Value Chain Analysis of Choerospondias axillaries "*Lapsi*"

(A case study from three VDCs of Parbat District, Nepal)

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A Research Project Paper submitted to Tribhuvan University, Institute of Forestry, Nepal for the partial fulfillment of Bachelor of Science in Forestry
December, 2012

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DECLARATION

I hereby declare that this project paper, **"Value Chain Analysis of Choerospondias axillaries - *Lapsi*, A case study from three VDCs of Parbat District, Nepal**" is my own work except otherwise acknowledged. I haven't submitted it or any of its part to any other academic institutions for any degree. Errors if any are responsibility of my own.

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Pokhara, Nepal

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Submitted to

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APFNet

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Lastly but not the least, it does not seem quite right after all your efforts that I am the only who gets the degree. I will try my best to put it to the potentially best use.

ACRONYMS

ANOVA	Analysis of Variance
ANSAB	Asia Network for Sustainable Agriculture and Bioresource
APP	Agriculture Perspective Plan
CBOs	Community Based Organizations
CFUGs	Community Forest User Groups
ComForM	Community Based Natural Forest and Tree Management in the Himalaya
DADO	District Agriculture Development Office
DDC	District Development Committee
DFO	District Forest Office
DoA	Department of Agriculture
DoF	Department of Forest
FAO	Food and Agriculture Organization
FECOFUN	Federation of Community Forestry User Group Nepal
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GoN	Government of Nepal
HHs	Households

ICIMOD	International Centre for Integrated Mountain Development
INGOs	International Non Governmental Organizations
IoF	Institute of Forestry
IUCN	The World Conservation Union
LFP	Livelihood Forestry Programme
MAPs	Medicinal and Aromatic Plants
MEDEP	Micro Enterprise Development Programme
NGOs	Non Governmental Organizations
NTFPs	Non-Timber Forest Products
PRA	Participatory Rural Appraisal
PCDS	Parbat Community Development Society
SPSS	Statistical Package for Social Science
US	United States
UNESCO	United Nations Educational, Scientific and Cultural Organization
VC	Value Chain
VCA	Value Chain Analysis
VDC	Village Development Committee

ABSTRACT

Non-Timber Forest Products (NTFPs) are an important part of the Nepalese economy. *Lapsi* is one of the popular NTFPs of Nepal. The *Lapsi* and its products employ thousands of collectors, village traders and exporters in Nepal for at least some seasons in a year. The research aims to identify the actors of Value Chain and to determine the profit distribution among the actors. Although 9 VDCs of Parbat District are potential for *Lapsi* only 3 VDCs were selected by PRA method through pair ranking. 35 households were questionnaired purposively. The questionnaire survey was also carried with traders, enterprises and retailers which were analyzed by using standard statistical tool. One-Way ANOVA was done to analyze the profit distribution and income share of *Lapsi* in total income which shows significant difference (p-value < 0.05) at 5% level of significance. The enterprises; with 42.68% is the highest profit share among the actors. Most of the respondents were interested in Lapsi farming on their own effort and some of the others wanted help from the other institution. From the study, it is concluded that Parbat district is highly potential for *Lapsi* and different actors of it are also interested in *Lapsi* farming in order to improve their livelihoods.

Keywords: Pair Ranking, Actors, Benefit Sharing, Livelihood

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Chapter-I: Introduction

1.1 Research background

Non-Timber Forest Products (hereafter NTFPs) have been collected, used and traded by people since time immemorial. They form an important aspect of the livelihood of people dependent upon it. NTFPs are an important part of the Nepalese economy. A growing interest in the utility and value of NTFPs has emerged in the last two decades in developing countries. In Southeast Asia, at least 29 million people depend on NTFPs for subsistence income. According to the International Centre for Integrated Mountain Development (ICIMOD), global trade in existing MAPs was valued at around US$60 billion in 2000, which is expected to grow to US$5 trillion by 2050 (Pyakurel & Baniya, 2011). NTFPs are increasingly becoming popular in national markets as they are important ingredients of several herbal cosmetics, herbal tea, food, medicines, etc. Among hundreds of species of NTFPs some of them are traded and some of which are locally used. These forest products of biological origin employ thousands of collectors, village traders and exporters in Nepal for at least some seasons in a year. The natural products that originate from forests and pasture ecosystems are being increasingly recognized for the role in rural livelihoods, biodiversity conservation and export values. In the recent years, the market of NTFPs has expanded, and this is an opportunity as well as a challenge for a more sustainable, efficient and equitable management of NTFP resources. The collection and marketing of NTFPs is a major source of rural income and an important source of revenue to the government. In the mountainous regions of Nepal, 10-100 per cent of households are reported to be involved in commercial collection of NTFPs and medicinal plants, and in some rural hilly areas, it contributes up to 50 per cent of total annual family incomes (Olsen and Larsen, 2003). NTFP in Nepal shares 5% of total GDP and the concerns about NTFP development, promotion and farming as an enterprise is increasing mostly in hilly areas of Nepal (Pyakurel and Baniya, 2011). *Lapsi* is one of the important NTFPs in Nepal. It is also targeted by MEDEP as one of the major NTFP product among ten species for value chain analysis in Nepal.

Choerospondias axillaries ("*Lapsi*") is a large, deciduous fruit-bearing tree of the family Anacardiaceae, growing up to 20 meters tall; a native of the Nepal hills (850–1900m) the tree has also been reported from India, China, Thailand, Japan and Vietnam. Nepal is unique for processing and use of *Lapsi* which is rich in vitamin C content (SHAH, 1978). *Lapsi* is generally consumed fresh and processed for preparing a variety of sweet and sour, tasty food products locally called as *Mada* and *Achar*. However the other products like Candy, Jam, Squash and Powder is also being prepared from *Lapsi* nowadays. Although *Lapsi* was used only for domestic purpose in past, recently it has been used for commercial purpose. In many areas of Nepal *Lapsi* is traded for different products through several actors. Parbat district of Nepal has medium potential area for *Lapsi* (Paudel *et al.* 2003). The different stakeholders and actors play different functions in value chain of *Lapsi* in Parbat district. There is simultaneous change in value as well as profit among subsequent actors. However, there exists inequality in benefit sharing among these actors.

