

ECONOMIC POLICY NETWORK

Policy Paper 16

CONSTRAINTS AND APPROACHES FOR DEVELOPING MARKET ACCESS AND VERTICAL LINKAGES IN HIGH VALUE AGRICULTURE

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This report has been prepared by Mr. Jagan Nath Thapliya, Agriculture Specialist, under the guidance of the Confederation of Nepalese Industries (CNI).

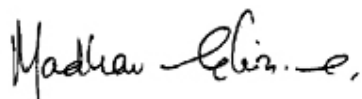
Inputs from various stakeholders during interactions at CNI, Advisory Committee meetings, and the workshop in Kathmandu, have been incorporated in the report.

Foreword

Economic Policy Network (EPN) is an undertaking of the Government of Nepal since August 2004 with an Asian Development Bank (ADB) technical assistance (TA) to develop and institutionalize an open, responsive and result oriented economic policy formulation process based on sound economic analysis and dialogues with the partnership of public and private sector, academia, and independent professionals, to support and consolidate the Government's economic policy reforms on poverty reduction strategy. The initial focus has been in the areas of macroeconomic management, trade, investment, employment, infrastructure, tourism, agriculture, and regional development through four thematic advisory committees chaired by the secretaries of the respective implementing ministries, and guided by a high-level steering committee. The present study is an outcome of the initiative under the Advisory Committee for Economic Policy on Tourism, Agriculture, and Regional Development chaired by the Secretary of the Ministry of Culture, Tourism, and Civil Aviation.

The study analyzes the constraints in existing market access and vertical linkages of key agricultural commodities and recommends appropriate policy interventions for cost cutting to make Nepalese agricultural commodities more competitive in the domestic and regional markets. The recommendations are the outcome of consensus reached among major stakeholders through various consultations and the EPN workshop. I hope the findings and recommendations will be helpful for policy makers for future reforms.

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Abbreviations

ABTRACO	Agribusiness and Trade Promotion Multipurpose Cooperatives Ltd
APP	Agriculture Perspective Plan
AEC	Agro-Enterprise Center
AGDP	Agriculture GDP
AIC	Agricultural Inputs Company Limited
APROSC	Agriculture Prospects Service Centre
AoA	Agreement on Agriculture
BIMST-EC	Bay of Bengal Initiative on Multi-sectoral Technical and Economic Cooperation
BOI	Board of Investment
CACGS	Commercial Agriculture Credit Guarantee Scheme
CAN	Commercial Agriculture Network
CCI	Chamber of Commerce and Industry
CBS	Central Bureau of Statistics
CBO	Community Based Organization
CNI	Confederation of Nepalese Industries
COC	Chamber of Commerce
CSTL	Central Seed Testing Lab
CR /CDR	Central Development Region
DADO	District Agricultural Development Office
DDC	District Development Committee
DDC	Dairy Development Corporation
DoA	Department of Agriculture
DoC	Department of Cooperatives
DoC	Department of Customs
DoLS	Department of Livestock Services
DoFTQC	Department of Food Technology and Quality Control
ER	Eastern Development Region
FAO	Food and Agriculture Organization
FNCCI	Federation of Nepalese Chamber of Commerce and Industry
FWR/FWDR	Far-Western Development Region
HVC	High Value Crop/ Commodities
GDP	Gross Domestic Product
GIS	Geographical Information System
IAAS	Institute of Agriculture and Animal Science
IDE	International Development Enterprise
IEC	Importer-Exporter Code
IoF	Institute of Forestry
ISTA	International Seed Testing Association
JICA	Japanese International Cooperation Agency
LDC	Least Developing Countries
MC	Municipality / Municipal Corporation
MDD	Marketing Developing Directorate
MFN	Most Favored Nation
MoAC	Ministry of Agriculture and Cooperatives
MoGA	Ministry of General Administration
MoES	Ministry of Education and Sports
MoF	Ministry of Finance

MoFSC	Ministry of Forestry and Soil Conservation
MoICS	Ministry of Industry Commerce and Supply
MoLD	Ministry of Local Development
MoLJPA	Ministry of Law, Justice and Parliamentary Affairs
MoLRM	Ministry of Land Reform and Management
MoST	Ministry of Science and Technology
MWR/MWDR	Mid-Western Development Region
NARC	Nepal Agricultural Research Council
NGO	Non-Governmental Organization
NPC	National Planning Commission
NRB	Nepal Rastra Bank
NSB	National Seed Board
NSC	Nepal Seed Company Limited
NTFPs	Non-Timber Forest Products
ODCs	Other Duties and Charges
REDA	Rural Economic Development Association
SAFTA	South Asian Free Trade Agreement
SEAN	Seed Entrepreneurs' Association Nepal
SIMI	Small Irrigation Market Initiative
SPS	Sanitary and Phytosanitary
SSMP	Sustainable Soil Management Program
SSSC	SEAN Seed Support Centre
SQCC	See Quality Control Centre
TBT	Technical Barriers to Trade
TPC	Trade Promotion Center
TRIPS	Trade Related Aspects Intellectual Property Rights
UNDP	United Nations Development Project
VAT	Value Added Tax
VDC	Village Development Committee
VDD	Vegetable Development Directorate
WR/WDR	Western Development Region
WTO	World Trade Organization

TABLE OF CONTENTS

Page Number

Foreword	
Acknowledgment	
Abbreviation	
Executive Summary	i
Chapter 1: High Value Agriculture in Nepal – An Overall View.....	1
1.1 Introduction.....	1
1.2 High Value Commodities	1
1.3 Commercial Agriculture & Effective Value Chain System.....	2
1.4 Objective of the Study	3
1.5 Methodology of the Study	3
1.6 Source of Information	4
1.7 Organization of the Document.....	4
Chapter 2: Production Status and Development Approaches for Fruits in Nepal	5
2.1 Production Status	5
2.2 Marketing Structure and Marketing Channels for Fruit Marketing in Nepal	6
2.3 Marketing Cost and Margins for Fruit Marketing in Nepal.....	7
2.4 Product Diversification and Vertical Linkage	8
2.5 Constraints in Fruit Development.....	9
2.6 Recommendation:	9
Chapter 3: Production Status and Development Approaches for Vegetables in Nepal.....	11
3.1 Production Status	11
3.2 Marketing Structure and Marketing Channels	12
3.3 Marketing Cost and Margins	12
3.4 Prospects of Future Exports	14
3.5 Product Diversification and Vertical Linkage	14
3.6 Constraints in Vegetable Development	15
3.7 Recommendations.....	16
Chapter 4: Production Status and Development Approaches for Vegetable Seeds in Nepal .	17
4.1 Production Status	17
4.2 Marketing Structure and Marketing Channels.....	18
4.3 Marketing Cost and Margin	18
4.4 Vertical Linkage.....	19
4.5 Constraints in Vegetable Seed Development.....	20
4.6 Recommendation	21
Chapter 5: Production Status and Development Approaches for Non-Timber Forest Products (NTFPs) in Nepal.....	23
5.1 Production Status	23
5.2 Marketing Structure and Marketing Channels.....	23
5.3 Marketing Cost and Margins	23
5.4 Vertical Linkage.....	25
5.5 Constrains in NTFPs Development	25
5.6 Recommendations.....	25

Chapter 6: Production Status and Development Approaches for Livestock Produce in Nepal.....	27
6.1 Production Status of Livestock Products.....	27
6.2 Milk.....	29
6.2.1 Marketing Channel and Intermediaries.....	29
6.2.2 Marketing Cost and Margins.....	29
6.2.3 Product Diversification and Vertical Linkages.....	30
6.2.4 Constraints:.....	31
6.2.5 Recommendations.....	32
6.3 Meat.....	32
6.3.1 Marketing Channel and Intermediaries.....	32
6.3.2 Marketing Cost and Margins.....	33
6.3.3 Constraints.....	34
6.3.4 Recommendations.....	34
Chapter 7: General Discussion and Recommendations.....	35
7.1 General Discussions.....	35
7.2 Overall Recommendations.....	38
7.3 Policy Actions Matrix.....	42
References:	66
Annex 1:	68
Annex 2:	70

Executive Summary

Agriculture is one of the prime sectors of Nepalese economy as it contributes 36 % to the GDP and 76 % to the livelihood of the nation. Thus, agriculture growth and development is inevitable for the development of the country. And development of agriculture is possible only through transformation of subsistence agriculture to agribusiness or commercialization. Promotion of high value agriculture through the productions and marketing is one the vital step for commercialization. However, development of Nepalese agriculture is fraught with number of difficulties like steep physical terrain, lack of infrastructural supports, prevalence of subsistence farming, poor irrigation and other input facilities, limited access to low cost agricultural technologies and high transportation cost etc.

Agricultural commercialization is a complex and dynamic process involving various linkages between the farm and the firm/industry, encompassing the areas related to technology, markets, finance, institutions, infrastructure and social structure. The key agents of commercialization are the farmers, traders and processors. The core problem for agribusiness development in Nepal is the lack of effective value chain linkages among input providers, farmers, traders, processors, and service providers in which they all are aware of their mutual linkages and organize themselves in such a way that they can benefit from such linkages in the network. A demand-driven approach is needed, where the key players themselves make investment decisions related to technology, infrastructure, marketing and capacity. Further, methods to improve marketing channels require greater coordination in terms of contracts, vertical and horizontal integration, and joint efforts of stakeholders.

The study is conducted with overall objective to identify the high value agriculture, their status in term of production and demand, development constraints and probable approaches especially focusing on market access and establishing vertical linkages. The six promising high value agriculture commodities or commodity groups identified for the study are fruits, vegetables, vegetable seeds, non-timber forest products and live stock products like milk and buff meat. These commodity or commodity groups showed relatively promising growth in recent years in terms of production, market demand and exports. The study is based on the secondary and or tertiary information like published reports, data books and other publications; however, rigorous consultations and discussions were held with the experts working in the related field, CNI officials and various experts (individuals /institutions) in the workshops in the process of preparing the report.

Fruits:

Among three categories of fruits in Nepal the tropical fruits are the most dominating one; however, the citrus fruits and apple are considered to be promising item of this category. Both these items and the total fruit have shown the positive trend in term of production growth for last five years. Similarly, the demands for total fruits are also ever increasing and are expected to surpass the domestic production till foreseeable future too. Also, mango with increasing trend in production level and with reasonable level of industrial use shows some significance in fulfilling domestic need. This crop, however, needs to be concentrated into bigger size pockets to produce required quantity of desirable quality and variety. Further, banana is also showing its potentiality for expansion.

The fruit marketing of Nepal comprises of both domestic as well as external (exports-imports) marketing. External marketing is mainly with India, Tibet, Bhutan and Bangladesh.

In fruit marketing, generally high marketing cost incurred due to high transportation cost and the cost due to damage incurred during the transportation. Similarly, the post harvest losses are quite high mainly due to improper method of harvesting, packaging, and storage of fruits.

Studies reveal that the marketing cost in case of mandarin orange and apple within the country ranged between 200% to 300% of the cost of production and cost of marketing from the two major transit points of Nepal, Birgunj and Bhairahawa, to near by Indian Markets at Patna and Gorakhpur, indicate that the purchasing price at Nepalese market represents 25 to 33 % of the wholesale market price received at Indian whole sale markets. This indicates highly positive market response of Nepalese fruits in Indian markets.

The domestic demand for the processed fruits and vegetables in Nepal seems substantial. The major items are jams, jellies, marmalades and pastes, and orange juice. There are reports that Nepal has earned substantial amount of foreign exchange from the exports of processed fruits too. This clearly indicates the market opportunity for processed Nepalese fruits in both the domestic and exports markets. However, there are only few number of industries that utilize domestic raw materials to meet their total demand. The key constraints have been reported as the non-availability of raw material or the required quality and variety of raw materials, higher price of domestic raw materials, small scale of scattered production, unfavorable tariff structure and several policy issues etc.

Vegetables:

The diverse agro-climatic conditions of Nepal have provided nearly unlimited scope for growing all types of vegetables known in the world. Further, increase in general awareness of the nutritional values of vegetables among the people has increased tremendous scope of promoting the production and marketing of fresh vegetable in Nepal. Looking at the trend, the total demand for the vegetable is projected to swell in considerable amount for near future. Further, it has been widely realized by several researchers that Nepal has comparative advantage in some of the fresh vegetables as well as in the production of so many off-season vegetables. Thus exploring markets niches and with proper export promotion activities Nepal can harvest that potential benefit provided appropriate technology and adequate infrastructure, legal and policy environment for market oriented vegetable production. Some of the examples would be appropriate site selection, commercial size pockets, appropriate vehicles, all season transportation network, year round irrigation facilities, extension (both production and technology and market networking) post harvest activities, collection/ market centers, credit facility, information and communication.

Being perishable in nature fresh vegetables require greater attention during harvesting, packaging, and transporting from the initial point of production to the final consumers thus leading to large margin between the final retailer price and the cost of production especially when the production pockets are at a considerable distance from the market linking roads. Studies reveal that the share of farm gate price or local market at Kapurkot stands at 70% of the wholesale price received at Nepalgunj, 57 % of the Sitapur wholesale market price at Lucknow and 50% of Azadpur wholesale market at Delhi thereby indicating good marketing margin in India for Nepalese produce. Similarly, shipping the selected vegetables from Birtamod (Jhapa) to Siliguri wholesale market in India, the price received at Birtamod against Siliguri wholesale price stands at 57%. The studies have clearly indicated the need to identify the market and the most appropriate season to supply a particular vegetable item and its quantity of shipment to reap the potential benefits.

Both the domestic demand and export value of processed vegetables in Nepal seems substantial clearly indicating the market opportunity for processed Nepalese vegetable in both the domestic and exports markets. The most significant items were soups, sauces, condiments, seasonings flours of legumes, tapioca and saga substitutes.

Vegetable processing industry also faces the similar problem as discussed in the previous section of fruits. The industry is reported to face the scarcity of inputs availability. To function optimally, a plant needs a steady supply of consistently good quality and required variety of raw material at predictable and acceptable prices. Therefore, establishment of contractual farming system, between the firm and the farm, could be one of the best alternatives. Similarly, establishing a processing plant at strategic locations not only reduce the cost of transportation but also provide better opportunity to communicate with the producers for assured quantity and quality of the produce supply.

Vegetables Seeds:

The studies reveal that the demand for both the domestic and exports for the vegetable seeds are ever increasing and expanding rapidly as the importance of quality seed is increasingly recognized. The demand is also increasing due to growing demand for the fresh vegetables by the consumers as well as by the agro-processing industries. Out of which more than 50 per cent of the tomato and carrot seed, and around 10 per cent in case of radish seeds the demand is met through the imports. The study also reveals that the demand for the hybrid seed is rapidly expanding. The major vegetable seeds produced in Nepal include radish, onion, mustard, cauliflower, cabbage, carrot, cress, beans, squash and swiss chards. The radish seed is the single most important item of exports of this category. The growth of the exports of the seed is likely to be shaped by the quality of the seed such as varietal purity, germination rate, genetic stock used and packaging etc. Hence special attention needs to be paid for the quality control of these produce.

The vegetable seed production gives 1 to 2 times more income than the fresh vegetable production in the hills of Nepal. The return could go further up if the benefits in the value chain are equitably distributed. The study reveals that of the retail price (or the consumer price) at Lucknow the farmers receive 25 percent, wholesaler's agent at road-head collection centre receive 28 percent, wholesaler or exporter at Tulsipur receive 46 percent, thus leading to farmer's margin at 1.7 percent, petty traders/wholesaler's agent's 0.8 percent, wholesaler/exporter's 10.1 percent, and wholesaler's margin in wholesale 11.2 percent and 65.3 percent in retail sale. All this fact indicates the uneven distribution of the benefit along the value chain of the marketing system. Further, looking at the cost of production; cost of marketing and exporting; and the wholesale price prevailing in international markets suggests our competitiveness in exporting of these seeds (especially the radish seed). The study also reports that the cost of exports can be reduced by up to 50 per cent, if the seed could be sent by land route instead of air cargo. Further, establishment Nepalese seed trade mark and carrying out export promotion activities would open up market opportunity and hence be the factor commercial scale production.

The development of the seed sector in Nepal is mainly due to the support of donors along with the government agencies and some of the NGOs and private sectors like SEAN. Thus strengthening SEAN or SEAN like institutions to under take works like timely updating of cost of productions, cost of marketing as well as support to farmers by establishing strong

linkages to have their quick and easy access to improved technology, credit, transport, collection centre, market and other related aspects need to be looked into. Nepal should also move for the commercial scale production of hybrid seeds and need to revisit its policy for hybrid seed production.

