drumstic k	-	-	4000	-	-	-	4000
47	Bauhania flower	-	-	2000	-	1200	6125	9325
48	Red Cabbbag e	310	100	12200	1051	1300	1500	16461

IMPROVING SUPPLY CHAIN OF LOCAL PRODUCTS TO MARKET

49	Lettuce	1240	1850	12755	2000	13950	18200	49995
50	Knolkhol	-	400	880	1020	6130	1430	9860
51	Celery	960	900	2040	775	3750	900	9325
52	Parseley	760	900	840	650	780	900	4830
53	Fennel Leaf	1220	1500	1400	2700	14730	16850	38400
54	Mint	890	900	3810	640	11290	700	18230
55	Turnip A	13180	29800	63200	102400	157600	18500	384680
56	Maize	-	-	-	-	-	-	
57	Tamarin d	-	17000	-	-	-	16021	33021
58	Bamboo Shoot	1800	-	-	-	-	-	1800
59	Tofu	6900	8930	11100	10430	9600	8100	55060
60	Apple	158750	61730	43572	35200	98250	83460	480962
61	Banana	191300	75050	32080	29200	77780	85840	491250
62	Lime	207750	190425	225200	281040	225990	249650	1380055
63	Pomegra nate	5960	3160	7300	3760	8300	6810	35290
64	Mango	-	-	-	-	140	4490	4630
65	Grapes	320	-	250	12930	29080	24340	66920
66	Orange	526880	1635525	183765 0	766810	510880	330850	5608595
67	Water	11620	3960	10600	8600	49850	337550	422180

	Melon							
68	Sweet Orange	233090	1690	400	635	1000	200	237015
69	Mandarin	11000	-	1500	41050	76510	9350	139410
70	Pineapple	3810	2920	2730	2330	4310	30890	46990
71	Cucumber	423815	170405	107600	158000	290990	430888.7	1581698.7
72	Jackfruit	-	-	1925	16000	33750	109695	161370
73	Lemon	430	3000	9600	14960	12640	55000	95630
74	Pear	2240	850	200	2600	650	550	7090
75	Papaya	23150	7770	5500	14010	66280	140050	256760
76	Guava	2050	-	-	-	-	-	2050
77	Mombin	2260	4540	1350	-	5000	-	13150
78	Litchi	-	-	-	-	-	-	
79	Sugarcan	-	-	100	1200	100	-	1400
80	Ginger	355170	322470	264770	255030	198630	225690	1621760
81	Chilli Dry	1000	-	7160	53620	1000	3200	65980
82	Chilli Green	249760	290490	224010	338900	708990	753460	2565610

IMPROVING SUPPLY CHAIN OF LOCAL PRODUCTS TO MARKET

83	Capsicum	80550	206425	226925	143025	213870	168575	1039370
84	Garlic Green	6050	11400	49430	55800	66906	31600	221186
85	Coriander Green	29990	48300	49820	26400	16100	23630	194240
86	Garlic Dry Chinese	67000	62000	35400	28000	87240	10960	290600
87	Garlic Dry Nepali	-	18450	14300	2500	32500	54600	122350
88	Clive Dry	-	-	1000	-	-	-	1000
89	Clive Green	1290	1390	6780	4610	2740	960	17770
90	Fish Fresh	324000	294000	294000	261000	294000	284000	1751000
91	Other	141500	95650	12650	700	500	850	251850
		191668	2049724	251770	242607	235506	213950	1340475
		02	3	94	59	66	01	65