A value chain (VC) is a chain of value-creating activities which are not isolated from one another. Rather, one activity often affects the cost or performance of the others (www.netmba.com). It is a sequence of productive processes from the provision of specific inputs for a particular product to primary production, transformation, marketing and distribution, and final consumption (Amatya, 2009). The products pass through all activities of the chain in order, gaining value with each activity. The value chain analysis (VCA) examines the full range of activities that are required to bring a product in a particular enterprise from its conception to its end markets. A good VCA provides a snapshot of an enterprise at a particular time, while VC mapping indicates the way a product flows from raw material to end markets. Thus it is essential that studies be made into management and sustainable use of *Lapsi*, their harvesting techniques, methods of value addition and marketing. Only then we can optimize the benefits from them and thus reduce poverty and contribute to national income. Most importantly the economic benefit arising out of *Lapsi* can be studied specifically through study of value chains wherein we study the various stakeholders/actors involved, the pattern of profit distribution and the linkages among them.

1.2 Statement of the problem and Justification

From the several literatures and studies, it has proved that there is inequality in profit distribution among various actors of *Lapsi* trade. In fact, the profit and benefit sharing is less in grass root actors and benefit is maximum to the middle actors of chain. Many of the harvesters/collectors do not have an understanding of the market channels, prices and methods of value addition. Because of this they are not getting full benefits and the country is as well losing its revenue. Thus we have to find out ways how benefit can be optimized for the grass root actors. Over the last decade, Nepal's natural products sector has undergone significant changes with the increase in community forest user rights and increased local processing. This has given Nepal an opportunity to expand beyond its dependence on external markets, but also highlighted how much more work Nepal needs to become competitive in world markets for natural products while sustainably managing the unique biodiversity of the natural products harvesting areas (Pokharel *et al.* 2006). Nepal doesn't have sufficient knowledge of NTFPs to use them as a significant means for reducing poverty (ibid). One way of doing so is to study the value chains. Thus it is obvious that Nepal needs to direct activities which help in framing an upgraded NTFP sector and this needs regular studies of market. That is why it is indispensable to carry out value chain studies to assess the market development and promotion. Value chain studies are as well needed to investigate the economic opportunities created by NTFPs at both local and national level. Though NTFPs were an important source of income of rural people, forest policies worldwide began to put emphasis on NTFPs since late 1990s following an estimate made by Peter *et al.* (1989) which showed that NTFPs could fetch higher economic return than timber (Banjade and Paudel, 2008). Hence NTFPs have been in the focus of government policies in Nepal for the last three decades. The value chain analysis and studies are essential for its sustainable management and development. My research will fill this gap of knowledge and its wise management.

1.3 Objectives

The general objective was to analyze the value chain of Choerospondias axillaries. This is a case study carried out in three VDCs of Parbat District, Nepal.

The research specific objectives are as follows:

- To identify the major actors/stakeholders of value chain and their functions.
- To assess the patterns of profit distribution among the actors of the chain.
- To determine the income share of the actors from the *Lapsi* to the annual income.

1.4 Limitations

The limitation of this study includes the following:

- The study covers value chain activities of the *Lapsi* only in three VDCs of Parbat district and doesn't involve the overall national and international scenario.

- Specifically, it covers the pocket areas of the *Lapsi*.
- Owing to limited time duration of the study, it was not possible to carry out detailed and elaborate studies of the various aspects of the value.
- Only representatives of relevant CFUGs and key informants (collector, traders and processors) were the source of information for this study because of time and cost limitations.

Chapter- II: Literature review

NTFPs are an important source of income of rural people. The value of NTFPs is increasing even more than the timber by Peter *et al.* (1989) which increase the concerns of government and policy makers regarding the sustainable development of NTFP (Banjade and Paudel, 2008). NTFPs are collected from both forest land and private land. Most of the NTFPs were used not only for food but also for high medicinal purpose. The varied topography of Nepal has favored the growth of different important NTFPs, and its mountain inhabitants, in particular, are economically dependent upon this source (FAO, 1993; Chandrasekharan 1998; Edwards 1996). The value of NTFPs traded during 1993 to 1994 was estimated to be equivalent to US$ 8.6 million, which is approximately six times the value obtained from timber exports to India (Edwards, 1996).Of the present total contribution by the forestry sector of approximately 15 % to the national GDP (Banko Janakari, 2004), NTFPs are estimated to contribute about 5% in Nepal's GDP (Malla et al, 1995; ANSAB, 1999).

Lapsi was collected as wild edible fruit in ancient time. Now, it has been collected from farmlands, private lands and community forests as well. Several enterprises are also developed for processing and producing different *Lapsi* products. Apart from fruits and medicinal use of *Lapsi* its wood is used as light construction timber and fuel wood; seed stones are used as fuel in brick kilns (NGUYEN et al., 1996). Fruit products are presently consumed mostly within the country but have potential for international market promotion. The annual transaction of *Lapsi* fruit, in Kathmandu alone, is estimated worth over 50m Nepalese Rupees (approx. 0.65 m US$; BM, 1999). *Lapsi* has great potential as a cash generating tree for hill farming communities in Nepal (PAUDEL and PARAJULI, 1999; LARC, 1997). The tree has been considered as suitable crop for multiple uses in mountain farms and the Nepalese government has emphasized the production and processing of such high value agro forestry products (APP, 1995). The farmers and their families involve in *Lapsi* collection by using locally available instruments as sickles, ladder and long sticks. The farmers collect the *Lapsi* and sell it to the local processing enterprise

at the rate of Rs 10-15 per kg. Around 100 collectors are expected to be present in total. Some village traders also buy *Lapsi* from them and sell them in Kusma Bazaar at Rs 20-25 per kg. Traders from Pokhara also come to buy *Lapsi* from the farmers. They sell the *Lapsi* in Pokhara at a retail price of Rs 60 per kg and a wholesale price of Rs 40 per kg. The enterprise collected around 120 quintals of *Lapsi* from collectors of the five VDCs in the year 2067 and this year the collection has reached 90 quintals till date (Sharma *et al.* 2011).