Non-Timber Forest Products:

Nepal is rich in terms of bio-diversity and this rich bio-diversity hosts a wide range of non-timber forest products (NTFPs). In a study AEC has reported 71 species of NTFPs are in collection in 13 districts of MWDR. These products fall in two main categories, high value high altitude and low value low altitude species. The NTFP has been identified as one of the considerable but much underutilized resource of Nepal, which is believed to play a significant role in poverty alleviation of the rural poor dwelling in the hills and mountains. The annual harvest and trade of NTFPs from Nepal in the year 1996 is estimated roughly between 10 to 15 thousand Mt and the Mid-western Development Region (MWDR) is considered to contribute around half of it with an economic value of Rs 180 million per year. The final destinations of most of these products in crude form are Indian markets of Delhi, Kanpur, Lucknow via many exit points, with trade chains starting from rural collection to Indian businessmen through a series of middlemen. It has been reported that the harvesters are able to receive as high as fifty percent of Indian factory gate price especially in the market road heads where there exists strong competition between the suppliers.

No doubt, India is one of the major markets for the product but recently the domestic markets are also gradually growing up. The two main issues critically raised for NTFP collection, marketing and trade are the unequal distribution of the benefits along the value chain and the quality deterioration of the collected NTFPs. It has been repeatedly pointed out that small processing like drying would dramatically increase the fetching price of the commodity. Thus establishment of the collection centre, at the strategic locations, with a small processing facility like cleaning and drying would drastically increase the quality of the product and hence increase the sale value of the product.

Livestock:

Livestock farming is one of the integral parts of our agricultural system. Among the various livestock products, milk is the largest produce and shares 43 % of the livestock GDP, followed by meat (23 %), poultry (7%) and others (27%). The potential items in the livestock sector are identified as raw milk, ghee, cheese, buffalo meat especially the live buffalo intended for meat production and poultry. The three major items of livestock production namely milk, meat and poultry show gradually increasing over the period. However, the ghee and butter category is showing a negative growth.

The demand for livestock production has been projected to grow at the rate of 5.5 per cent per annum. The demand for milk is expected to grow from 66 million Mt in the year 2000 to 81 million Mt by 2010. Similarly, the meat demand is expected to grow from 15 million Mt to 18.5 million Mt and eggs demand from 53.5 million to 65.6 million during the same period. In order to improve productivity and maintain year round regular supply of quality and quantity meat and milk, which is a prerequisite to attract the traders, investors and industries, regular supply of feed and fodder must be ensured via high quality feeds, green fodder, productive/ high quality breeds, veterinary services, better livestock management practices.

Milk:

In an attempt to estimate farmers' margin in milk production and marketing, a study reveals that farmers receive the highest price where there is opportunity of direct sale to the consumer. However, the opportunity is strictly limited to the farmers living nearby markets only.

Milk processing and preparation of the milk products like Ghee and cheese are the common form of product diversification and many time carried out in the households or small scale cottage industries especially to those farmers where they do not have access to market or collection centers. Other common items of product diversification are yoghurt, milk cream, butter, paneer and many types of sweets, which can be carried out at the domestic or local level. Similarly, preparation of powder milk, baby milk foods, condensed milk, flavoured milk drinks and confectionaries are the industrial level diversification.

Meat:

Buffalo meat comprises the biggest item in meat category followed by mutton, pork and chicken. The estimated cost of production of buffalo meat ranged between Rs 12.41 to 38 per kg without and with accounting of family labour cost in the production process respectively. Accordingly, the share of cost of production of buffalo meat animals in its retail price with and without labour cost is 98 % and 32 % respectively. Therefore, while excluding the family labour cost, the farmers' receives Rs 13 per kg on live weight at retail price. The collectors margin have been found to be Rs 3 per kg and butchers margin has been found Rs 4.5 per kg of live weight.

General Recommendation:

Nepal has comparative advantage in several agricultural products especially in a number of labour intensive manufacturing and agricultural products. Despite its comparative advantage in a range of agricultural products its competitiveness is low because of the poor factor markets. Therefore, to step in to the market led production system some of the common issues have to be addressed and thus dealt. There would be a need of substantial increase in productivity at the farm level, combined with a lowering of production costs. Modern food processing methods would need to be introduced. Substantial improvements would need to be made available and utilize of market information and intelligence in overall marketing system.

The policy context for agribusiness development is provided by a number of policies including the Agricultural Policy, the Industry Policy, the Export Policy and the Land Reform Policy. Agribusiness is considered a "thrust" sector but still missing is an Agribusiness Policy that provides a comprehensive framework, clear strategies, and a regulatory framework including appropriate tariff policy for the agribusiness development. The necessity of the policy is felt more acutely as the agribusiness is a complex set of activities cutting across the production, commerce and industry. Technology constraints exist both in production and post-production systems. Limited access to markets, credit and information and poor infrastructure are almost universal. Risk is another key factor constraining commercialization. At the level of smallholder farmers, particularly the poor and vulnerable groups, their low risk-bearing capacity seriously constrains adoption of new technology and specialization.

The general failure in coordination among commercial stakeholders and service providers translate into ineffective value chains. Value chains are organized linkages among the group of producers, traders, processors, and services providers who join together in order to improve the value of their activities. The main advantage for commercial stakeholders to be part of an effective value chain is that they will be able to reduce the cost of doing business, increase their bargaining power, improve access to technology, information, and capital and, by doing so be able to innovate their production and marketing processes in order to gain higher value and provide higher quality to their customers.

A method should be developed for sharing information, complemented by other mechanisms that give stakeholders the means to make investment decisions needed to move to higher levels of commercialization. Further demand-driven investments will improve the efficiency of allocation of scarce public resources. The formulation, approval and implementation of demand-driven investments will also contribute to the development of alliances and partnerships between stakeholders and service providers.

Thus overall recommendations are establishment of one window and one umbrella system of service delivery for agribusiness promotion (which relates to the linkages between the farm and the firm/industry) with multi tiers of institutional arrangement with legal authority to regulate the decisions and adequate human and financial resource to carry out the programs and activities. Such activities may include; market information and networking system, market oriented production system, development of infrastructure and marketing facilities, mandatory provision for utilization of domestic raw material to some extent by agro-industries, technology generation and dissemination, establishment of reliable and adequate database system and public private partnership need to made functional. This apart a separate wing for facilitating the exports within this umbrella is needed. This would need to make the present high level committee and other supporting functional units within the organization up-scaled, strengthened by more representatives from the private sectors (this involves creation of the Board of Investment (BOI) with appropriately established linkages), cooperatives and the district level organizations (DDCs); make more pro-active in promoting agribusiness at grass root levels through policy, legal, institutional and infrastructural support measures.

Policy Actions Matrices which provide overall recommendations for the constraints identified and recommendations made are provided in Part A and B covering the Overall Agri-business Development Policy Actions Matrix and Commodity Specific Policy Actions Matrix(Fruits, vegetables, vegetables seeds, NTFPs, Milk and Meat) respectively. Contents in the Policy Actions Matrix are prioritized listed according to the serial number. Furthermore, time frame in the Matrix indicates the priority by time period.

Chapter 1

High Value Agriculture in Nepal – An Overall View

1.1 Introduction

Nepal is one of agricultural country as this sector contributes the livelihood to 76 % of the total population and 36 % to the GDP of the national economy. Agriculture has always been on the priority from the very first national Five Year Development Plan. Despite these efforts, Nepalese agriculture can largely be characterized as subsistence and cereal based farming with low production and productivity and low per-capita income. The difficult physical terrain, lack of infrastructure supports, prevalence of subsistence farming, poor irrigation facilities and limited access to low cost agricultural technologies make the commercialization of agriculture difficult on one hand and high transportation cost and poor purchasing power hinder the development of the markets and raise the cost of expanding agriculture and agricultural trade on the other.

Recognizing these facts, in mid 1990's, the Agriculture Perspective Plan (APP) was brought as a blue print of the agricultural development vision of Nepal that would work as a road map to all our plans for the next two decades. The plan is based on more demand driven (market led) approach than the previous plans, which were production oriented. The plan has clearly identified the rule of the game “competitiveness”; the competitiveness through comparative advantage in production and competitiveness through the marketing efficiency. The comparative advantage in production has been conceptualized by the production of high value crops and commodities and their commercialization to attain scale of operation. Similarly, the competitiveness through marketing efficiency had been envisaged through agribusiness promotion and development of market, market infrastructure¹ and marketing system.

1.2 High Value Commodities

The high value crops or commodities have been defined on the two major parameters i.e. high value for low volume (or commodity with a market demand) and production efficiency i.e. relatively higher economic return per unit area of land. Though, it is a dynamic concept and to a large extent location specific (i.e. region or area) and varies from time to time. Generally the livestock commodities (like milk and milk products, meat, and eggs) and horticultural crops (like vegetables, vegetable seeds, fruits and floriculture), plantation crops and spices, non timber forest products (NTFPs) and herbs are the most common items identified as the high value commodities in case of Nepal. The six commodities identified by APP under the high value crops are apple, citrus, off season vegetable, vegetable seeds, apiculture and sericulture. Similarly, a study conducted by Agriculture Projects Services Centre (APROCS) on ‘Exploring Market Potential of Selected High Value Commodities in Mid-Western Development Region of Nepal’ has identified Mandarin Orange, Ginger and dry Ginger, Radish Seed, Milk, milk products and buff-meat as high value commodities. Similarly, commodities like baby corn, green corn, saffron, mushroom and honey are also considered as newly emerging potential HVC. Besides, there are several reports that have

¹ Market Infrastructure refers to market information, market access, collection centers, cold storage facility and developed marketing channels etc.

identified fruits and vegetables as a high value crops especially off-season vegetable in case of Nepal. Similarly, the plantation crops like tea, cardamom and coffee are also pointed out as high value crops.

1.3 Commercial Agriculture & Effective Value Chain System

Agriculture commercialization or agribusiness development has been repeatedly addressed as one of the goals of any development plans for last two decades as the sector bears the potential to make a significant contribution to overall growth, rural employment, and poverty reduction. The need for agribusiness development has been stressed by the APP as one of the four priority output sectors. Despite these facts, the reality is that it is confined in the documents with an exception of few concrete attempts. The examples can be envisaged as the formation of ‘Agribusiness Development Division’ in the ministry and a ‘High Level Committee for Agribusiness Promotion’² that is headed by the Minister of Agriculture and Cooperatives and representing from Ministry of Finance, Ministry of Industry, Commerce and Supply, Ministry of Local Development, National Cooperative Development Board, FNCCI and from among agricultural entrepreneurs. These are the appreciable attempts especially to start with; however, limiting further attempts that brings the growth and the development of the institution is a seriously raised question. Agribusiness is a complex set of activities cutting across the production, commerce and industry. Unless linkages among farmers, traders (including exporter and importer), processors, and service providers are coordinated and managed effectively, agribusiness development will be relatively slow, and will not fulfill its potential benefits.

The core problem for agribusiness development in Nepal is the lack of effective value chain linkages among input providers, farmers, traders, processors, and service providers. Thus a value chain is defined as the full range of activities required to bring a product or service from conception, through the intermediate phases of production, to delivery to final consumers and final disposal after use. A functional value chain means that key stakeholders (farmers, marketers and entrepreneurs) are aware of their mutual linkages which is a deviation from the generally accepted linear value chain model, make a deliberate effort to improve them, and organize themselves in such a way that they can benefit from such linkages in the network, including other stakeholders such as research and extension providers.

The analysis of linkages among different stakeholders reveals weak linkages. The paucity of effective farmer organizations, producer associations, trade associations and coordination mechanisms among stakeholders (e.g. between research and extension) is seen as a major obstacle to further commercialization by stakeholders. The lack of functional value chains in the country is responsible for the current low state of agricultural commercialization.

Agricultural commercialization is a complex and dynamic process involving several dimensions related to technology, markets, finance, institutions, infrastructure and social structure. The farmers, traders and processors are the key agents of commercialization. A demand-driven approach is needed, where the key players themselves are motivated to make investment decisions related to technology, infrastructure and institutions rather than the investments being supply-driven by the public sector. The stakeholders in the

² This is English translation of the Nepali name of the committee called “Uchchastariya Krishi Byabasaya Prabardan Samiti”.

commercialization process are poorly integrated, and attempts are to be made to provide institutional mechanisms that facilitate the emergence of effective networks and value chains.

A chaotic organization of marketing channels results in low quality of products, high post harvest losses, and high price fluctuations. Methods to improve marketing channels require greater coordination in terms of contracts, vertical and horizontal integration, and joint efforts of stakeholders; these methods are rarely used because of lack of trust among the stakeholders and lack of capacity in value chain management. The weak linkages among commercial stakeholders do not result in increase value addition, competitiveness, and innovation. The situation in agriculture market places is similarly chaotic. Congestion of markets prevails; market infrastructure is in appalling conditions, and market revenue collection system is fraught with irregularities.

1.4 Objective of the Study

The overall objective of the study is to identify the constraints and approaches for developing market access and vertical linkages in high value agriculture, however, the specific objectives are to

- identify production status, exports and imports of potential high value agriculture products and their priorities
- assess current market access and vertical linkages with agro-industries; estimate the marketing cost and marketing margins by analyzing the price differential within chains
- identify constraints (legal, institutional, administrative and policy) and hence suggest approaches for intervention/ support in improving market access and vertical linkages in the value chain including transportation facilitation, market yard development , storage, product – industry connections, and the use of public – private partnership and
- suggest policy- action matrix identifying a) constraints (legal, institutional, administrative and policy) b) intervention/ support; c) potential benefits; d) policy improvements needed; e) responsible agencies; and f) timeframe (immediate, intermediate and long-term)

1.5 Methodology of the Study

There is no specific/ procedural detail as a methodology to carry out this study. However, the study started with listing of the pre-identified of the high value agriculture commodities or commodity groups (HVC), which are most repeatedly and widely accepted as high values crops or commodities. To list them out, plan documents (APP, Agriculture Policy 2061, Tenth Plan etc), study reports, project reports were cited as the major references. Thus from the list of pre-identified HVC or commodity groups, six most prominent and promising commodities or commodity groups were selected for the study on the details targeted in the objective of the study. Those commodity or commodity groups were considered to be HVC, which have shown relatively promising growth in recent years in terms of production, domestic market demand and exports, rather than taking already established commodities. Furthermore, fruits and vegetables, vegetables seeds, non-timber forest products and livestock products like milk, ghee, cheese and meat are selected as HVC under this study are not necessarily based on macro mathematical analysis, they are rather considered as the demand expressed by the entrepreneurs and from the policy and imperial perspectives. As far as possible some specific examples have been tried to be incorporated in the form of box news.

1.6 Source of Information

Information is one of the most limiting factors in case of the study of this nature. Thus attempts were made to collect the reports, data book and other publication by consulting number of libraries. These collected reports and documents were reviewed to generate useful information. Therefore, the study is based on the secondary and or tertiary information (or data base) for the most of the information required for this study; however, researcher's own experiences, suggestions and outcomes from the discussions with CNI officials were also used. Further, rigorous consultations and discussions were made with the experts working in the related field.

1.7 Organization of the Document

The report has been divided into seven chapters. The first chapter deals with the general introduction of the study. Chapter two to six deals with the selected HVC individually, as a case study including the details identified in the objectives of the study. The commodity or commodity groups dealt were fruits, vegetables, vegetables seeds, NTFPs, livestock products (meat and milk) respectively. The seventh chapter includes the general discussion and gives the overall recommendation for agribusiness promotion with a policy action matrix for all the constraints identified and recommendations made during the discussion. The policy action matrix is divided into Part A for overall agribusiness development and Part B for commodity specific sections by categorizing them into policy, institutional, infrastructure/ logistic, research and development and miscellaneous headings.

Chapter 2

Production Status and Development Approaches for Fruits in Nepal

2.1 Production Status

The fruit in Nepal can broadly be grouped into three categories as sub tropical, tropical (or summer) fruits and winter fruits (deciduous fruits). In term of production the tropical fruits are the most dominating one and then come the citrus fruits followed by the deciduous fruits (Table 1). In the tropical fruits category the production of mango has biggest shares. Similarly, the mandarin orange has the biggest share in citrus production category and apple is major item in deciduous fruits category. Ranking each fruits in the total production of fruits, the mango shows the biggest share of production (20%), and then follows mandarin orange (16 %), banana (11 %), sweet orange (6 %), apple (7 %) litchi (3.2 %) and lemon (0.67 %) among the major fruits.

Table 1: Production Status of Fruits in Nepal.

(Production in Mt)			
Fruits	2001/02	2002/03	2003/04
Tropical Fruits	251108 (53)	286770 (55)	268399 (52)
Citrus Fruits	130928 (27)	139110 (28)	148010 (29)
Deciduous Fruits	91585 (19)	92985 (18)	94988 (19)
Total	473621 (100)	518864 (100)	511397 (100)

Source: Statistical Information on Nepalese Agriculture 20003/04.

Note: The figure in the parenthesis shows the relative percentage

Looking at the trend of fruit production for last five years it is vivid from the figures that the production of the fruits has shown a gradual increase over last five years. The total production of fruits has increased by 3.3 % per annum for period of last five years (1999/00 to 2003/04). Similarly, the mango, citrus and apple production has exhibited the growth of 6.7 %, 6.38 % and 2.13 % of per annum respectively (Table 2).

Table 2: Trend of Major Fruits Production in Nepal.

(Production in Mt)						
Fruits	Year					Growth
	1999/00	2000/01	2001/02	2002/03	2003/04	
Mango	90962	120049	39837	127714	103784	6.70 %
Citrus	115067	121665	130928	139110	148010	6.38 %
Apple	31197	31804	32307	33050	34036	2.13 %
Total	447334	487326	473621	518864	511397	3.30 %

Source: MOAC, Statistical Information on Nepalese Agriculture, Various Issues

Note: The growth is estimated using the exponential growth function³ and the growth of mango production is calculated taking on and off years' aggregation.

³ The growth can be estimated using various growth equations. However, using exponential growth equation would be most appropriate to estimate the growth of most of the agricultural commodities. The exponential growth function is defined as $\log X = \log a + b \times t$, where 'X' is the volume of fruit production, 'a' is constant, 'b' is the exponential growth and the 't' is the time/ duration.

A study conducted by the JICA Study Team in Nov 2000 shows that the total domestic demand for fruits in the year 2000 stands at 505 thousand Mt, which is expected to grow to 538 thousand Mt by 2005, 600 thousand Mt by 2010 and 663 thousand Mt by 2015. In which large component would come from the domestic supplies, however, to meet our total demand (both domestic and exports) we still need to depend on imports from India. This clearly indicates the domestic market has an ample space to absorb the expanded domestic production. The study has not projected any growth of the exports market, despite the fact that Nepal being potential to export some of fruits like citrus and apple. Thus, there is still room for the expanded production of the fruits especially in case of apple and citrus. The large portion of expanded production could come from the increased productivity as the fruit productivity of Nepal (10 Mt/ ha) is half of that of India i.e. 20 Mt/ ha (Thapa *et al.*, 2004). Similarly, orange productivity for example is very low at 9 Mt/ ha as compared to other citrus growing countries with 43 Mt/ ha (Ranjit G.C. 1997). Poor orchard management and plantation of poor or unidentified genetic planting materials, improper site selection with respect to commercial cultivation and or nearness to the technical centers and other rural infrastructure contribute to lower production required for exports, import substitutions and supply of the raw materials to the agro-industries.

Table 3: Demand and Supply balance of Fruits in Nepal.

(Unit: 000 Mt)

Fruits	Demand			Supply			Net Import
	Domestic	Exports	Total	Domestic	Imports	Total	
Year 2000	505	1	506	456	50	506	49
Year 2005*	538	1	539	523	16	539	15
Year 2010*	600	1	601	583	18	601	17
Year 2015*	663	1	664	644	20	664	19

Source: JICA Study Team, Nov 2000.

Note: * These figures are the projections based on the study.

2.2 Marketing Structure and Marketing Channels for Fruit Marketing in Nepal

The fruit marketing of Nepal comprises of both domestic as well as external (exports-imports) marketing. External marketing is mainly with India, Tibet, Bhutan and Bangladesh. However, Nepal is gross importer and major marketable surplus is marketed in domestic markets. In domestic marketing the most common types of marketing structures are farm-gate market, local level markets, collection centers/points, wholesale markets and retail markets. The major marketing channel/ flow of fruits from the production pockets to the consumer can be summarized as follows with a little variation for each specific commodity (fruits). The contractor or the assembler collects the produce from the pockets or the farmers, which is supplied to the wholesaler (or retailer). The wholesalers supply it to the retailers and retailers supply it to the consumers. The most common marketing channels are:

- i. Producers – Forward contractors/ Wholesaler – Retailers - Consumers
- ii. Producers – Assembler/ Contractors – Wholesaler – Retailer – Consumers
- iii. Producers – Pre-harvest Contractor/ Wholesaler – Wholesaler – Retailer - Consumers

2.3 Marketing Cost and Margins for Fruit Marketing in Nepal

A study conducted by APROSC in 1999 for Exploring Market Potential of Selected High Value Commodities in Mid-Western Development Region of Nepal has reported that marketing cost is highly shaped by the access to road head that links to the markets. Generally, the high marketing cost is due to high transportation cost and the cost of damage incurred during the transportation. In an example for transporting mandarin, one of the most important HVC of MWDR, from farm gate to the road heads the porters is the only means. Further, the marketing cost ranged between 200 % to 300 % in a case of the mandarin marketing from Sallyan and Dailekh farm gates to the consumers of Tulsipur/ Ghorahi and Birendranagar respectively. The mandarin produced in Dailekh is sold on an average retail price of Rs 16 per kg at Birendranagar and the mandarin produced in Sallyan is sold at Rs 12.50 per kg in Tulsipur/ Ghorahi out of which the farmers' margin stood at 34.4 % and 25.8 % respectively. Similarly, the transportation cost shared 13 to 16 % while cost of loss/ damage during transportation shared as high as 8 to 10 % (Table 4).

Similarly, it is a well-known fact that post harvest losses are quite high in Nepal. Several study reports the post harvest losses are as high as 30-40 % in general and 29 % in oranges (DoFTQC, 2002) and 25-35 % in apples (Shrestha, 1996) mainly due to improper method of harvesting, packaging, and storage of fruits.

Table 4: Marketing Cost and Margins in the Marketing of Mandarin Orange.

Particulars/ markets	FGP (% of Wholesale Price)	Marketing Cost (%)	Transportation Cost (%)	Loss During Transportation (%)	Marketing Margin (%)
Sallyan to Tulsipur Ghorai	34.4	33.31	12.5	7.6	32.30
Dailekh to Birendranagar	25.8	40.19	16.1	9.5	33.91

Source: APROSC, Exploring Market Potential of Selected High Value Commodities in Mid-Western Development Region, Nepal. 1999.

Note: i. Marketing cost includes transportation cost and loss during transportation; and
ii. Marketing margin is the difference between the farm gate price and the consumer retailers' price in the destination markets.

In a study conducted by MDD, 2000, tried to assess the cost of marketing mandarin orange and apple from the two major transit points of Nepal, Birgunj and Bhairahawa, to near by Indian markets at Patna and Gorakhpur, revealed that the purchasing price at Nepalese market represents 25 to 33 % of the wholesale market price received at Indian wholesale markets (Annex 1; Table 1 and 2). Similarly marketing cost ranges between 39 to 40 %, in which transportation cost stood between 14 to 16% while loss during transportation at 8 to 9% resulting marketing margin from 28 to 36 % of the price received at the near by Indian wholesale market centers (Table 5).

Table 5: Marketing Cost and Margin for the Mandarin Orange and Apple Marketing from Nepal to Near by Indian Markets

Particulars/ markets	% of Purchasing price at Nepalese market	Marketing Cost (%)	Transportation Cost (%)	Loss During Transportation (%)	Marketing Margin (%)
Birgunj to Patna India	32.95	39.55	16.14	9.09	27.50
Bhairahawa to Gorakhpur	25.00	38.85	14.42	8.08	36.15

Source: Calculated from MDD, DOA. Study of High Value Commodities Marketing in Indian Market Centres, Harihar Bhawan 2000.

Note: i. Marketing cost includes transportation cost and loss during transportation; and
ii. Marketing margin is the difference between the price at Nepalese market and wholesale price at near by Indian markets.

2.4 Product Diversification and Vertical Linkage

Promotion of agro-industries mainly has two major implications; foreign exchange earning and creating demand for the raw farm produce. Fruit and Vegetable processing is relatively new industry; however, there were 171 fruits and vegetable processors in Nepal in 1989 (No-Frills Consultants, Opportunity Profile on Processed Fruits and Vegetables in Nepal, 1989) and most of them are concentrated in Kathmandu Valley. The major processed fruit items are Juice (mainly orange and pineapple); Squash (mainly orange and lemon); Jelly, Marmalade, Jam; Vinegar; canned fruit slices, Sauces; fruit wines and brandies and dried fruits.

The domestic demand for the processed fruits and vegetables in Nepal seems substantial as the import value of processed fruits stood at Rs 2.3 million in the FY 1986/87. The big-ticket products are jams, jellies, marmalades and pastes, and orange juice. Clearly, India bears the largest share in our total imports of these commodities and then comes the rest of Asian countries like Singapore, Thailand, Japan and some European countries.

Similarly, Nepal has earned substantial amount of foreign exchange from the exports of processed fruits. The study reports that Nepal has earned Rs 5.9 million from the exports of processed fruits in the same FY (No-Frills Consultants, 1989). This clearly indicates the market opportunity for processed Nepalese fruits in both the domestic and exports markets. One of the examples can be taken as the emergence of fruit juice in tetra packs. One such juice manufactured by a joint venture company, is gaining popularity in Indian market also (Upadhyaya, 2004). However, it has been reported that the number of industries that drive most of raw materials from the domestic sources are few (Upadhyaya, 2004 and Thapa et. al, 2004). In an example, Thapa says, a food and beverage industry imports concentrated mango pulp from India for its mango drink product; and another company, which is known for its herbal products, imports concentrates of pineapples and orange juices from Brazil and mango pulp from India for their brand of juices. Similarly, even industries that used traditional products like maize, wheat, tobacco and mustard have begun to import raw materials.

The key constraints have been reported as the non-availability of raw material or the required quality of raw materials, higher price of domestic raw materials, small scale of scattered

production, unfavorable tariff structure and several policy issues⁴ etc. The industry is reported to face the scarcity of inputs availability. Much of the risk in the fruits processing industry has been reported to come from the vagaries of nature. To function optimally, a plant needs a steady supply of consistently good quality and required variety of raw material at predictable and acceptable prices.

Box 1:

Under Utilization of Domestic Fruits by Agro-processing Industry in Nepal

A relatively large food and beverage producer produces mango drink in tetra pack using a brand name franchised with an Indian company and is required to maintain the same taste and flavor of the juice as in India. For this reason, it is compelled to use same mango variety as is used by Indian counterpart company. Therefore, the industry imports 100 % of the raw material from India in the form of concentrated pulp. Moreover, the industry is running below at its capacity (estimated at about 50 %) due to lack of market as there is an agreement between the counterparts industries prohibit the exports of the product produced in Nepal to India.

(Source: Thapa *et al*, 2004. Commodity Case Study Fruits, Implication on WTO Membership on the Nepalese Agriculture. FAO/ UNDP and MoAC, Kathmandu, Nepal.)

2.5 Constraints in Fruit Development

- Fruits being perishable commodity require a special attention in post harvest activities like picking/ harvesting, product preparation and packaging and transportation. So, our competitiveness largely shaped by effective performance of the marketing activities and need to be very critical in the selection of the pockets. Besides, we also lack of agricultural marketing extension services to improve harvesting, post harvest handling and creating market orientation (Opportunity profile on fresh fruits and vegetables in Nepal, Sept 1989, Profile 2).
- Scattered Production Area: The mango bears the largest share in total fruits production in Nepal. Also by area it occupies 27 % of total fruit cultivation. However, the production area for both the tropical fruits (mango and litchi) are scattered throughout the tropical climate regions of the country. Hence to fully explore its industrial use potentiality, mango needs to be grown in concentrated and large pockets of land providing sizable quantity, required quality and variety in as demanded by the market/ industry etc.
- Fruits quality (taste, flavor, color, texture, shape and size) is not only one of the vital attributes to fetch the good market price but also fulfill the industrial requirement as a part of establishing vertical linkage. Thus selection of the most appropriate variety for the location or area is one of the principal factors to determine the aforementioned features. Besides, fruits crop have a long gestation period and hence quality regulation and assurance of the varieties purity of the saplings of fruits is one of the most critical factor for the development of fruit crops, however, it is severely limited in our case. And there are several such cases of poor quality fruit production.

2.6 Recommendation:

- The statistics suggest that the strategy for the production and marketing of Nepalese fruits should mainly remain as import substitution in case of India and export promotion in case

⁴ Please see “Trend in Backward linkages and Domestic Sourcing of Raw Materials by Agro- Industries” by Shyam Kumar Upadhyaya for the detail.

of Tibet and Bangladesh. Further, opportunity should also be explored to export the commodity in the overseas markets.

- Concentrated production strategy should be promoted by selecting appropriate commercial scale pockets on the basis of ecological appropriateness, market accessibility and level of infrastructure development like road, electricity, cold storages and other market facilities etc.
- Establishing a processing plant on the advantageous proximity to the production pockets/block not only reduce the cost of transportation but also provide better opportunity to communicate with the producers for assured quantity and quality of the produce supply. Besides, the government should bring the rules and regulations for facilitating lease farming system to promote commercial scale of production.
- Agricultural marketing extension services has to be promoted to improve harvesting, post harvest handling and creating market orientation among the producers. The statement can be further justified by the fact that small improvements in harvesting and handling would be required to generate high payoffs like upgrading farmers' skill on better method of picking fruits from trees e.g. using light bamboo ladders, papers wrapping etc (Thapa *et al.*, 2004). Market orientation means designing the production planning as per the market need and market trend for price and supply.
- The post harvest handling facilities improvement and export promotion program should be brought forward with a priority.
- Attention should be paid towards quality regulation and assurance of the varieties purity of the fruits saplings.
- Encouraging processing and manufacturing units through policy and institutional and infrastructural development.
- Establishing or promoting contractual farming system, between the firm and the farm, could be one of the best alternatives.
- Appropriate mix of both labor and capital should be practiced to remove constraints faced by HVCs to make it competitive both in domestic and overseas market (this recommendation should be applicable for all the HVCs studied in this report).

Chapter 3

Production Status and Development Approaches for Vegetables in Nepal

3.1 Production Status

The diverse agro-climatic conditions of Nepal both among the different ecological regions and within an ecological region have provided nearly unlimited scope for growing all types of vegetables known in the world and a larger number of these types throughout the year. This would lead to exports, imports substitution and serve as raw material base for the upcoming agro-industries. Further, increase in population and general awareness of the nutritional values of vegetables among the people has increased tremendous scope of promoting fresh vegetable production and marketing in Nepal. The production of fresh vegetables has increased from 1490 thousand Mt in year 1999/00 to 1890 thousand Mt by 2003/04 with the annual growth of 5.61 percent per annum.

Table 6: Trend of Vegetable Production in Nepal.

Vegetables	Year					Growth
	1999/00	2000/01	2001/02	2002/03	2003/04	
Potato	1182500	1313717	1472757	1531315	1643357	8.11 %
Other fresh vegetables	1489665	1652979	1738086	1799973	1890100	5.61 %
Total	2672165	2966696	3210843	3331288	3533457	6.57 %

Source: MOAC, Statistical Information on Nepalese Agriculture, Various Issues.

Note: The growth is estimated using the exponential growth function.

A study conducted by JICA team in the year 2000 estimates that the total domestic demand of fresh vegetables in Nepal is 1382 thousand Mt. The total demand is partly supported by domestic production supplies i.e. 1342 thousand Mt and partly by imports (40 thousand Mt). The studies has projected that the demand would gradually increase to 1584 thousand Mt by 2005, 1765 thousand Mt by 2010 and 1948 thousand Mt by 2015 and accordingly the size of the imports is also expected to swell to meet the excess demand that surpassed the domestic supply (Table 7).

The statement is further justified with the import trend over the last five years. In the FY 1999/00 the value of import of fresh vegetables was Rs 551.4 million while in the FY 2003/04 it has reached to Rs 638.7 million (TPC, A Glimpse of Nepal's Foreign Trade, 2004). Thus it is vivid that there is ample space for the growth of domestic production of fresh vegetables. Besides, thrust must be given for the technology generation and expansion to develop our competitiveness through increased productivity. Further, it has been widely realized by several researchers that Nepal had comparative advantage in some of the fresh vegetables as well as in the production of so many off-season vegetables. However, the study has not projected any expansion of vegetables exports. Thus exploring and with proper export promotion activities Nepal can harvest that potential benefit as well.

Vegetable crop with suitable variety based on the market demand can certainly be profitable and economically viable. However, there would be the need for verification of diverse

technology option for market oriented vegetable production. Also upgrading farmers' knowledge and skill in vegetable crops production with further expansion for off-season production would be necessary. This need policy support accompanied with institutional and infrastructure facilities that would be relevant to the smooth functioning of value chain system from the production point through marketing network until the consumption point. Appropriate site selection and commercial size pockets and extension (both production and technology and market networking) post harvest activities, collection/ market centers, credit facility, information and communication would help boost production to attract traders and investors in agro-industries.

Table 7: Demand and Supply balance of Vegetables in Nepal.