Value chain analysis has emerged on the new research agenda for NTFPs. The narrow rural focus of previous studies is being challenged. Increasingly it is acknowledged that dependency and links to forests go beyond village boundaries. NTFPs contribute significantly not only to the livelihood of rural residents (e.g., Sunderlin et al., 2005; Angelsen and Wunder, 2003; Neumann and Hirsch, 2000), but also to the livelihood of migrants (Ambrose-Oji, 2003) and residents of urban areas (Stoian, 2005), as well as to national exchequers (Chamberlain et al., 2004) and the global economy (Leslie, 2005). By focusing on the whole range of activities and relations associated with production, exchange, transport and distribution of a particular commodity (Kaplinsky, 2001; Ribot, 1998), the value chain approach is simultaneously a descriptive tool and an analytic instrument (Kaplinsky, 2001). Because value chain analysis often includes additional elements beyond the coverage of sub-sector analysis and market analysis, such as inter-firm cooperation, governance, entry barriers, rents and geographic coverage that extends to global markets, it has been applied to different sectors and in studies of gains and losses resulting from globalisation (Kaplinsky, 2000). In a first attempt to address governance issues in NTFP value chains, te Velde et al. (2006) studied 19 cases from Mexico and Bolivia. However, no figures on market values and profits were used to support the analysis because of '… the sensitive nature of the information' (te Velde et al., 2006: 740), leaving a gap in our understanding of NTFP extraction and its forward linkages.