(Unit: 000 Mt)

Year	Vegetables	Demand			Supply			Net Import
		Domestic	Exports	Total	Domestic	Imports	Total	
2000	Potato	931	0	931	909	22	931	22
	Fresh Vegetables	1380	2	1382	1342	40	1382	38
2005*	Potato	1068	0	1068	1043	25	1068	25
	Fresh Vegetables	1584	2	1586	1540	46	1586	44
2010*	Potato	1191	0	1191	1163	28	1191	28
	Fresh Vegetables	1765	3	1768	1717	51	1768	48
2015*	Potato	1315	0	1315	1284	31	1315	31
	Fresh Vegetables	1948	3	1951	1895	56	1951	53

Source: JICA Study Team, Nov 2000.

Note: * These figures are the projections based on the study.

3.2 Marketing Structure and Marketing Channels

For the marketing of the vegetables in Nepal there are three main marketing channel followed according to the category of the vegetables. The leafy vegetables follow the first channel, the other fresh vegetables follow the second channel and for potatoes, onion, garlic which falls in similar category follow the third marketing channel.

- Farmer – Retailer/ consumer (leafy vegetables)
- Farmer/ Group/ Cooperative - Collection Centre - Intermediary – Urban wholesaler market - Retailer/ hawker/Indian wholesaler – consumer/exports to India (all fresh vegetables)
- India, Tibet, Bhutan – Importer – Urban Wholesale Market – Retailer – Consumer (mainly for potato, onion, garlic)

3.3 Marketing Cost and Margins

Being perishable in nature fresh vegetables requires greater attention during harvesting, packaging, and transporting from the initial point of production to the final consumers. The marketing cost of the vegetable mainly involves the cost of post harvest activities that is incurred before disposing it to the terminal market (to the consumer). The cost includes cost of harvesting and packaging (material and labour costs), handling (sorting, cleaning, grading,

loading, and unloading), transportation and tariff, tax and unseen costs etc. Generally, these components constitute a large share in the total margin between the final retailer price and the cost of production (or farm gate price) especially when the production pockets are at a considerable distance (> one day walk distance) from the market linking roads. The marketing cost and margin should be assessed from two different angles. One would be assessing the marketing cost and margin for shipping the produce from the production area to domestic markets and another assessment would be for the exporting of those produce to near by markets of the neighboring countries.

In an attempt, the MDD has conducted two studies, in 2057 BS and 2000 AD, for selected vegetables (green peas, capsicum, tomato, cauliflower, cabbage, french beans/ pole beans, radish) under high value commodities in Terai and some of the wholesale markets in India. The study has taken the case of Kapurkot, one of the potential collection centre from which the vegetable is supplied to Nepalgunj, Lucknow or Delhi wholesale markets. These studies reveal that the share of farm gate price (local market price) stands at 70% of the wholesale price received at Nepalgunj, 57 % of the Sitapur wholesale market price at Lucknow and 50% of Azadpur wholesale market at Delhi. Similarly, the marketing cost and margins estimated to ship the vegetable from Kapurkot to Nepalgunj, Lucknow and Delhi markets ranged between 14 to 25 % and 10 to 21 % in the first case, 19 to 28 % and 13 to 24 % in the second case, and in third case between 23 to 28% and 20 to 29% respectively. This shows that marketing cost is high which has to be addressed in order to achieve the marketing efficiency.

Similarly, in another case of shipping the selected vegetables from Birtamod (Jhapa) to Siliguri wholesale market in India, the study revealed that the price received at Birtamod against Siliguri wholesale price stands at 57% and the marketing cost and margin ranged between 14 to 16 % and 25 to 37 % respectively. The statistics is presented in following table (Table 8). The study revealed a good marketing possibility for vegetables in both domestic and export markets. Specially, for the vegetables like capsicum, green peas, cabbage and cauliflower as these vegetables have shown a high price and the market margin despite of high marketing costs.

Table 8: Marketing Cost and Margin for Selected Vegetables

Particulars	Vegetables under study	Average Farm Gate Price (% of Whole sale price)	Marketing Cost (%)	Marketing Margin (%)
Kapurkot to Nepalgunj Market	Green Peas, Capsicum, Tomato and Cauliflower	70	14 - 25	10 - 21
Kapurkot to Sitapur wholesale market, Lucknow.	Tomato, French Beans, Capsicum, Cauliflower	57	19 - 28	13 - 24
Kapurkot to Azadpur Market at Delhi.	Tomato, French Beans, Capsicum, Cauliflower	50	23-28	20-29
Birtamod to Siliguri wholesale market	Cabbage, Radish, Cauliflower	57	14 - 16	25 -37

Source: Calculated from MDD, The study on the Marketing System of Selected High Value Agricultural Commodities in the Commercial Pockets in Nepal, 2057.

3.4 Prospects of Future Exports

A study conducted by MDD in 2000, on High Value Commodities Marketing in Indian Market Centers has reported the potential prospect of exporting some of the vegetable items like pole beans, tomato, capsicum, and cabbage to the Sitapur Market at Lucknow with the most potential season and potential quantity that can be supplied (Table 9). The study clearly indicated the need to identify the market and the most appropriate season to supply a particular vegetable item with the capacity of the market to absorb the supply without distorting the price. Once the information on these markets are complete, each of our production area must be identified as a production catchments area for the market on the basis of ecological suitability, market and other infrastructures facility. Further, the production of such items should be promoted with the necessary support policies and activities to harvest the market opportunity.

Nepal with proper selection of crops/commodities having comparative advantages and supported by institutional, infrastructural and policies/legal measures, can certainly expand its competitiveness for its HVCs products. These measures would help Nepal compete not only with Indian but also with the regional market prices.

Table 9: Prospects of Exports of Vegetables to Sitapur Market at Lucknow.

Vegetables	Potential Season	Potential Demand
Pole Beans	Feb - April	300 – 400 Quintal per Day
Tomato	April - July	1000 Quintal per Day
Capsicum	June - October	400- 500 Quintal per Day
Cabbage	July - September	Up to 3000 Quintal (minimum) per day with no upper limits

Source: MDD, Harihar Bhawan, High Value Commodities (selected vegetables and fruits) Marketing in Indian Market Centers, February 2000.

3.5 Product Diversification and Vertical Linkage

As mention earlier vegetable processing is relatively new industry. The major vegetable items under processed category include pickles tomato sauce and ketchups sauces (chilli and vegetable) green peas, peanut butter, dried vegetables and canned beans snacks etc.

The domestic demand for the processed vegetables in Nepal seems substantial as the import of processed vegetables in FY 1986/87 showed an import value of Rs 6.1 million. The most significant items were soups, sauces, condiments, seasonings flours of legumes, tapioca and saga substitutes. Clearly, India bears the largest share in our total imports of these commodities and then comes the rest of Asian countries like Singapore, Thailand, Japan and some European countries.

Similarly, Nepal has earned substantial amount of foreign exchange from the exports of processed vegetables. The study reports that Nepal has earned Rs 5.5 million from the processed vegetables in the same FY (No-Frills Consultants, 1989). This clearly indicates the market opportunity for processed Nepalese vegetable in both the domestic and exports markets.

Vegetable processing industry also faces the similar problem as discussed in the previous chapter of fruits. The industry is reported to face the scarcity of inputs availability. To function optimally, a plant needs a steady supply of consistently good quality and required

variety of raw material at predictable and acceptable prices. Therefore, establishment of contractual farming system between the firm and the farm, could be one of the best alternatives. Similarly, establishing a processing plant near the production pockets/ block (as it is assumed to have access to farm road, power, storage facility etc) not only reduce the cost of transportation but also provide better opportunity to communicate with the producers for assured quantity and quality of the produce supply.

Box 2:

Contract Cultivation of Raw Material

A multinational tobacco company located in Bara district contracts farmers for tobacco cultivation. This program was started in 1991. By 2002/03 it covered 300 hectares of land in Bara, Parsa, Rautahat, Sarlahi, and Dhanusa districts involving about 2,000 farmers. The process is as follows.

The farmers fill in application forms expressing their interest to participate in the contract cultivation. The company reviews land holding and other capability of the farmers and gives approval. The company distributes tobacco seedlings to farmers on the loan basis. In newer areas, company gives loan to the farmers in the form of coupons to buy fertilizers and other inputs from local cooperatives. Farmers do not need any collateral other than standing crops of tobacco and they do not need to go to bank. Farmers just sign an agreement with the company. Company official say that the recovery rate of such loans is 99%. Company technicians closely monitor whether or not the farmers follow production practices as recommended and whether or not harvesting, curing, bulking and grading operations are done on a timely basis. Farmers are given a fixed date for the delivery of graded tobacco to the company. Farmers get paid within 15 days of the delivery of their produce to the company. The company meets about 12 to 14 % of air-cured tobacco used by the company from these domestic sources.

(Source: Upadhyaya, 2004. "Trend in Backward Linkages and Domestic Sourcing of Raw Material by Agro-industries".)

3.6 Constraints in Vegetable Development

- Vegetable production and distribution in Nepal is much established enterprise as compared to other HVC like fruits, vegetables seeds, Spices or NTFPs. The difficult terrain and high mountains have severely limited the road access to most of the parts of Nepal. At present both effective transportation facility and its timely availability is the most limiting factors for vegetable production and promotion in Nepal.
- The vegetable marketing in Nepal is still inefficient. Therefore, farmers are still not able to fetch the real benefit of the potential benefits of the industry. Lack of appropriate policy support and inadequate institutional and infrastructure facilities are some of the bottlenecks. We still lack market infrastructure like market yards, collection centers, cold storage facility and most critically the market information on the market prices and supply situations of the identified major markets both domestic and exports with market intelligence services. Similarly, environment for attracting investors or the traders in the industry to promote production and smooth functioning of value chain system are still limited.
- Although the agricultural produce (primary products) are allowed to move freely, however, the practice of the levies charge during transportation and the entry at certain

municipalities (or VDC or the districts), is responsible in increasing the price of the produce making it incompetent at the distant markets.

3.7 Recommendations

- Our competitiveness in vegetable production and promotion will largely be shaped by effective transportation (both accessibility and timely availability) facility. Therefore, emphasis should be given to promote the agricultural road development in the potential pocket areas and be critical in the selection of the production pockets to harness the agro-ecological resource of the country.
- Vegetable has very fluctuating market prices both in the domestic and export markets (especially in bordering Indian markets). Therefore, the prospect of promoting the enterprise especially lies in the off-season vegetable production when the supplies to the market are at its minimum. Therefore, an established market information system (information networks) need to be developed which can provide the information on prices and supply situation of the markets to the producers on the current and regular basis.
- Further, the off-season vegetable production technology should be promoted and disseminated.
- For the export promotion of the Nepalese vegetables to the Indian markets the government has to play an iterative role to identify and minimize the non-tariff barrier that the Nepali produce (fresh vegetable and fruits) has to face. Some of the examples include; transferring of produce to the Indian truck at the borders, considerable delay in custom clearance, non inclusion of Nepali vegetable and their price in the price bulletin published by the regulated markets thus reducing the opportunity to cash the brand name or the quality name of the Nepali vegetable etc (MDD, Studies of High Value Commodities Marketing in Indian Market Centers, 2000).
- There is a need of policy support accompanied with institutional and infrastructure facilities that would be relevant to the smooth functioning of value chain system from the production point through marketing network until the consumption point. Appropriate site selection and commercial size pockets and extension (both production and technology and market networking) post harvest activities, collection/ market centers, credit facility, information and communication that would help to boost production and attract traders and investors in agro-industries.
- Developing cool stores/ cold storages in appropriate location including the airport terminals.

Chapter 4

Production Status and Development Approaches for Vegetable Seeds in Nepal

4.1 Production Status

Vegetable seed is a high value, low volume and high price-fetching commodity with increasing domestic demand and export potentiality. It has both the comparative and competitive advantage for the local markets as well as exports to near by Indian markets and Bangladesh (AEC, July 2003 and AEC, 2004). The major vegetable seeds produced in Nepal include radish, onion, mustard, cauliflower, cabbage, carrot, cress, beans, squash and swiss chards. Major vegetable seed producing pockets in the country are concentrated in Koshi Area (Dhankuta, Bhojpur, Terhathum and Sankhuwasabha), Mechi Area (Ilam, Panchthar and Taplejung), Central Eastern Terai Area (Sarlahi, Mahottari, Rautahat and Dhanusa), Kathmandu Area (Bhaktapur, Nuwakot and Lalitpur), Lumle Area (Kaski, Parbat, and Myagdi), Rapti Area (Rukum, Salyan, Rolpa and Pyuthan) and other area (Mustang, Dolpa, Dadeldhura and Kavre). Among these areas, Rapti is the highest contributor of vegetable seed production in the country and Rukum the highest contributor among the districts. Currently the vegetable seed production is mainly organized through contract production, though yet to be legally acceptable, with technical support mainly provided by the Vegetable Development Directorate (Department of Agriculture, HMG/ Nepal).

The varied micro-climatic zone across the country due to altitude variation right from the sub-tropical to temperate growing conditions, isolated valleys and cheap labour wages are the three governing factors to promote vegetable seed production in Nepal. The industry is relatively new but growing rapidly. In fiscal year 1975/76 the total production government farm was estimated to be 10 Mt, which grew to 171 Mt by 1989/90, 386 Mt by 1995/96, and 700 Mt by 2001/02. Until few years back only the government farms used to be the source of the vegetable seeds, however, the private sector (farmers and private seed firms) are emerging rapidly and playing an increasing role.

The studies reveal that the demand for both the domestic and exports for the vegetable seeds are ever increasing and expanding rapidly as the importance of quality seed is increasingly recognized. The demand for vegetable seed is also increasing due to increasing demand for the fresh vegetables by the house hold consumers as well as by the agro-processing industries. In the year 1998/99, the study shows that the domestic demand for the vegetable seeds reached to 900 Mt, and exports to India registered (under classification 292-501) reached to an amount of Rs 156,000 and export to Bangladesh reached 10 Mt. Similarly, according to the VDD estimates, the national vegetable seed requirement was 1,360 Mt in 2001/02, of which slightly over 50% was supplied by the domestic formal sector. The study conducted by ABTRACO to assess trade competitiveness of vegetables seeds in the year 2004, reports that the domestic demand for the carrot seed is estimated of about 16 tons, radish of 305 tons and tomato seeds of 4 tons. Out of which more that 50 per cent of the tomato and carrot seed, and around 10 percent in case of radish seeds the demand is met through the imports. The study also reveals that the demand for the hybrid seed is rapidly expanding. The radish seed is the single most important item of exports of this category. The growth of the export is likely to be shaped by the quality of the seed (varietal purity,

germination rate, genetic stock used and packaging) hence special attention needs to be paid for the quality control of these produce. Further, it has been repeatedly reported that demand for hybrid seed is growing rapidly to meet the domestic demand. If four crops namely radish, broadleaf mustard, cress and bean are excluded then 79 % of the domestic demand for seeds is met through imports. Chitrakar⁵ reports that hybrid seeds' popularity is growing especially among the commercial growers. The data form a trade survey of vegetable seeds show that the volume of hybrid seeds sold in Nepal was about 7-8 Mt per year during 1998-2001 but the estimate for 2002 was about 19 Mt. As Nepal does not produce any hybrid seeds, the import bill is growing rapidly e.g. the total value of hybrid cabbage seed imports alone is estimated to be about Rs 70 million in 2002.

4.2 Marketing Structure and Marketing Channels

Being relatively a new industry the market structure and marketing channels are still under the process of development and government still plays the major role in its functioning. The government farms under the Vegetable Development Directorate (VDD) produce and supply the foundation seeds. These seeds are further multiplied by contract seed producers (farmers) which are collected processed and cleaned by the private seed traders and are then supplied to Agriculture Input Corporation (AIC), now National Seed Company (NSC) or Private Seed Dealers (or wholesale dealers) and then to retailer for the sale. The supply of seeds from farmer to farmer is also very common practice in Nepal. The most common marketing channels being practiced in the production pockets are:

- Farmer- petty traders/ wholesaler's agents- wholesalers/ exporters- retailers- consumers
- Farmers – wholesalers/ exporters - retailers – consumers
- Farmers – petty traders/ wholesaler's agents – wholesalers/ exporters – wholesalers in India – retailers – consumers.

4.3 Marketing Cost and Margin

The vegetable seed production gives 1 to 2 times more income than the fresh vegetable production in the hills of Nepal, whereas the economic advantage of vegetable production in the hills of Nepal is dramatically reduces due to road inaccessibility. A study reports, if the vegetable production area is more than one day's walk from the nearest road leading to market then the portage and spoilage cost make vegetable production uneconomic. On the other hand, in 1981, Rana and Mathema reported returns from vegetable seeds (radish, onion, cauliflower, cabbage) in one hectare of Rs 24,000 against the profit of Rs 2597 from paddy, Rs 2502 from potato and Rs 4700 from vegetables (Ali, 1982). Further, the income from the hybrid seed production is estimated between Rs 18000 to 45000 depending upon the type of vegetable crop for each ropani of land (20 ropani makes one hectare) per season (ABTRACO, 2004). The return could go further up if the benefits in the value chain are equitably distributed.

A study conducted by the APROSC team in the year 1999 has reported that the average cost of production of the radish seed in Rukum and Salyan is estimated to be Rs 53.12 per kg. Thus produced seed, were sold to the petty traders at road-head markets on an average price of Rs 60 per kg, which were sold at a retail of price of Rs 240 per kg in Lucknow. The study

⁵ Please see: "Commodity Case Study: Vegetable Seeds" by Dhurba Chitrakar and Lalan K Singh, 2004. Implications of the WTO Membership on Nepalese Agriculture, FAO/ UNDP and MoAC/ HMG Nepal, Kathmandu.

further reveals that of the retail price (or the consumer price at Lucknow) the farmers receive 25 percent, wholesaler's agent at road-head collection centre receive 28 percent, wholesaler or exporter at Tulsipur receive 46 percent, thus leading to farmer's margin at 1.7 percent, petty traders/wholesaler's agent's 0.8 percent, wholesaler/ exporter's 10.1 percent, and wholesaler's margin in wholesale 11.2 percent and 65.3 percent in retail sale (Table 10). All these facts indicate the uneven distribution of the benefit along the value chain of the marketing system and hence needs for urgent intervention measures.

Table 10: Cost and Margin of Farmers and Marketing Intermediaries of Mino-Early Radish Seed.

Particulars	Average Purchase price (% of Retail price at Lucknow)	Average Sale Price Received (% of Retail price at Lucknow)	Marketing Cost (%)	Marketing Margin (%)
Producer to Road-head Collector	22.1*	25.0	1.7	1.2
Rukum/ Salyan Road-head to Tulsipur Wholesaler/ Exporter	25.0	28.3	1.2	1.7
Tulsipur to Wholesaler at Lucknow	28.3	45.6	9.2	8.3
Lucknow Wholesale to Retailer	45.6	100	8.3	65.3

Source: APROSC, A Study on Exploring Market Potential of Selected High Value Commodities in Mid-Western Development Region Nepal. Ramshah Path, Kathmandu, Nepal. April, 1999.

*Note: * The figure here means the cost of production of the producers (farmers).*

Similarly, looking at the cost of production of these vegetables seeds; cost of marketing and exporting; and the wholesale price prevailing in Dhaka and Delhi markets, the study reports our competitiveness in exporting the seeds of radish (mino early) and carrot to Dhaka and Delhi. Nepalese exporters can receive US \$ 2 per kg of mino early radish seed and NRs 1000 per kg for carrot seeds in Dhaka and NRs 170 per kg of mino early radish seed in Delhi against cost of production in the site of Rs 66 per kg for radish seeds and 101 per kg for carrot seeds (ABTRACO, 2004). The study also reports that the cost of exports to Dhaka can be reduced up to 50 per cent, if the seed could be sent by land route instead of air cargo.

4.4 Vertical Linkage

Nepal has been exporting significant amount of the vegetable seeds to Bangladesh and India for the last many years. However, Nepal was not able to establish the trademark due to two major reasons. First, Nepal does not have sufficient number seed processing industries, and there is still practice to export seeds in gunny bags (30 to 40 kg per bag) in the loose forms. The second reason is lack of promotional activities from Nepalese side as most of the Indian or Bangladeshi consumers still unaware of the fact that Nepal also produces the quality vegetable seeds and some of them are already being used for a long time. Thus establishment of the seed industry not only provides an opportunity for the export promotion of Nepalese vegetable seeds but also opens up the market and hence the demand for the commercial scale production.

Presently, whatever scale of seed commercialization process is operating in Nepal is mainly due to the support of donors along with the government agencies support. Some of the institutions that promoted or still promoting the seed industry in Nepal can be listed out as SEAN, SSSP, AEC/ FNCCI. Similarly, some of the terminated projects such as KOSEVEG, ODA/UK, VFC Rapti, MARD/ Chemonic Rapti/ Gandaki; and the ongoing projects such as SBED/ CEC, CEAPRED/ DANIDA and Li-Bird are few to mention. Thus strengthening SEAN to undertake works like timely updating of cost of productions, cost of marketing as well as support to farmers by establishing strong linkages to have their quick and easy access to improved technology, credit, transport, collection centre, market and other related aspects need to be looked into. Further, expansion of SEAN Seed Service Centre (SSSC) and similar type of institutions to the strategic locations would be necessary to promote the production.

Looking at the growing popularity and the demand for the hybrid vegetable seeds, Nepal should also move for the commercial scale production of hybrid seeds and need to revisit its policy for hybrid seed production. The government especially needs to play its role to facilitate technological support for research and development and ISTA accredited laboratory facility to promote collaborative production and marketing including exports between the farmers and seed processing industries besides policy, institutional, and other facility supports.

4.5 Constraints in Vegetable Seed Development

- The vegetable seed production is relatively new sector for the Nepalese agriculture and producers lack the technical knowledge and more over it is a high skill-demanding job. Though the technical support is provided by the VDD and to some extent by the Lumle and Pakhribas Agriculture Centers, the service provided is still inadequate and need to be expanded and it is more sophisticated for the hybrid seeds. Besides, development of appropriate technology especially the varietal development and its maintenance has become one of the key issues to achieve the competitiveness in the present scenario of the global market.
- Another important factor for limiting our export potentials is due to the absence of ISTA accredited seed laboratory in Nepal. The importance of the certificates and its reliability has especially increased due to WTO and other trade agreements like SAFTA, as other countries may reject the import of agro-commodities from Nepal. Further, in India the National Seed Policy 2062 and the Quarantine Act of January 1, 2004 has laid down very strict rules on importation and the marketing of the vegetable seeds to India. It has discouraged, to the large extent, the export of vegetables seeds to India from Nepal, both formally and informally⁶ (ABTRACO, 2004).
- Unavailability of nearest boarder point (or through the land routes) for the exports of seed from Nepal. India does not allow entry of propagating material including vegetable seeds from any of the Indo-Nepal border except from the five authorized entry points- Amritsar, Kolkotta, Chennai, Mumbai and New Delhi which are only accessible from Nepal only by air-transport. This has resulted in increased transportation costs, and also making formal exporting of seeds from Nepal to India through the boarder points jeopardized.
- Marketing channels and marketing system, for the sub-sector, is yet to be established or developed to function efficiently. The producers are still getting very low prices whereas

⁶ Please see the illustrations and explanations given under the headings *Very Strict Seed Policy and Quarantine Rules; Unavailability of the Nearest Boarder Points for the Exports of Seed from Nepal to India; High Quarantine, Fumigation and Supervision Fees; and No Recognition of Nepalese SPS Certificate by Indian Authority* under "A Study Report on Trade Competitiveness of Vegetable Seeds", ABTRACO. April, 2004.

the same seeds are sold at very high prices at terminal markets (like in India). This is leading to reap very low profit margins by the farmers whereas the market functionaries have very high profit margins. Thus producers need to be made more aware about it or else in absence of this they will not be motivated for the production of the vegetable seeds.

- Although the pocket area approach is well identified for the regular production, protection of the purity and enhancement of the seed quality, yet the concrete plan of action is lacking from the public sector.
- There is no efficient mechanism for restricting the imports of low quality seeds or agricultural goods. Plant Quarantine Check Posts do not have adequate facilities for the standard test. Phytosanitary certificates are issues even without proper tests.

4.6 Recommendation

Specific elements of competitiveness, by and large, include policy, technical, institutional, infrastructural and legal support measures. Similarly, the possibility must be explored for the public private partnership in each and every dimension to bring the synergy.

- The vegetable seed production enterprise being relatively new comer in agriculture sector is also a highly skill-demanding job. Therefore, the sub-sector needs special attention in terms of technological development and dissemination among the producers.
- Quality control of the vegetable seed production has to be greatly improved. One of the best alternatives available is to tie up with the foreign seed companies. Some of the practices have already started like initiation to produce hybrid tomato with collaboration with one Bangladeshi and one American firm (Opportunity Profile on Vegetable Seed Industry in Nepal, Profile 1). Also, looking at the trend for the demand for the hybrid seeds, Nepal should revisit the hybrid seed production policy.
- Participation of the private sector for the promotion of vegetable seed marketing should be acknowledged and promoted to establish efficient marketing system. Similarly, group marketing approach should be promoted to achieve the sizable volume of marketing and trade that leads to efficiency gain due to scale of operation.
- Though some of the institutions like Seed Quality Control Centre (SQCC) of MoAC, National Seed Board (NSB), Central Seed Testing Laboratory (CSTL), Vegetable Development Directorate (VDD) and Seed Entrepreneurs' Association of Nepal (SEAN) etc have already been established for the promotion of this sector, however, adequate laboratory facilities need to be maintained and accredited to both regional and international quality control (laboratories) agencies. Nepal must speed up towards getting accreditation to ISTA and strengthen research institution for acquiring breeder's seed, foundation seed, including hybrid seed, all in adequate quantity, quality and types. The importance has especially increased due to new regime of WTO and to some extent SAFTA and BIMST-EC.
- Strengthening SEAN/ SSSC to undertake works like timely updating of cost of production, cost of marketing as well as support to farmers by establishing strong linkages to have their quick and easy access to improved technology, credit, transport, collection centre, market and other related aspects need to be looked into. Further similar such institutions need to be encouraged and developed.
- In order to enhance the competitiveness of Nepalese seed entrepreneur in the region, the subsidy on seed production and trade need to be critically assessed. The subsidies on inputs, transport, easy access to formal sector credit, easy access to market and custom

duty relaxation in processing equipments and packaging materials etc need to be harmonized.

- Discussion with the concerned Indian authority to settle the issue related to the exports points, quarantine, fumigation and supervision requirements and treatment fees, and on validation of the SPS certificate and seed testing reports issued by Nepal should be timely initiated. Further, efficient mechanism for restricting the imports of low quality seeds or agricultural goods need to be immediately developed.

Chapter 5

Production Status and Development Approaches for Non-Timber Forest Products (NTFPs) in Nepal

5.1 Production Status

Non Timber Forest Products (NTFPs) have been identified as one of the potential high value commodities especially in the recent years. The wide range of altitudinal diversity of Nepal's terrain has made her a rich land in terms of bio-diversity and this rich bio-diversity hosts a wide range of non-timber forest products (NTFPs). The exact number of species under NTFPs that is collected is not known, however, in a study AEC has reported 71 species of such NTFPs, which are in collection practice in 13 districts of MWDR. These products fall in two main categories, high value high altitude and low value low altitude species.

NTFPs are considered to be one of important income source of the country and believed to play a significant role in poverty alleviation of the rural poor dwelling in the hills and mountains. In a study Edwards estimates the annual value of Nepal's NTFPs exports to India at US \$ 8.6 million, which is 4 % of the total Nepal's income from the forestry sector (HMG MOA/Winrock International, May 1998). The annual harvest and trade of NTFPs from Nepal is estimated roughly between 10 to 15 thousand Mt and the share of Mid-western Development Region (MWDR), especially the remote districts of the region, is considered to be a very significant. The estimated quantity of NTFPs collection from this area is around 7335 Mt/year with an economic value of Rs 180 million per year (AEC, July 2003). Nepalgunj is the main collection centre of these areas (both for mid-western and far-western regions) and important transit point for exports to India. The final destinations of most of these products in crude form are Indian markets of Delhi, Kanpur, Lucknow via many exit points, with trade chains starting from rural collection to Indian businessmen through a series of middlemen.

5.2 Marketing Structure and Marketing Channels

- Nepalese harvest – Village Traders/ Road head Traders – Terai Traders – Indian Traders- Crude herb Retailers/ Traditional Medicine Producers – Traditional Medicinal Retailers – Indian Consumers
- Nepalese harvest – Village Traders/ Road head Traders – Terai Traders – Indian Traders- Essential Oil Producers/ Exports – Perfume Soap, Food, Chemical Producer – Perfume, Soap, Food, Chemical Retailers – Indian Consumers.

5.3 Marketing Cost and Margins

The study conducted by Edwards's reports that the price received by the harvesters as compared to Indian factory gate price largely depends on the market demand for the product and market establishment. It has been reported that the harvesters are able to receive as high as fifty percent of Indian factory gate price. Table 11 shows the comparative price received for selected NTFPs at two road-heads. Beltar road-head has strong competition between the suppliers whereas Palung road-heads has no effective competition. In all three items the harvesters are able to fetch double price in Beltar Road-head than that in Palung Road-head.

Similarly, the distribution of benefits between participants in *Chiraita* trade shows that together the harvesters and the porters receive 65 per cent of the share in the Indian factory gate price. The study estimated the figure from various points on the trade route between the road heads at Hile and Basantapur in Dhankuta District, which travels via Dharan and Biratnagar to the final destination in Calcutta.

Table 11: Price Paid to Harvesters at the two Road-Heads, Beltar and Palung.

Products*	Beltar Road-head (strong competition)	Palung Road-head (no competition)
Kurilo (<i>Asparagus racemosus</i>)	Rs 40 per kg	Rs 34 per kg
Majitho (<i>Rubia manjith</i>)	Rs 20 per kg	Rs 10 per kg
Chiraita (<i>Swertia chirayita</i>)	Rs 125 per kg	Rs 60 per kg

Source: Edwards, D.M.: Non-timber Forest Products from Nepal: Aspects of Trade in Medicinal and Aromatic Plants; FORSEC Monograph No. 1/96, Forest Research and Survey Centre, MoFSC, Kathmandu, 1996.

Note: The name of the product is in Nepali and the parenthesis shows the scientific name.

Table 12: Distribution of Benefits between Participants in Chiraito Trade, 1993.

Beneficiary	Unit Price (Rs/kg)	Percentage of Retail Price
Harvester	Rs 60	50.0
Village Trader	Rs 28	23.3
Porter	Rs 12	10.0
Road head Trader	Rs 10	8.3
Terai Trader	Rs 4	3.3
Retailer	Rs 6	5.0

Source: Edwards, D.M.: Non-timber Forest Products from Nepal: Aspects of Trade in Medicinal and Aromatic Plants; FORSEC Monograph No. 1/96, Forest Research and Survey Centre, MoFSC, Kathmandu, 1996.

Box 3:
Trade of Yarsa Gumba

Yarsa gumba is one of the most expensive NTFPs collected in Nepal. It is believed to have several medicinal values. Farmers usually go to high altitude areas to collect it during the season, i.e. during June- July (best season of yarsa gumba collection is reported to be Baisakh to Jestha). The income per person per season is reported to reach Rs 60, 000. The cost incurred during collection is as follows:

Cost	
Tent	Rs 2000
Food and Accomodation cost	Rs 5000
Unseen cost	Rs 500
Total Cost per Season	Rs 7500
Royalty Per Kg	Rs 20000
Total Gross Income/person/season	Rs 60,000

The product does not need to be transported rather can immediately be sold on the spot and usually Tibetan traders collect it at the rate of Rs 40/ per piece.

(Source: ABTRACO, 1998: A study Report on "Trade Pattern of Non-Timber Forest Products (NTFPs) in Jumla, Surkhet, and Nepalgunj: Appropriate Policy Measures for Business Support and Trade Enhancement.)

Note: These figures derived from various points on the trade route between the road-head at Hile and Basantapur in Dhankuta District, which travels via Dharan and Biratnagar to the final destination in Kolkatta.

5.4 Vertical Linkage

Many researchers have identified, the NTFP as one of the considerable but much underutilized resource of Nepal. India is one of the major markets for the product but recently the domestic markets are also gradually growing up. There are two main issues critically raised by many researchers for NTFP collection, marketing and trade. The first issue is the unequal distribution of the benefits along the value chain and second is the quality deterioration of the collected NTFPs. Similarly, it has been repeatedly pointed out that small processing like drying would dramatically increase the fetching price of the commodity. Thus establishment of the collection centre, at the strategic locations, with a small processing facility like cleaning and drying would drastically increase the quality of the product and hence increase the sale value of the product. Similarly, establishment of the processing industries like Singhadurbar Baidyakhana or Jadibuti Prasodan Kendra or Udyog in Jumla could bring an opportunity to reap more benefits as processed items have much higher rate of return per unit of resource use. Some of the examples of such commodities are extracting essential oil of Jatamansi, sancho or bohjo etc.