Chapter- III: Methodology

3.1 Schematic flow of study

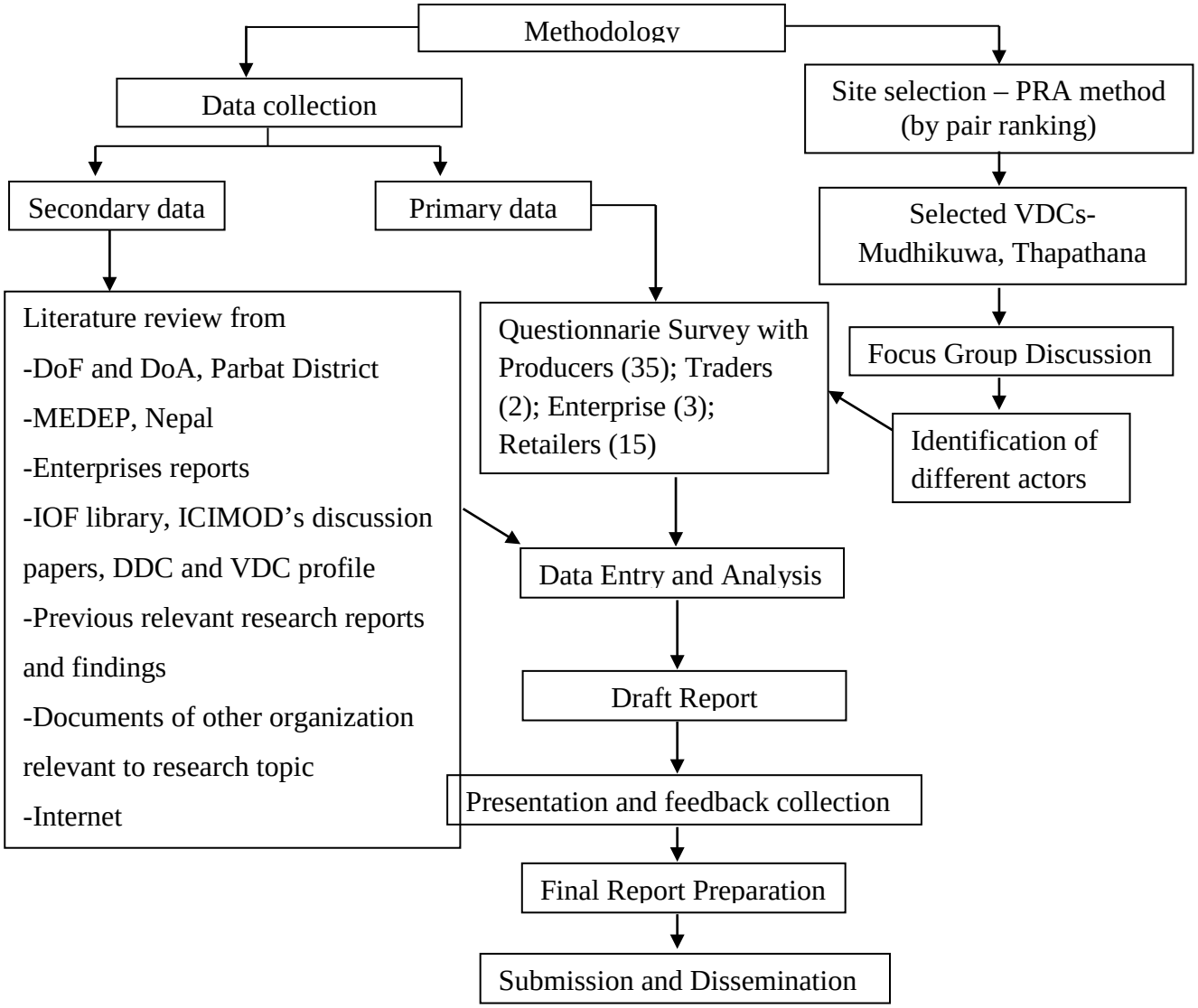

Figure 1: Schematic flow of the study

3.2 Study area

Parbat district a hilly district of Dhaulagiri Zone, is situated between $27^0$28' N to $28^0$39' N latitude and $83^0$34' E to $83^0$59' E longitude and has an area of 54900 ha. The altitude varies as 700m to as high as high as 3194 m. The area is made up of steep slopes, deeply incised narrow valleys and occasional plains. An ecological zone varies from low altitude hot river valleys to high altitude sub alpine slopes. The northern part is moister, due to high rainfall and southern part is dry due to low rainfall. The annual rainfall is 2400m to 2600mm. the normal maximum temperature in summer exceeds 32.3^0C and the normal winter temperature is about 7.5^0C. The soils are medium to high inorganic matter and are hardly suitable for agriculture in many areas. Land-slides and soil erosion are severe in Parbat district during rainy season.

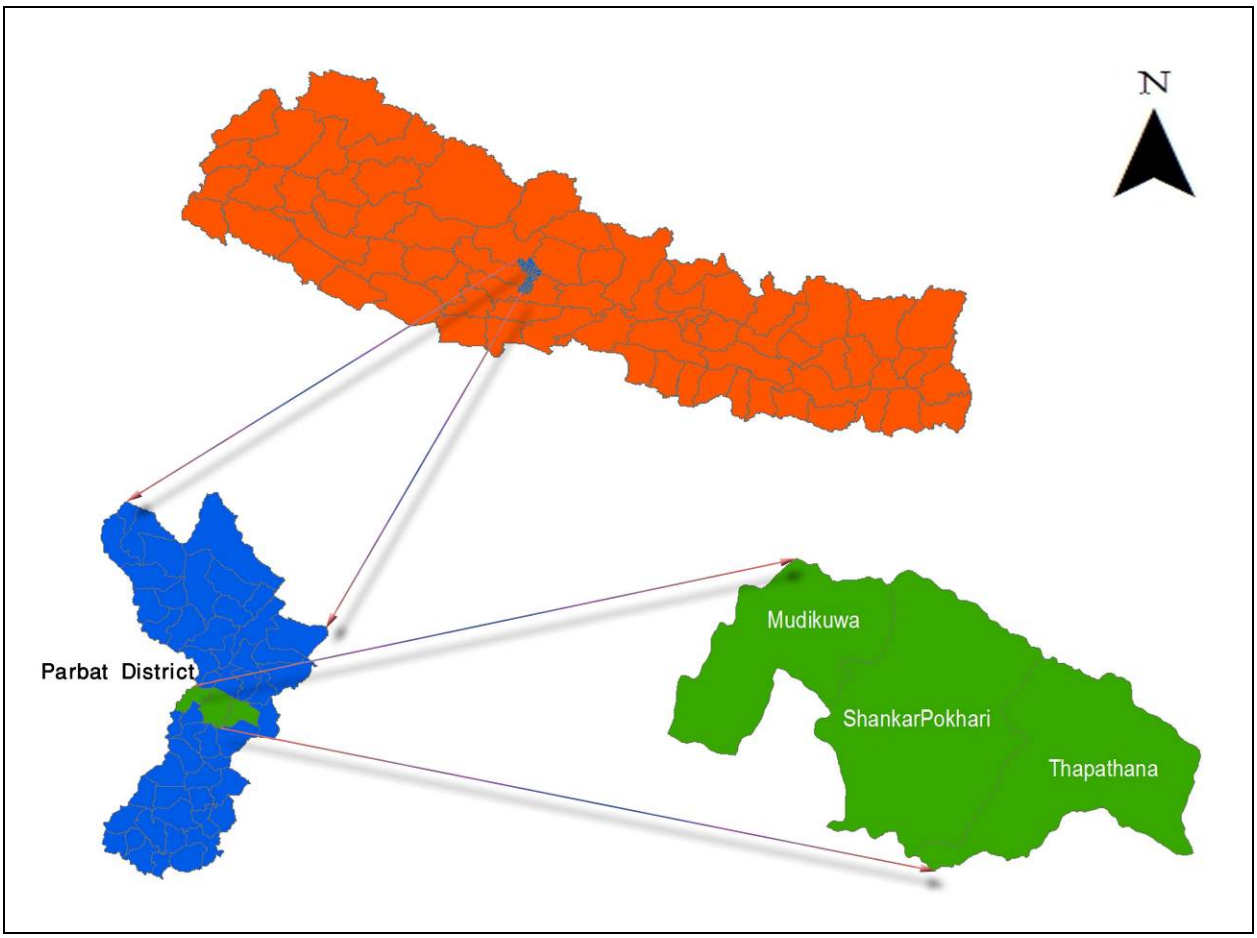

Figure 2: Location Map of the Study Area

3.3 Selection of the Study Area

The PRA method was used to explore the *Lapsi* abundance VDCs. 9 VDCs were found higher abundance for *Lapsi*. Among them only 3 VDCs were selected by using pair ranking method which is shown in Appendix II. The selected 3 VDCs were Thapathana, Shankar Pokhari and Mudhikuwa with respective ranking having 16, 14 and 12 repetitions.

3.4 Focus Group Discussion

The focus group discussion was done with the officials of Department of Forest (DoF), Department of Agriculture (DoA), Enterprises Owner, Local leaders, NGOs and CBOs. The major actors of *Lapsi* value chain were identified after this discussion. The major actors were producers, traders, enterprise and retailers.