5.5 Constrains in NTFPs Development

The three main domains of constraints identified for the development of NTFPs collection, distribution and trade includes issues related to sustainability, marketing and equitable distribution benefits between the value chain and policy regulations. They are described in detail as follows

- There is a widespread belief that NTFPs are over exploited in Nepal. The case is especially true with some of the species in which the entire plant is harvested and the harvest takes place up to two months before seed dispersal, preventing regeneration and threatening of the plant population to extinction (Edwards, 1996).
- Stock taking of NTFPs is still lacking by the public sector, in absence of which proper planning, research and development activities is constrained.
- Restriction on the collection or the exports of some NTFPs need to be reviewed critically as to their relevance to endangered species and their impacts on the economic returns to the country.
- The system of collection of royalties, ban of collecting some of the NTFPs and the sale of NTFPs is argued to be unscientific and expected to underutilize the considerable resource of the country (Edwards, 1996 and AEC, 2003).
- Illegal collection of District Development Tax at multiple places and rent seeking behaviors at checkpoints and customs.
- Some of the major challenges in the NTFP sector marketing lie in its poor harvesting and post harvest practices, adulteration of the product, lack of sustainable production practices leading to deterioration of the quality of the product, unavailability of price information and poor marketing infrastructures.
- Presently the level of research is insufficient in various aspects of NTFPs and in commercial farming in particular.

5.6 Recommendations

- There are very little scientific studies conducted and database generated to know the in-depth situation of the NTFPs in Nepal. Thus the sector needs to be rigorously studied and

adequate information (data) to be generated to determine future plans and programs to tap the potential resource in a sustainable basis. Nepal Agricultural Research Council (NARC), Forestry Resource Center and RONAST should be actively involved undertaking appropriate research studies.

- Market forces are very difficult to overcome, even with a strong mechanism. Therefore, policy has to aim instead at working with, not against, market forces. Promoting commercialization of the NTFPs by providing right incentives to produce at their own farms⁷ and promoting private/community involvement in forest development and agro-forestry management etc.
- Establishment of wholesale market along the north-south market corridor especially in the Eastern, Western and Midwestern Region (where there exists the highest NTFPs transactions) would be an appropriate institutional intervention to establish a competitive price to abolishing the system of buyer's price.
- Sustainable harvest technology made available to the collectors and a scientific system to be developed for royalty collection and for ban or sale of NTFPs. As simply ban of the commodity without strong enforcement mechanism are seriously doubted of any value (Edwards, 1996).
- Weight and volume reduction greatly diminish the cost of onward transport, and therefore make the product more competitive in export and domestic markets. Thus efforts should be made both through policy and infrastructural development to facilitate the function like discouraging the exports of unprocessed products by promoting the processing/ packaging plants with appropriate technology and other supportive facilities like credit facility, tax exemption on the processing equipments, and export facilities etc.

⁷ See ABTRACO 1998: "Chapter 3 NTFP trade from Jumla, Surkhet and Nepalgunj Corridor. NTFP Cultivation in Private Lands", and HMG MOA/ Winrock, 1998: Nepal AgrBirief. "Cultivation of *Chiraita* on private land is also increasing, in response to price increase. A case of a farmer who planted 0.15 ha of *Chiraita* and sold the crop 12 month later for Rs 20,000."

Chapter 6

Production Status and Development Approaches for Livestock Produce in Nepal

6.1 Production Status of Livestock Products

Livestock farming is one of the integral parts of our agricultural system and a major contributor (30 %) to the AGDP, household income and as a source of employment in Nepal. Among the various livestock products, milk is the largest produce and shares 43 % of the livestock GDP, followed by meat (23 %), poultry (7%) and others (27%). It is a wide accepted fact that the livestock produce is considered to be high value commodities.

The potential items in the livestock sector are identified as raw milk, ghee, cheese, buffalo meat especially the live buffalo intended for meat production and poultry. Of these products, raw milk rank the first followed by ghee and buffalo meat animal (APROSC, 1999).

The production scenario of three major items milk, meat and poultry for last five years shows that it is gradually increasing over the period of which the poultry eggs have shown the highest growth of 4.54 % per annum, followed by milk 2.94 % and meat by 2.54 % respectively (Table 13). Accordingly, the per-capita availability of these commodities is also growing. The trend from 1994/95 to 1998/99 indicates that the per-capita availability of milk is growing with a pace of 1.49 % per annum, meat by 5.65 %, eggs by 2.84 %. However, the ghee and butter category is showing a negative growth of 6.09 %.

Stepping up the livestock productions needs increased supply of high quality feeds, green fodder, productive/ high quality breeds, veterinary services, better livestock management practices. In order to improve productivity and maintain year round regular supply of quality and quantity meat and milk, which is a prerequisite to attract the traders, investors and industries, regular supply of feed and fodder must be must be ensured.

Table 13: The Trend of Livestock Products Production

(Quantities in Mt and Eggs in 000 No.)

Commodities	Year					Growth
	1999/00	2000/01	2001/02	2002/03	2003/04	
Milk	1097023	1124132	1158780	1195931	1231853	2.94 %
Meat	189160	192458	198895	203899	208412	2.52 %
Poultry Eggs	480800	507323	538420	557361	575565	4.54 %
Total						

Source: MoAC, Statistical Information on Nepalese Agriculture, 2003/04.

Note: The growth is estimated using the exponential growth function.

Table 14: Per-capita availability of Selected Livestock Products:

(Kg/Capita per Annum)

Commodities	Year					Growth
	1994/95	1995/96	1996/97	1997/98	1998/99	
Milk	40.77	43.00	43.22	43.70	43.58	1.49 %
Meat	8.08	7.66	9.69	9.69	9.53	5.65 %
Eggs	0.90	1.21	1.02	1.02	1.13	2.84 %
Ghee and Butter	1.02	1.01	0.59	0.83	0.83	- 6.09 %

Source: MDD, Food Balance Sheet of Nepal, Various Issues.

Note: The growth is estimated using the exponential growth function.

Further, a study conducted by MDD, on Role of Stakeholders in Livestock Production and Marketing in Nepal has projected that the demand of each of these commodities is expected to grow at the rate of 5.5 per cent per annum. The study was conducted in four major urban areas of Nepal namely Biratnagar, Kathmandu, Pokhara and Nepalgunj. The market of these urban areas of Nepal is estimated to constitute a large proportion of total market of Nepal for livestock produce. The demand for milk is expected to grow from 66 thousand Mt in the year 2000 to 81 thousand Mt by 2010. Similarly, the meat demand is expected to grow from 15 thousand Mt to 18.5 thousand Mt and eggs demand from 53.5 million to 65.6 million during the same period (Table 15).

Table 15: Demand Projection of Selected Livestock Products.

(Quantity in Mt and Egg in 000 No.)

Year	Products	Projected Demand				Total of these
		Kathmandu Valley	Pokhara	Biratnagar	Nepalgunj	
2000	Milk	53940.5	4401.9	5570.1	2058.6	65971.1
	Meat	13326.5	959.5	618.9	228.7	15133.6
	Eggs	48229.1	2878.6	1791.6	662.1	53561.4
2005	Milk	59554.7	5002.2	6329.8	2339.3	73226.0
	Meat	14713.5	1090.4	685.6	259.9	16749.4
	Eggs	53248.9	3271.2	2035.9	752.4	59308.4
2010	Milk	65753.2	5684.3	7193.1	2658.4	81289.0
	Meat	16244.9	1239.1	799.2	259.4	18542.6
	Eggs	58791.1	3717.4	2313.6	855	65677.1

Source: MDD: Role of Stakeholders in Livestock Production and Marketing in Nepal, 2058.

The study also reveals that the total demand for milk and milk products in the year 1996/97 was 1026 thousand Mt of milk equivalent quantity in which the domestic production supply was estimated to be 1012 thousand Mt and net import of 14 thousand Mt. Similarly, the total demand for meat in the same year was 141 thousand Mt, in which domestic production was 113 thousand Mt and net imports was 28 thousand Mt.

It is a wide accepted phenomenon that the demand for the livestock produce constitutes a positive correlation with the economic development of the country, which is further justified by the inference of the above study. Therefore, there is ample space for the expansion of the production of these products.

6.2 Milk

6.2.1 Marketing Channel and Intermediaries

Milk marketing in Nepal is a government regulated market. The Dairy Development Corporation (DDC) is one of the key players in the marketing channel in milk marketing in Nepal. A large proportion of the produce is collected and distributed by the DDC; however, private sector is also emerging with rapid pace in the last few years. Also, most of the farmers from nearby market area sell milk directly to the consumers. Therefore, the marketing channels and market intermediaries involved in milk marketing in Nepal can be summarized as:

- Farmers – Consumers (house holds, institutions/ hotel business)
- Farmers – Milk Producing Associations/ Cooperatives – Chilling Centers – DDC/ Private Dairies – Consumers
- Farmers – Vendors - Consumers

6.2.2 Marketing Cost and Margins

The average cost of production of milk in Nepal in the year 1999 is estimated at Rs 8.77 per liter for cow milk and Rs 4.58 per liter for buffalo milk without accounting the family labour incurred. However, while accounting family labour, the cost incurred to produce one liter of milk were Rs 14.63 per liter for cow milk and Rs 16.71 per liter for buffalo milk (APROSC, April 1999). Similarly, in an attempt to estimate farmers' margin the study reveals that farmers receive the highest price following the first channel of milk marketing (i.e. direct sale to the consumer). The highest price received is Rs 14 per liter for cow milk and Rs 16 per liter for buffalo milk. However, the opportunity is strictly limited to the farmers living nearby markets only. Farmers living nearby milk chilling centers receive Rs 9 per liter for cow milk and Rs 12 per liter for buffalo milk. Similarly, some farmers sell their milk to vendors and receive Rs 11.68 per liter for cow milk and RS 12.6 per liter for buffalo milk.

Table 16: Marketing Cost and Margins for Milk Marketing.

S.N.	Description	Without Farmers' Labor Cost			
		Cow Milk		Buffalo Milk	
		Rs. per Lt	Percentage	Rs. per Lt	Percentage
A	Farmers				
	Cost of Production	8.77	41.19	4.58	19.72
	Other Costs	0.37	1.74	0.37	1.59
	Margin	0.75	3.52	7.11	30.62
	Sale Price	9.89	46.45	12.06	51.94
B	MPA/ MPC				
	Transportation	1.87	8.78	1.87	8.05
	Salaries	0.51	2.40	0.51	2.20
	Other Cost	0.13	0.61	0.13	0.56
	Margin	0.82	3.85	0.41	1.77
	Sale Price	13.22	62.09	14.98	64.51
C	Chilling Centres				
	Salaries	0.16	0.75	0.16	0.69
	Storage and Processing	0.12	0.56	0.12	0.52
	Other Costs	0.42	1.97	0.42	1.81
D	DDC				
	Transportation	0.49	2.30	0.49	2.11
	Salaries	0.64	3.01	0.64	2.76
	Storage and Processing	3.19	14.98	3.19	13.74
	Other Costs	1.76	8.27	1.76	7.58
	Dealers' Commission	0.50	2.35	0.50	2.15
	Margin	0.79	3.70	0.96	4.13
	Sale Price to consumer (adjusted at fat percentage)	21.29	100	23.22	100

Source: APROSC, A Study on Exploring Market Potential of Selected High Value Commodities in Mid-Western Development Region Nepal. Ramshahpath, Kathmandu, Nepal. April, 1999.

6.2.3 Product Diversification and Vertical Linkages

Milk processing and preparation of the milk products are commonly carried out in the households or small scale cottage industries. Ghee and cheese are one of the most favored milk products in the areas where farmers do not have access to market or collection centres. Besides, these commodities have potential market opportunities. Other common items of product diversification are yoghurt, milk cream, butter, paneer and many types of sweets, which can be carried out at the domestic or local level. The other potential milk products that can be carried out in an industry level are powder milk, baby milk foods, condensed milk, flavored milk drinks, cheese and ghee and confectionaries.

Box 4:

Ghee Marketing in Mid-Western Development Region

Milk marketing is the most preferred one among the farmers. So, wherever the farmers have access to market or collection centers, the production is sold in the raw form. However, the processing capacity of the local dairies in most of the areas is limited and the farmers those live far from market or collection centers are bound to diversify the product and making ghee is the most preferred one in the region. Thus the surplus milk is processed in the households using traditional methods and the ghee is sold at road head or the market centers.

The main constrains in marketing of ghee is due to the unscientific processing and packaging practices followed by the farmers. The farmers do not use clean utensils and do not heat enough (to a required level) the cream while processing it into purified ghee. As a result, the ghee processed by them contains high free fatty acid, which is not preferable to the conscious consumers. Similarly they store ghee in tin container (14-16 kg) and it takes considerably long period before the container is filled and ready to be marketed. Generally, farmers sell their ghee at market centers when they come to market to buy other necessities, once a year, thus the ghee is generally not fresh and contains high free fatty acids.

(Source: APROCS, April, 1999: "Exploring Market Potentials of Selected High Value Commodities in the Mid-Western Development Region of Nepal", Ramshah Path, Kathmandu, Nepal.)

6.2.4 Constraints:

- Similar to other high value commodities, milk and milk products also lack efficient marketing services. Besides, milk being one of the highly perishable commodity, it needs special infrastructures like collection and chilling centers and refrigerated trucks etc which are not adequately available.
- Nepalese farmers lack assured market to sell milk and milk products. Limited procurement of the milk by DDC and or few petty dairies has not been able to lift surplus milk form majority of the farm households to the market. Besides, the declaration of *Milk Holiday* once or twice a week during the flush season of milk by dairy industries including the government owned DDC has created a sever problem to milk producing farmers.
- Livestock farming in Nepal is still carried out in subsistence way rather than in a commercial scale. Thus, inability to reap the scale of economies, make both costs of production and marketing high, resulting in Nepali milk costlier compared to Indian milk (or consequently Indian powder milk).
- Limited attempts made by both government and private sectors for the product diversification like baby food, milk whitener, condensed milk, powder milk, flavored milk drinks, cheese and ghee and confectionary etc.
- Ghee and cheese are the most preferred milk products that are produced from the surplus milk or in the area where farmers lack market or collection centers access. Ghee making is common in mid-hills while cheese making is more common practice in high hill areas. Inadequate knowledge among the farmers for the hygienic way of producing ghee has severely limited the market opportunity as they need to sell their produce at the lower prices as compared to ghee produced by the dairy especially in the Indian markets.

6.2.5 Recommendations

- The major causes of milk holiday are pointed out as huge difference in the amount of milk production between the lean and flush seasons and imports of relatively cheap powder milk from India. Thus the problem has been tried to address through several measures like product diversification, increase per capita consumption of milk and milk products, establishment of milk powder plant etc. However, unless and until the production volume is maintained year round on a regular basis with the reduction in the cost of production the problem cannot be addressed properly. The regular volume of production can be maintained through increased supply of high quality feeds, green fodder, upgrading to productive/ high quality breeds, veterinary services, better livestock management practices etc. And the cost of milk production can be reduced through commercial scale of production, increasing marketing efficiency, and through cooperative movements.
- Attempts need to be made for the product processing and diversification through value added long self-life milk products production like baby food, milk whitener, condensed milk, powder milk, chocolate or flavored milk drinks, cheese and ghee etc. Similarly adequate technical and other support should be provided especially for the product processing, packaging and storing, especially to the rural areas where the farmer does not have access to private dairy or DDC.
- In addition to above mentioned activities, the pocket package strategy should be adopted and use of farmers' group to provide feeding, breeding and health package along with management on training for clean milk production, storage, processing and marketing of milk and milk products.
- Promotional activities should be carried out to increase the per-capita consumption of milk and milk products highlighting the nutritional benefits so that local level consumption could be raised.
- The adjoining dairy industry in India is capable of procuring total marketable surplus of neighboring area of Nepal. The NDDDB had already initiated the selling of raw milk to Calcutta dairy at IRs 9.40 per liter (APROSC, 1999). The same solution could be applied for the short run for the other milk surplus areas of Nepal. For example supplying surplus milk of MWDR area to 'Parag Dairy' in Lucknow, which is interested to buy 100 Mt of milk from Nepal every day at IRs 9.67 per liter (ASPROCS, 1999). The purchasing price of the milk by the DDC at Nepalgunj in the same year is Rs 14.10 (i.e. IRs 8.81) per liter. This could however be further assessed in the present context.
- The successful experience of cooperative movement in dairy sector in India must be realized as a lesson to recognize the dairy sector in Nepal. The NDDDB of Nepal has already initiated MPC/ MPA scheme in Dairy Development Corporation. However, due to lack of monitoring and evaluation, this cooperative movement is still at primary stage. In order to achieve smooth cooperatization the supply side of raw milk, it is necessary to restructure the DDC e.g. along the line of Amul in India.

6.3 Meat

6.3.1 Marketing Channel and Intermediaries

Nepalese people prefer fresh meat instead of frozen or chilled meat. Therefore, live animal trade is more common practice in meat marketing. Meat animals are generally sold to the intermediaries. These intermediate traders sell to the stakeholders at the live animal marketing centers from which these animals are supplied to consumers through butchers. The

most common marketing channel and intermediaries for meat animal marketing are as follows:

- Farmers - Consumers (in remote areas)
- Farmers – butchers – consumers (in both rural and urban areas)
- Farmers – middle men – stakeholders – butchers – consumers (in city areas)

6.3.2 Marketing Cost and Margins

The major items in meat category includes buff, mutton, pork and chicken meat in which buffalo meat comprises of 70 % of total meat production in the country followed by mutton (mainly goat) and chicken and swine. The estimated cost of production of buffalo meat ranged between Rs 12.41 to 38 per kg without and with accounting of family labour cost in the production process respectively. Accordingly, the share of cost of production of buffalo meat in its retail price with and without labour cost is 98 % and 32 % respectively. Therefore, while excluding the family labour cost, the farmers' receives Rs 13.6 per kg on live weight at retail price. The collectors margin have been found to be Rs 3 per kg and butchers margin has been found Rs 4.5 per kg of live weight.

Table 17: Marketing Cost and Margins for Buffalo meat Marketing.

(Live Weight Basis)

S.N.	Description	With Labour Cost		Without Labour Cost	
		Rs. per Kg	Percentage	Rs. per Kg	Percentage
A	Farmers				
	Cost of Production	38.22	98.00	12.41	31.82
	Margin	-12.22	-31.33	13.59	34.85
	Sale Price	26.00	66.67	26.00	66.67
B	Collectors				
	Purchase Price	26.00	66.67	26.00	66.77
	Feeding Cost	0.40	1.03	0.40	1.03
	Transportation Cost up to Kathmandu	2.20	5.64	2.20	5.64
	Labour Cost	0.25	0.64	0.25	0.64
	Weight Loss at 2%	1.30	3.33	1.30	3.33
	Mortality Loss at 2%	0.05	0.13	0.05	0.13
	Margin	2.80	7.17	2.80	7.17
	Sale Price to Butchers	33.00	84.62	33.00	84.62
C	Butchers				
	Purchase Price	33.00	84.62	33.00	84.62
	Slaughtering Cost	1.50	3.85	1.50	3.85
	Margin	4.50	11.54	4.50	11.54
	Sale Price at Consumers in Kathmandu	39.00	100.00	39.00	100.00

Source: APROSC, A Study on Exploring Market Potential of Selected High Value Commodities in Mid-Western Development Region Nepal. Ramshah Path, Kathmandu, Nepal. April, 1999.

6.3.3 Constraints

The buffalo meat production in most of areas of Nepal is still a tertiary activity of the dairy farmers. Almost 50 percent of male buffalo calves are starved to death or thrown away to die. One of the major reasons behind the practice is due to high cost of production of buffalo meat animal especially against relatively cheap supply of buffaloes from India. Besides there are many problems prevailing in livestock marketing too.

. The major problems and constraints can be listed out as:

- High cost of production and inadequate technology for rearing the meat animals.
- Inadequate transportation facilities or appropriate means of transportation
- Inadequate whole sale, retail markets and slaughter houses
- Lack of marketing infrastructure and equipments (animal specific infrastructures like feeding and drinking stalls, standard weighing and measuring equipments etc.)
- Entry of large number of meat animals inappropriate for consumption (age and health etc)
- Lack of marketing information system
- Lack of storage facility

6.3.4 Recommendations

- As discussed earlier in this chapter, the gross margin of buffalo meat production calculates to a negative value while labour cost is incurred. With this fact, it is rather difficult for the farmers to accept buff-meat production as a major activity in buffalo husbandry. Thus, to reduce the cost of production some technological innovation must be made like buffalo fattening with grass based rearing practices and adoption of some strategy of production like rearing buffalo calves in groups of 8-10 heads so that labour cost could be minimized per unit of production.
- Selection of appropriate pocket area is another instrument to reduce the farmers' cost of production for buffalo meat animals. Raising buffalo calves near the community forest areas are suitable to reduce the cost of production and hence to increase farmers margin as pasture and fodder will be available from these forests in the form of green biomass.
- After selecting the pocket area near the community forest, the supportive programs should be launched like basic animal health and management training for preventive control of internal and infectious & contagious diseases through strategic drenching and vaccination respectively. The program should be launched through the farmers group who should be forest users too so that they can get access to the green biomass of the forest. Besides appropriate technology should be generated and disseminated for buffalo-male calf rearing program (like buffalo fattening⁸ etc) to such pockets.
- Live animal market should be established in each strategic location with all basic facilities such as shade for animals, herdsman and weighing bridge to weigh the meat animals, truck loading and unloading facilities, feed and fodder shops, medicine shops and water for animal drinking.
- Similarly, appropriate animal transportation mechanism to be established as these animals are kept in open space with minimal feed, overloaded in the trucks during transportation etc resulting in over-stressed to the animals. It has been reported that over stress reduce the quality of meat and price due to formation of lactic acid in the animals.

⁸ The buffalo fattening programs are being carried out especially under Third Livestock Development Project and the popularity of the technology is increasing.

Chapter 7

General Discussion and Recommendations

7.1 General Discussions

Several studies have reached to a conclusion that Nepal has comparative advantage in several agricultural products. A study conducted by World Bank for the diagnostic evaluation of Nepal Trade and Competitiveness (World Bank, 2003), indicate that Nepal has comparative advantage in a number of labour intensive manufacturing and agricultural products. Despite its comparative advantage in a range of agricultural products its competitiveness is low because of the poor factor markets. Therefore, to step in to the market led production system some of the common issues have to be addressed and thus dealt here.

A number of developments would have to occur to enable Nepal to realize the potential for exports despite its comparative advantage in a number of commodities. There would need to be substantial increase in productivity at the farm level, combined with a lowering of production costs. Value adding processing facilities, packaging, cleaning, sorting, grading, packaging, pre-cooling, refrigerated storage and transport would be required. Modern food processing methods would need to be introduced. Substantial improvements would need to be made in the availability and utility of market information and intelligence and in overall marketing system.

The core problem for agribusiness development in Nepal is the lack of effective value chain linkages among input providers, farmers, traders, processors, and service providers. Thus a value chain is defined as the full range of activities required to bring a product or service from conception, through the intermediate phases of production, to delivery to final consumers and final disposal after use. A functional value chain means that key stakeholders (farmers, marketers and entrepreneurs) are aware of their mutual linkages, make a deliberate effort to improve them, and organize themselves in such a way that they can benefit from the mutual linkages in the network, including other stakeholders such as research and extension providers.

Agricultural commercialization is a complex and dynamic process involving several dimensions related to technology, markets, finance, institutions, infrastructure and social structure. The farmers, traders and processors are the key agents of commercialization. A demand-driven approach is needed, where the key players themselves make investment decisions related to technology, infrastructure, marketing and capacity, rather than the investments being supply-driven by the public sector. The stakeholders in the commercialization process are poorly integrated, and attempts are to be made to provide institutional mechanisms that facilitate the emergence of effective networks and value chains.

The policy context for agribusiness development is provided by a number of policies including the Agricultural Policy, the Industry Policy, the Export Policy and the Land Reform Policy. Agribusiness is considered a “thrust” sector but still missing is an Agribusiness Policy that provides a comprehensive framework, clear strategies, and a regulatory framework for the agribusiness development. The necessity of the policy is felt more acutely as the agribusiness is a complex set of activities cutting across the production, commerce and industry. Measures are proposed on ad hoc basis without sufficient attention being paid to

their implications and consistency with broader strategies. Examples are lowering interest rates, technology packages, infrastructure development, tax incentives etc; however, from the past experience from several countries suggest that similar measures are not addressing the fundamental problems of the sector (Final Report, Agribusiness Development Project, Bangladesh, 2004). Thus a holistic approach is required to address the issue to make value chain system work efficiently and effectively to equitably distribute the benefits to all the stake holders involved.

Technology constraints exist both in production and post-production systems; limited access to markets, credit and information and poor infrastructure are almost universal. Risk is another key factor constraining commercialization. At the level of smallholder farmers, particularly the poor and vulnerable groups, their low risk-bearing capacity seriously constrains adoption of new technology and specialization; at the level of marketers and entrepreneurs, the lack of contract enforcements and lack of information make attempts at new ventures within domestic and international markets extremely risky; and at the level of financial institutions, there are no risk-sharing mechanisms that can enhance the supply of credit to commercial agriculture.

This general failure in coordination among commercial stakeholders and service providers translate into ineffective value chains (Figure 1). The main advantage for commercial stake holders to be part of an effective value chain is that they will be able to reduce the cost of doing business, increase their bargaining power, improve access to technology, information, and capital and, by doing so be able to innovate their production and marketing processes in order to gain higher value and provide higher quality to their customers (Figure 2).

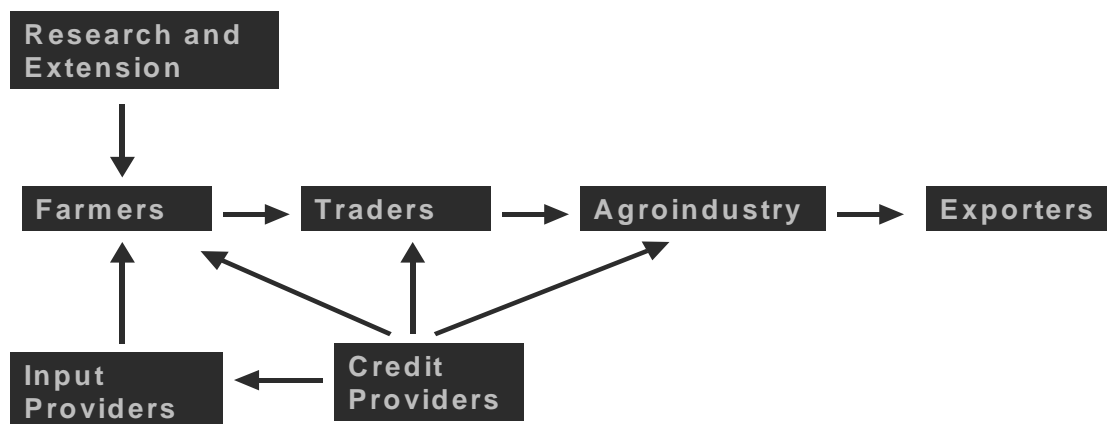
Thus a method should be developed for sharing information. Sharing information, however, is not going to be translated into higher incomes and more effective services unless complemented by other mechanisms that give stakeholders the means to make investment decisions needed to move to higher levels of commercialization. Demand-driven investments will improve the efficiency of allocation of scarce public resources. The formulation, approval and implementation of demand-driven investments will also contribute to the development of alliances and partnerships between stakeholders and service providers. Constraints related to limited access to information and capital should be addressed through improved marketing information services and institutional mechanisms that allow sharing risk of different parties. Obviously, a mechanism needs to be created where investors are attracted to identify and execute such demand-driven investments through Board of Investment (BOI) or "Investment Authority of Nepal (IAN)" just like that of India, Bangladesh or Srilanka. The body should be autonomous formed under a special act with specific regulations with basic objective to promote and facilitate investment in Nepal. The "Board of Directors" should be made up of members from the private sector, public sector and the department that agree to facilitate the investment process. The body should be embedded with statutory authority to inter into an agreement with an investor for providing specific incentives e.g. tax holidays, preferential tax rates, exemption from customs duty etc for the establishment of the enterprise. It would function as one of the stop service centre to facilitate investments by providing advice and assistance to investors from the initial project inquiry stage to full implementation state of the project. Further, for developing trust of the investors of the board, there must be provision that guarantees the agreement terms and conditions even in the scenario of change of the governments and should directly be responsible to prime minister of Nepal. There would be four Departments under this organization that would coordinate and facilitate investments within their specific sectors.

(i.e., Department of Industry Investment, Department of Services Investments, Department of Agriculture Investments and Department of Infrastructure Investments). Such body should also have strong linkage established with HiLCAP- a policy level agency in the public sector (Annex-2).

Although some forms of organizations / agencies are existing in the system which may be in need of making them effective and strengthened yet some of the interventions suggested in the final report of ‘Commercial Development Project, Nepal. 2003’ are

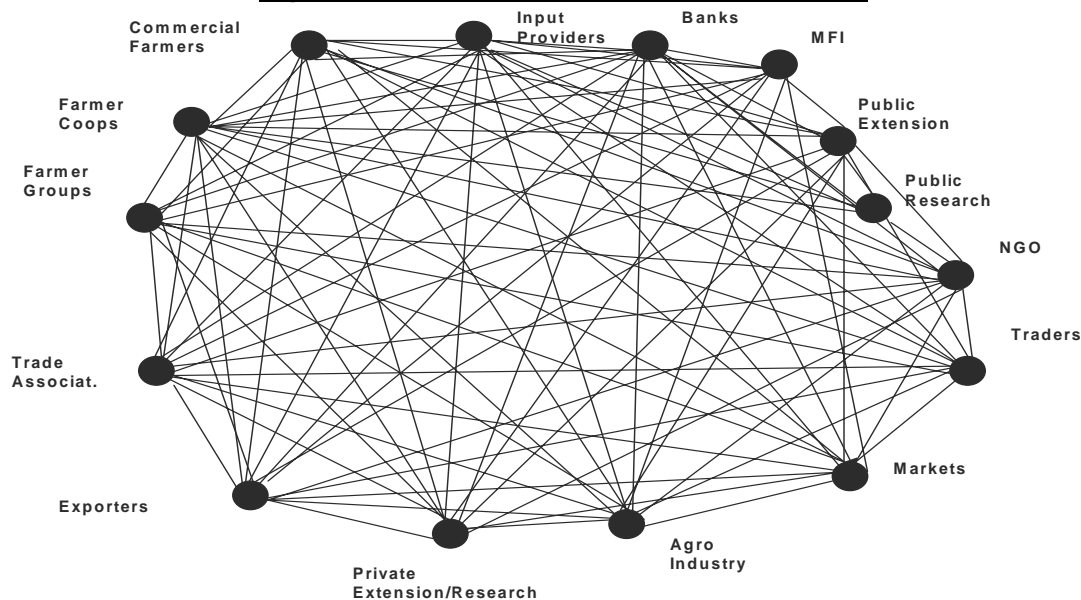
- Establishment of a Commercial Agriculture Network (CAN) is another institutional intervention that will be required to facilitate the exchange of information among key stakeholders (producers, traders and processors) and service providers. Under this component, it is proposed a mechanism to facilitate communication, information sharing and formation of partnerships among and between commercial stakeholders and service providers.
- Creation of a Commercial Agriculture Alliance⁹ (CAA), with a management Board and a Commercial Agriculture Fund (CAF) that will provide a mechanism for different types of key stakeholders (producers, traders and processors) to work together by formulating, selecting and implementing investments that move commercialization to a higher level;
- Developing an Agriculture Market information System (AMIS) that will provide a service to stakeholders involved in commercial agriculture;
- Establishing an institution of a Commercial Agriculture Credit Guarantee Scheme (CACGS) that will reduce the risk involved in credit transactions by sharing the risk between borrowers and lenders, and thereby facilitate access to credit;
- Provisioning of Social Mobilization for Agricultural Commercialization (SMAC) to facilitate the transformation of loosely-organized farmer groups already involved in low-level commercialization into better-organized and larger farmer groups operating at a higher level of commercialization; and
- Developing the Institutional Capacity for Commercial Agriculture (ICDCA), to strengthen existing capacity and build new capacity of service providers to adequately understand and respond to the needs of commercial agriculture.

Figure 1: The Linear Model of a Value Chain



⁹ However, there already exists a High Level Agribusiness Promotion Committee and creation of such alliance with a management board may create duplication / conflict with the already existing institutions.

Figure 2: The Network Model of a Value Chain



7.2 Overall Recommendations

The overall recommendations include the policy, legal, institutional, infrastructural, research and development measures which include the following interventions like establishing effective value chain system, market oriented production system, market information and networking system, development of infrastructure and marketing facilities, facilitation of the exports, promotion for utilization of domestic products by agro-industries, appropriate technology generation and disseminations, adequate and reliable data base system and environment for effective public private partnership.

1. Effective Value Chain: A chaotic organization of marketing channels results in low quality of products, high post harvest losses, and high price fluctuations. Methods to improve marketing channels require greater coordination in terms of contracts, vertical and horizontal integration, and joint efforts of stakeholders; these methods are rarely used because of lack of trust among the stakeholders and lack of capacity in value chain management. The weak linkages among commercial stakeholders do not result in increase value added, competitiveness, and innovation. The situation in agriculture market places is similarly chaotic. Congestion of markets prevails; market infrastructure is in appalling conditions, and market revenue collection system is fraught with irregularities. This general failure in coordination among commercial stakeholders and service providers translate into ineffective value chains. Value chains are organized linkages among the group of producers, traders, processors, and services providers who join together in order to improve the value of their activities. By joining together, the actors in a value chain increase competitiveness and are able to maintain competitiveness through innovation. The limitations of each single group in the chain are over come by the synergies of their actions and governance rules that are intended to produce higher value. The main advantage for commercial stake holders to be part of an effective value chain is that they will be able to reduce the cost of doing business, increase their bargaining power, improve access to technology, information, and capital and, by doing so be able to innovate their production and marketing processes in order to gain higher value and provide higher quality to their customers.