3.5 Data collection

Data relevant to the study were gathered using both the collection methods namely primary as well as secondary. Altogether 35 producers (HHs) were selected from 3 VDCs proportionally. Primarily, interview, Focus group discussion and key informants survey were used for the collection of first hand data where schedule for interview, checklist for different actors were the major tools for data collection. 2 traders (100%) from selected VDCs were interviewed. There were 3 enterprises which use *Lapsi* of the study area. All of them were included in questionnaire survey.15 retailers those who sold the final *Lapsi* product were interviewed purposively. Likewise, secondary data was collected from the annual reports of District Forest Office (DFO), District Agriculture Office (DADO), NTFP related Offices. The published and unpublished related reports, journals; literatures were used to collect the secondary information. The library and internet was also used to gather the information.

3.6 Data analysis and interpretation

The data collected from different methods and with different categories of respondents were fed into the computer. The data was analyzed using Statististical Package for Social Sciences (SPSS) and MS-Excel. Data were interpreted using simple statistical tools such as mean, median, percentage, etc and were interpreted in the form of simple tables and figures.

One- way ANOVA test was done to determine the significance in profit distribution in annual income by the *Lapsi* between subsequent actors.

Chapter IV: Results and conclusions

4.1 Brief Description of *Lapsi*

Lapsi (*Choerospondias axillaris*) is a deciduous tree of the family Anacardiaceae, growing up to 20 meters tall. The tree is dioecious, with male and female trees producing different types of inflorescence. Male flowers occur in long clusters and have curving, brown-veined petals about 3 millimeters long. Female flowers are solitary in leaf axils at the tips of branches. They are larger than the male flowers and yield the edible drupe. Its fruit is about 3 centimeters long and has a soft whitish sour flesh and green to yellow skin. The fruit is made into pickles, fruit tarts, and sour, spicy candy in Nepal. The tree has long been cultivated in rural Nepal for its fruit.

4.2 Economic Aspect of Lapsi

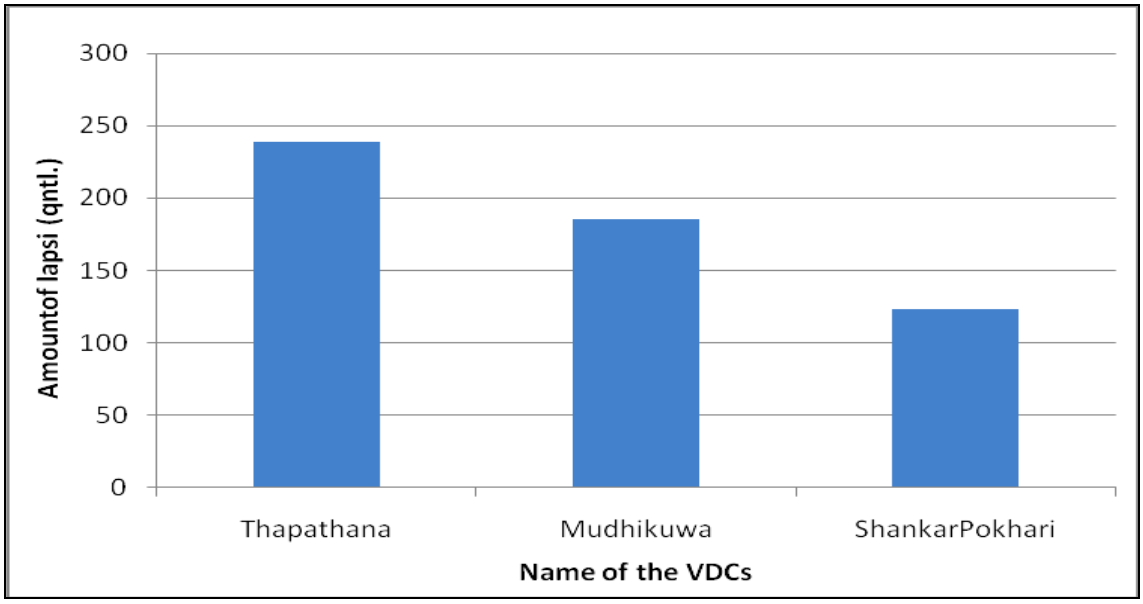

Figure 3: Average amount of lapsi sold last year by the producers

The average amount of *Lapsi* sold last year (2068 B.S.) by the producers of Thapathana VDC was 238.75 quintal followed by 185 quintal and 123.08 quintal from Mudhikuwa and

Shankarpokhari respectively. This shows that the maximum amount of *Lapsi* was sold from Thapathana and the minimum from Shankarpokhari.

Table 1: Share of Lapsi to the Total Annual Income in different Actors

Actors	Average Annual Income (Rs.)	Average Income from *Lapsi* only(Rs.)	% Share by *Lapsi* to the Annual Income
Producers	233000	2667.14	1.52
Traders	375000	49000	13.15
Enterprises	375000	173000	51.12
Retailers	575000	95000	17.16

The average annual income for the producers, traders, enterprises and retailers were Rs. 2,33,000; Rs. 3,75,000; Rs. 3,75,000 and Rs. 5,75,000 respectively. The average income of respective actors from *Lapsi* only was Rs. 2,667.14; Rs. 49,000; Rs. 1,73,000 and 95,000 which was 1.52 % , 13.15%, 51.12% and 17.16% of the total annual income. This table shows that enterprises have the highest share from *Lapsi* and producers have the lowest share in their total annual income.

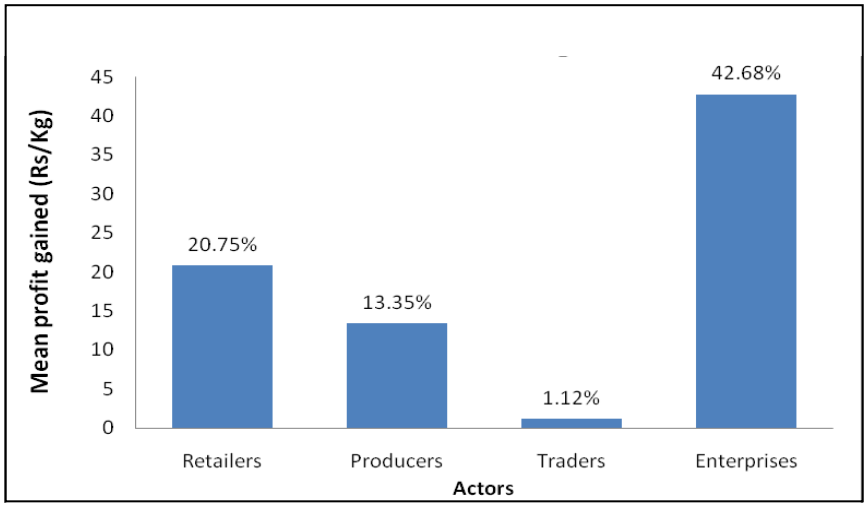

Figure 4 : Profit Distribution among Actors

Output from the One-Way ANOVA shows that the profit distribution among different actors is significantly difference (p-value < 0.05) at 5% level of significance. The figure above shows that there is highest profit distribution to the enterprises and lowest to the traders. Although traders are more benefitted from other sources, they are seen least benefitted by *Lapsi*. This is because of the seasonal income from the *Lapsi* and in fact the traders earn more income from other sources.

4.3 Perception towards Lapsi Farming

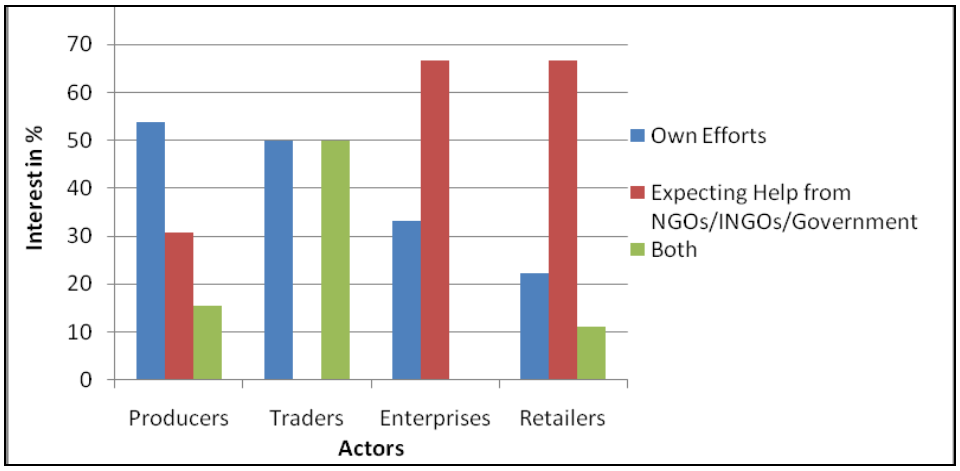

Figure 5: Profit Distribution among Actors

Among the total producers (n=35) majority of the respondents (74.3%) reported that they have interest on *Lapsi* farming. Out of total interested producers majority of them can do *Lapsi* farming on their own efforts. Conversely, 30.8% of the producers wanted help from other institutions. Only 2 traders were found in the study site. Fifty percent of them were interested in *Lapsi* farming on their own efforts and the rest of them were ready for that either on their own efforts or with the external assistance. Out of 3 enterprises about sixty six percent of them wanted help from other institution and the rest of them were ready on their own efforts for farming *Lapsi*. Finally, maximum percentage of the retailers was also expecting help from other institutions for *Lapsi* farming.

4.4 Value Chain of *Lapsi*

The Value Chain of *Lapsi* was prepared by taking the *Lapsi* Processing Enterprise as the main trader body. *Lapsi* was mostly found to occur in private lands and in public lands as well. A nursery maintained by an NGO (Parbat Community Development Society-PCDS) in the Mudikuwa VDC supplies seedlings to villagers. The farmers and their families involve in collection. Collection usually spans between the months of Mangsir to Magh (December to February). Locally available instruments as sickles, ladder and long sticks are used to harvest the *Lapsi*. The farmers collect the *Lapsi* and sell it to the local processing enterprise at the rate of Rs 13.35 per kg. The enterprise then does processing to produce an array of products as Pickle, Jam and Candy. The enterprise sells the products after performing various value addition activities. The enterprise collects *Lapsi* from farmers of 5 VDCs of Parbat (Shankar Pokhari, Limithana, Bhagara, Mudikuwa and Thapathana), however only 3 VDCs of them were included in the study. Around 100 collectors are expected to be present in total. Some village traders also buy *Lapsi* from them and sell them in Kusma Bazzaar at Rs 19.03 per kg. Traders from Pokhara also buy *Lapsi* from the farmers. They buy the whole tree and pay the farmers by making a guess of the total production. The price usually comes to around 10 per kg. They sell the *Lapsi* in Pokhara at a retail price of Rs 60 per kg and a wholesale price of Rs 40 per kg. The enterprise collected around 6 tonnes of *Lapsi* from collectors of the 3 VDCs in the year 2068.

The price of the *Lapsi* products is said to have a close correlation with the price of sugar. Processing is done at the village itself in the enterprise. It is estimated that 8 kg of *Lapsi* gives around 1- 1.25 kg of pulp. Pulp is used to make *Lapsi* Candies and Jam. Whole part of *Lapsi* (with the seed as well) is used to make pickle. The price of *Lapsi* Jam ranges from Rs 80 – 90 per 400 gm. The retailers are sold at the rate of Rs 90 per 400 gm while the wholesalers are sold at the rate of Rs 80 per 400 gm. *Lapsi* pickle price ranges from Rs 80 per 400 gm to the retailers to Rs 70 per 400 gm to the wholesalers. *Lapsi* candies are sold at the price of Rs 21 per 75 gm to the wholesalers and Rs 25 per 75 gm to the retailers. These prices are the ones that the enterprise charges to the retailers and wholesalers on the whole. When these products arrive at places as Baglung, Myagdi, Kaski and Kathmandu (Organic Village), the prices they range from Rs 110 - 130 per 400 gm for the *Lapsi* Jam and Rs 100-120 per 400 gm for the *Lapsi* pickle. However, the

enterprise has been giving 5-10 % of its production in samples for promotion of the product. Meso level actors as LFP, DED and PCDS have been helping the enterprise with support of training, equipment and promotion of the products in market. The input supply of the enterprise involves costs associated with buying of other raw materials as sugar, oil, potassium meta bi sulphate (preservative for pulp), other condiments; payment of revenue to CFUG (5 % of total profit) and PCDS (5 % of the total profit- for their networking and coordination effort); payment of tax to Food Quality Control, Federation of Handicrafts, transport cost, storage cost, labor cost, fuel cost, electricity cost and equipment/machinery cost.

4.5 Value Chain Analysis of *Lapsi*

The value chain actors of *Lapsi* were producers, traders, enterprises, retailers and the consumers. Initially the *Lapsi*, as a fresh raw material, is harvested by the producer expending Rs. 0.60/kg while harvesting. After harvesting the *Lapsi*, it is sold to the traders in Rs. 13.95/kg. Sometimes the traders directly buy the *Lapsi* from the tree in that case the cost becomes Rs. 13.35/kg to them. The cost of *Lapsi* becomes Rs. 19.03/kg when it is sold by the traders to the enterprises. In between the expenses made as the transportation cost, different taxes, royalty and other unofficial cost being Rs. 3.96/kg and the net profit of Rs. 1.12/kg makes the increase in the price. While processing the raw *Lapsi* by the enterprises the value is again added to the *Lapsi*. The processing cost being Rs. 128.29/kg and the net profit margin Rs. 42.68/kg the selling price for the enterprises becomes Rs. 190/kg. The processing cost of the enterprises includes all the costs of materials used including the wages. The products that are sold by the enterprises are taken by middlemen, further raises the price to the next actor. The cost price being Rs. 214.50/kg and profit margin of Rs. 20.75/kg the selling price finally becomes Rs. 235.25/kg by the retailers. No any processing cost is added by the retailers resulting Rs. 235.25/kg as the cost price for the customers. Like this the value is added with subsequent actors.

The result in this study is similar to the previous studies of *Lapsi* value chain, Sharma *et al.* 2011.

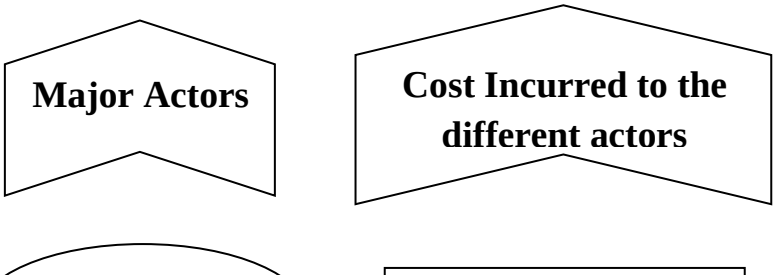

Figure 6 : Flow chart showing value addition through different actors of value chain

Chapter- V: Conclusions and recommendations

5.1 Conclusions

- The major actors in value chain of *Lapsi* are producers, traders, enterprises, retailers and finally consumers.
- There is significant difference between profit distribution and income through *Lapsi* among different actors.
- The *Lapsi* value chain showed that the producers had not gained much benefit owing to the fact they had neither the equipments nor the skills for processing.
- There is high interest in *Lapsi* farming by the actors. They are also expecting technical and financial help from Government and other Organizations.
- The promotion of *Lapsi* trade and proper analysis of Value Chain is essential for the improvement of local livelihood of people in Parbat District.

5.2 Recommendations

Based on the findings of the study following recommendation are proposed:

- The study of value chain should be extensively done in order to analyze properly and make effective plans and policies.
- The local and regional markets should be improved so that consumption in them increases.
- Technological interventions are needed to make the products good enough for export and of top quality.
- Farming of *Lapsi* should be encouraged with the financial and technical support of Government and Non- Government authorities.
- The use of modern techniques to map out the value chain for its analysis is recommended.

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Appendix-I: Questionnaires for Different Actors

Checklist of Questions for Stakeholders Meeting (DFO, FECOFUN, NGOs/CBOs, Collectors and Traders of NTFPs)

1. In which places of Parbat District *Lapsi* abundance is more, please specify in rank?

Place	Ranking

2. Please give the names of CFUGs that engage in the trade of the *Lapsi*.

S.N.	Name of CFUG	Address	Remarks (ranking)

3. What is the tentative flow of *Lapsi* through various levels of actors? Chart

4. Is there any farming of *Lapsi*? If yes, please specify place and address.

5. Could we get a list of traders operating in vicinity of the *Lapsi*?

If yes,

S.N.	Name of Trader	Contact Details	Remarks

6. How many enterprises are running with the raw material as *Lapsi*?

If yes name and address.

Name	Address

7. Do you know if *Lapsi* is brought from elsewhere, outside the district?

Checklist for traders

Name: Sex: Age:

Education: Address:

Occupation:

1. What type of trader the respondent is?
   a. Village trader b. Whole seller c. Retailer d. Others
2. Main income sources (also specify ranking)
   a. ….. b. …….. c…….. d. Others
3. How much of your trading contributes to your income? (in %)……..
4. Type of trade:
   a. Professional b. Occasional c. Sporadic d. others
5. How long have you been in the trade?
   a. 1 year or <1year b. 5years c. 10 years d. > 10 years
6. How much did you purchase in the past 12 months?

……..

7. Where do you buy these from?
   a. Collectors b. Village traders c. District wholesalers d. Others
8. What is the best season for the trading? (Specify the months)……
9. At what price did you purchase on average?

	Cost Price	Processing Price	Selling Price	Remarks
At the beginning				

At the end of the season				
At the offseason				

10. Expenses

	Amount	Remarks
Royalty		
Taxes		
Transport		
Processing and storage		
Others (Unofficial Cost)		

11. Where do you sell your products?

……..…….

12. Did you carry out any value addition activities, if so specify?

……

……

13. What constraints do you see in *Lapsi* trade?

……

14. What are your suggestions to overcome these?

……

……

Questionnaire for Producers

Name: Sex: Age:

Address:

Education: Occupation:

Average annual income (Rs.):

Income from *Lapsi* trade (Rs.):

1. Family size
2. Landholding status

Land Type	Area	NTFP Collection	*Lapsi* Collection	Remarks
Khet				
Bari				
Pature				
Community Forest				
Others				

3. Besides the respondent, how many other family members involve in *Lapsi* collection?

Name of respondent	Relationship to hh head	Age	Sex	Education	Number of days Lapsi collected

4. Please give the details of the other family members involved in other NTFP collection.

5. How long has the respondent been in this occupation?

   a. 1 year b. 5years c. 10 years d. > 10 years

6. Please give a detail of the following activities.

Time of collection (specify period of months)	
Average amount that can be collected per day	
Total amount collected in the past 12 months	
Number of days (in total for the HH) spent in collection	
Where do you collect from? (Specify in %)	CF: NF: Private land: Other specify:
Did you pay any fees? (Specify in Rs.)	CF: NF: Private land: Other specify:
How much have you sold in the past 12 months?	
What was the average selling price (SP)?	
What was the SP in the beginning of the season?	
What was the SP towards the end of the season?	
What was the SP in the offseason?	

7. How much do you consume for the domestic purpose?

8. Who were your customers?
    a. Individual HHs b. Village traders c. District traders d. Others
9. How do you find customers?
    a. Traders come in search themselves d. Through our previous contacts
    b. Sitting in a market place e. through cooperatives that collect NTFPs
    c. Other
10. What is the method of harvesting that you use?
    a. By stick beating c. Cutting branches e. Others
    b. Shaking tree d. Hand picking
11. What is the nearest market to sell?

12. Do you perform any value addition activities? If yes, what types- write down?
    a. Cleaning c. Grinding e. Storage
    b. Drying d. Packaging f. Others
13. What are the sources of market information for you?
    a. Traders c. NGOs/INGOs/Cooperatives/Enterprises
    b. Forest officials d. None
14. Have you got any help from any organization for NTFP collection?

    From what type of organization-

    Type of help received-

15. What are the problems that you are facing regarding *Lapsi* collection?

16. Are you interested in farming on your own effort or you are expecting any support?
    If yes, then specify.

17. Are there any suggestions how this can be improved?

Checklist for the enterprise or the factory

Name: Address:

Establishment date:

1. Does this enterprise run throughout the year?
    a. Yes b. No

If *NO*, please specify the months.

……

2. The average cost price ……
3. What are your products; *Lapsi* as a raw material?

Name of Product	Processing cost	Selling price	
		Wholesale price	Retail price

4. Where is the market for your product?

Name of your market	Address	Selling price	Remarks

5. Do you bring *Lapsi* from outside the district? If yes

Location from	Amount	Cost Price	Remarks

6. Do you have your own farming? If yes,

Location	Amount

7. Raw material Collection
    a. Own c. Contractor/ Traders
    b. Directly with farmers d. Others
8. Problems and suggestions for development and promotion of enterprise;

Checklist for the local market

1. Information about:

Place from where you bought	Amount	Cost price	Selling price

2. How much do you sell *Lapsi* products per day?

3. Do you purchase other *Lapsi* products other than produced from *Parbat* district?If yes,

Name	Amount	Cost Price	Selling Price

Appendix- II: Selection of 3 VDCs according to the abundance of *Lapsi*

Table 2 : Selection of 3 VDCs by pair ranking method

Name of the VDCs	B	Dl	Lt	Kg	Mk	Sp	Tm	Tp	Tt
B		B	Lt	B	Mk	Sp	B	Tp	Tt
Dl	B		Lt	Dl	Mk	Sp	Tm	Tp	Tt
Lt	Lt	Lt		Lt	Mk	Sp	Lt	Tp	Tt
Kg	B	Dl	Lt		Mk	Sp	Tm	Tp	Tt
Mk	Mk	Mk	Mk	Mk		Sp	Mk	Mk	Tt
Sp	Sp	Sp	Sp	Sp	Sp		Sp	Sp	Tt
Tm	B	Tm	Lt	Tm	Mk	Sp		Tp	Tt
Tp	Tp	Tp	Tp	Tp	Mk	Sp	Tp		Tt
Tt	Tt	Tt	Tt	Tt	Tt	Tt	Tt	Tt	

Name of the VDCs listed above in Pair Ranking Table are: B-Bhangara; Dl-Durlung; Lt-Limithana; Kg-Kurgha; Mk-Mudhikuwa; Sp-Shankar Pokhari; Tm-Thanamaula; Tp-Thuli Pokhari; Tt-Thapathana

From above Pair Ranking Table, Thapathana, Shankar Pokhari and Mudhikuwa are the three highest ranked VDCs having respective 16, 14 and 12 no. of repetitions, resulting following VDCs as the highest potential VDCs among the other nine.

Appendix-III: Photo plates

Focus Group Discussion with different Stakeholders

Questionnaire Survey with Producers

Interview with Enterprise Owner

Interview with Retailers

Final Products of *Lapsi*