The identification of the core of the problem for agribusiness development in the country as the lack of effective value chain linkages among stakeholders provides an entry point for policy and investment interventions. Recognizing the complexity of the various factors explaining the lack of effective linkages allows designing institutional mechanisms and measures that improve linkages and therefore, provide a unifying approach to solve problems of agribusiness development. From this perspective, those mechanisms and measures that enhance linkages among value chain stakeholders have the potential of leading to higher development of the sector. Rather than proposing isolated and ad hoc measures that benefit only few and isolated actors in the value chain (whether they are processor, traders, input providers, or farmers) there should be an integrated approach to address the three integral issues of stake holders capacity building, agribusiness value chain development and enable increased agribusiness investment comprising appropriate mix of capital and labor. BOI should have strong functional linkage with the High Level Agribusiness Promotion Committee through their adequate representation selected from various enterprises associated with agri-business activities. This committee also needs to be made more effective by providing it with legal authority preferably by upgrading/ converting it in the form of a Council.

Improving stakeholders' capacity of understanding and incorporating value chain management principles into the strategies and operations of their organizations would lead to improvement in the management of value chain that would include demand driven activities. After improving the understanding and management of the value chain there creates a scenario for increased agribusiness investment thus demanding the access to long-term credits.

By and large, the value chain discussed here provides an example in assessing the cost/values at different node points. This deal with cost savings that could be attained through pecuniary or policy measures. Alternatively, analyzing the ratio of farm-gate price to wholesale/retail price can be used once the business enterprise embarking on promoting the HVCs in question, in a given market.

2. Market Oriented Production System: The overall importance of the production of HVC have already been realized and recognized as it is repeatedly stressed the need to produce and promote HVC by our plans and programs. However, in translation of these suggests to field reality, the programs and activities for production and research & extension services are still supply driven rather than demand driven. Market oriented production includes commercial scale of production. To attain economies of scale both in the production and distribution, the production has to be promoted for a commercial scale by identifying potential production pockets integrating them to form production blocks or zones. Alternatively, contract farming and farming in *chakla bandi* should be promoted with necessary instruments like implementation of agricultural crop insuring policies etc. Further Market oriented production includes product planning and designing as per market demand and increase market awareness among the farmers/producers. Therefore, it demands a need of agricultural marketing extension services to generate market orientation to improve production planning, harvesting, post harvest handling etc with strong research support. Organic products may also need to be promoted for certain commodities based on market – both domestic and external.

3. Market Information and Networking System: Production planning starts from the well established networks/ system of market information. Therefore, it is strongly recommended to establish marketing information infrastructure. Once we identify the potential markets (domestic and exports), which we have already identified for most of the cases, then there

should be an institutional arrangement for market research/ study, which will identify the most potential commodities for the market with appropriate time of supply based on the information and the trend of the price and supply situation of each commodity in the market. Thus identified information should be disseminated to the production catchments area, identified on the basis of ecological, infrastructural and economical suitability.

4. Development of Infrastructure and Marketing Facilities: Poor infrastructural development to access the markets is other prime reason in our incompetence in most of the products. There are numerous studies that suggest the high transportation cost incurred during shipping of the produce from the production site to the markets. The effect is multiplied by the post harvest losses that incur in the process. Further, several researchers have pointed out for the insufficient investment in marketing services vis-à-vis, transport services, storage, packaging materials etc. Thus, necessary market infrastructures and market facilities have to be identified and strategically built in appropriate places. The government has to work with the private sector to explore the possibilities to know how such market infrastructures could be developed in partnership.

5. Facilitating Exports: Export promotion of those Nepalese products, in which we have comparative advantage, need different sets of production and marketing strategy; policy and infrastructural support; and institutional arrangements for export market facilitation on information and intelligence. The commodities those have comparative advantage in production that we can easily compete in the export markets have already been identified (e.g. apples, mandarin orange, off-season vegetables, vegetable seeds, NTFPs etc). However, the strategy to promote the production and exports of those commodities need some extra attention on the issues of export facilitation. This includes identification of non-tariff barriers, appropriate tariff structures and other bottlenecks. One of the best examples would be an unequal treatment in the movement of the Nepalese and Indian trucks in each other's territory. It has sharply reduced the competitiveness of Nepalese products, especially the perishable commodities like fruits and vegetables. Besides, perishable commodities are not getting priority in our custom clearance. Unlike in Nepal such commodities are given preferences by Indian Customs (CEDA, 2003). Such policies should also be followed by customs in Nepal. Further, Nepal should adopt pro-active role by adopting forward looking policy and keep constant watch on SAARC region's and more specifically on Indian trade policy as India is the largest trading partner of Nepal and can open up a big market for us.

6. Utilization of Domestic Products by Agro-industries: Agro processing industries in Nepal are slowly growing. The growth and expansion of these industries expected to generate demand for the domestic agricultural products and hence bring the growth of agricultural production through establishing strong backward linkage. In such effort the government is promoting foreign direct investment or the establishing collaborative processing industries in joint venture. However, in implementation, these industries especially food and beverage industries have not shown any such inclination. Most of the raw materials are imported. The case is true for most of the companies that are collaborated with international companies and use brand name to their products. The need for the raw material imports is mostly justified with the obligation of companies to maintain quality standard to use the brand names, however, it is the common practice for most of the industries even in the case where they don't need to use others' brand names. Therefore, it is suggested that there should be appropriate policy that will encourage the commercial level of production both quality and quantity wise and their use by the domestic industries as far as possible and practical.

7. Technology Generation and Dissemination: Technology generation is one key factor to achieve the competence in our production and marketing. Nepal Agriculture Research Council (NARC), the apex body of HMG in relation to agricultural research, has got a leading role to play in this regard. It requires dynamic visionary leadership that fully understands the practical needs of agricultural technology advances. It must set a small number of priorities in high value commodity sub-sector, after carrying out rigorous exercise. Its strategy should be developed for pocket areas rather than wide-spreading such that commercial production with competitive advantage could be achieved in any given commodities. Thus thrust must be given on the research to increase production and productivity, to reduce cost of production, to improve and maintain quality and variety, and to minimize the post harvest loss. Besides, research on marketing should be carried out as an integral part of the total research system. The participation of private agencies in research should be encouraged and promoted. Thus, the NARC needs to institutionalize this aspect and should encourage more and more contractual private research by providing technical expertise and facilities. This would be an important research step to relate the research process to the market requirements of farmers and agribusiness industries.

8. Inadequate and Inaccurate Database: In the present scenario of globalization with liberalized trade, the information is one of the key inputs that would enhance our competitiveness in international arena. Thus to exploit the potential benefits we must have a good database in each sector right from the production, marketing and exports etc. However, the database is severely lacking for most of the information that is needed to make a scientific study and accordingly to put it in the plans and programs. Besides, the reliability of available data is another issue, which has to be addressed properly. Unless and until we improve our database and its reliability our plans and programs will depend on judgments and always be a subject of question for its appropriateness. And we will always be deprived from reaping the potential benefits. Hence there should be a provision for carrying out constant policy research studies, information collection that support Nepal to effectively pursue her interest in international forum like WTO, regional forum like SAFTA, BIMST-EC etc.

9. Public Private Partnership: Public Private Partnership has been recognized as one of the most economic, efficient and sustainable approach of service delivery to bring both the short and long term economic benefits and development. Realizing this fact the PPP has been encouraged in Nepal for last two decades. The existing public private partnership has been grouped into five broad categories (Singh, S.B. 2005). They are representational partnership, contractual partnership, mutual partnership and strategic partnership. Thus depending upon the nature and sector the type of partnership could vary, however, the mutual partnership must be strengthened. Thus public-private partnership must further be explored by developing specific models guided by specific set of principles of mutual benefits, resource sharing, risk sharing, and reinforcements to develop local capacity to achieve efficiency gain, effectiveness and sustainability through an opportunity to people to build up social, human, financial, physical, and natural capitals.

Last but not least, further in-depth study is recommended to be carried out detailing the activities suggested in the policy matrix and more particularly in the smooth functioning of the HiLCAP and BOI. Such study may also be needed in preparing commodity specific business plan covering its backward linkages to production in the farm and forward linkage in the firm/ industry including commerce and trade. Furthermore, detail study on input/output analysis covering the aspects such as, level of capital investment, technological intervention/innovation and market prospects etc. are needed to be carried out.

7.3 Policy Actions Matrix

Part A

Part A For Overall Agribusiness Development

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
A	Policy					
1	Missing comprehensive and umbrella policy for agribusiness development	Formulation and implementation of Agribusiness Policy that integrates all related policies for agribusiness development	<ul style="list-style-type: none"> • Development of Agribusiness Policy that provides a comprehensive framework, clear strategies, and a regulatory framework including appropriate tariff policy among others for the agribusiness development 	<ul style="list-style-type: none"> • Agribusiness Promotion Policy drafted and adopted by HMG/N 	One Year (by 2006)	Lead role: MoAC Supporting: NPC/ MoICS, MoF/ CNI/ FNCCI/ MOWR/ MOLD
2	Lack of Market Oriented Production and Distribution System	Consolidated and commercial scale of production to attain economies of scale in production and marketing	<ul style="list-style-type: none"> • Identification and promotion of HVC for each development region on the basis of agro-ecological suitability for production, market accessibility and export opportunities especially in nearby boarding Indian markets (use rigorously the GIS tools) • Product zoning and commercial scale of production and distribution of HVC • Materialize 'Pocket Package Strategy Guideline 2058' with more elaborative description of its implementation especially focusing the packaging of the 	<ul style="list-style-type: none"> • HVC for different region identified • Product zoning for different HVC by districts • Detail strategy of pocket package guideline prepared and adopted 	2 years By the end of 10 th Plan	Lead role: MoAC (DoA, DoLS and DDC) Supporting: MoICS/ MoLD, (DDC) NPC, MOWR

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
			inputs and infrastructures between the input distributing line agencies			
		Quality awareness among the farmers/ producers to meet the taste and preferences of the consumer or the processing industries	<ul style="list-style-type: none"> • Market led Production Planning as per market trend of price and supply (like promoting off- season vegetable production) • Agriculture marketing extension service delivery to improve harvesting, post harvest handling and creating market orientation etc 			Lead role: MoAC (DoA and DoLS) Supporting: MoICS/ MoLD, (DDC)
3	Lack of formal and adequate linkage between agro-industries and agriculture producers. Under utilization of the domestic production by the agro-industries in Nepal	Policy revisit to support agri-business industries and foreign direct investment towards making adequate linkage between the raw material productions and processing industries	<ul style="list-style-type: none"> • Mandatory Provision to the agro-processing industries to use the domestic production for certain amount depending on the quality and quantity of the domestic produce (like min of x % of total consumption) • Promoting contractual farming, or <i>chakla bandi</i> farming between the farmers and the industry, group or cooperative farming • Promoting processing and manufacturing industries through appropriate incentives like export tax exemption on the processed products, tax holiday on the import of processing equipments etc 	Contractual farming law enacted (and other Rules and Regulations enacted)	1-2 yrs	Lead role: MoAC/ MoICS Supporting: NPC Lead role: MoLRM/ MoICS Supporting: MoAC/ NPC/ FNCCI/ CNI/ CCI Lead role: MoICS/ MoF Supporting:

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
						MoAC/ NPC/ CNI/ FNCCI/ CCI
4	Lack of market or export promotion activities	Identify both local and export markets and carryout export promotion activities	<ul style="list-style-type: none"> • Activities related to establishing brand name for Nepalese product (like vegetable, vegetable seeds, high altitude coffee etc) and exploring market niches • Detail study of tariff structure that favors export promotion and proactive role of the MoAC with regards to agricultural tariff formulation and monitoring 	Select few (5-10) HVC to promote in the markets with typical Nepali brand	1-2 years	Lead: MoAC/ MoICS /TPC Supporting: Commercial Producers/ FNCCI/ CNI/ COC
5	Lack of risk sharing mechanism to promote commercial scale production	Immediate implementation of Crop Insurance Policy Increase adequate risk sharing mechanism between credit lenders, producers and processors	<ul style="list-style-type: none"> • The government should immediately bring crop insurance policy especially in case of commercial scale production • Rules and regulations for contract farming and risk sharing mechanism • CACGs arrangements 	Crop Insurance Policy enacted Contract Farming Law and By-Laws made operational	1-2 years	Lead: MoAC/ MoICS Supporting: FNCCI/ CNI/ traders/farmers
B	Institutional					
6	Weak and inadequate institutions for agribusiness	One window and one umbrella system of service delivery for	<ul style="list-style-type: none"> • Strengthening High Level Committee/ Council for Agribusiness Promotion (HiLCAP) with legal authority and status to carry out the national mandate to 	<ul style="list-style-type: none"> • Effective Value Chain System be developed through 	Mid to Long	Lead: MoAC/ MoICS/

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
	promotion in terms of institution, legal authority, and human resource etc	agribusiness promotion with multi-tiers of institutional arrangement with legal authority to regulate the decisions	<p>address both policy and regulatory level issues on agribusiness promotion and creation of a Commercial Agriculture Fund (CAF) that will provide a mechanism for different types of key stakeholders to work together by formulating, selecting and implementing investments that move commercialization to a higher level. HiLCAP will closely work Board of Investment (BOI) with legal status which will mainly be represented and handled by the investors.</p> <ul style="list-style-type: none"> • Strengthening existing capacity of Agribusiness Promotion and Statistical Division (ABPSD) to function as an apex body to build an umbrella system of well integrated organization by establishing direct/ functional linkage with the implementation institution like MDD, Agribusiness Promotion Program, Export Promotion Program and other related institutions etc. ABPSD must also be strengthened in terms of authority, roles and responsibility and adequate skilled human resources. This division in close coordination with Planning Division in the Ministry, Departments/ Extension, Plant Protection, VDD, MDD and other Directorates should work as a medium 	<p>greater coordination and trust between and among the stakeholders</p> <ul style="list-style-type: none"> • Decision made by the HiLCAP would be published in the gazette and create mandatory situation to all stakeholders to implement • Institutional Reform made and these institutions provided with legal identity, adequate skilled human resources and with a provision of especial fund 	Term	<p>MoLJPA</p> <p>Supporting: NPC/ MoF/ FNCCI/ CNI/ COC</p> <p>Lead: MoAC</p> <p>Supporting: MoICS/ MoF/ FNCCI/ CNI/ COC</p>

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
		A separate wing for facilitating the exports within this umbrella of ABPSD must be established	<p>where requirement is agreed between the stakeholders and it should arrange tripartite agreement as needed or realized among farmers, producers, industrialists and the government. Individual or group contracting as well as linkages through market centers, cooperatives etc can also be established.</p> <ul style="list-style-type: none"> • The Agribusiness Promotion and Statistics Division must carry out the role of market facilitation and vigilance service to identify and minimize both the tariff and non-tariff barriers to India and other neighboring countries (the focus must be given especially to the exports of perishable commodities) • Establishment of a Commercial Agriculture Network (CAN) to facilitate the exchange of information among key stakeholders (producers, traders and processors) and service providers like research, extension and credit etc should be initiated. The committee should have the representation from almost all the major private entrepreneurs or their representatives • Establishing an institution of a Commercial Agriculture Credit Guarantee Scheme (CACGS) that will reduce the risk 			<p>Lead: MoAC/ DoA/ DoLS</p> <p>Supporting: MoF/ MoGA</p>

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
			<p>involved in credit transactions by sharing the risk between borrowers and lenders, and thereby facilitate access to credit</p> <ul style="list-style-type: none"> • Role of the institution should be especially focused for identification of both Tariff and NTBs for exporting the potential items of Nepal (commodity wise), and facilitate agribusiness promotion through market search and market intelligence services (both domestic and exports) • Study and recommend appropriate tariff structure, and other export bottlenecks • With forward-looking policy, keep constant watch on the SAARC region and especially on cross boarder and potential trading partners 			
C	Infrastructure or Logistics					
7	Inadequate Market Information and Networking System	Establishment of Information Network to share the information on price and volume for identified HVC and provide market intelligence service	<ul style="list-style-type: none"> • Identification of major markets (both domestic and exports) • Extension of market information institutions and their networking (linkages) for the flow of information like market price and supply, quality of produce etc. Mass media can be effective tool 	<p>For each production zone are linked with the markets</p> <p>Marketing Network established</p>	<p>Mid to Long Term</p> <p>Mid Term</p>	<p>Lead: MoAC/ DoA/ DoLS/ Local Bodies/ DDCs/Municipalities</p>

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
						Supporting: MoIC/ NPC/ FNCCI/ CNI
8	Inadequate market and other infrastructures, and support facilities	Strategic plan for market facilitation with appropriate infrastructural support Development of agricultural road	<ul style="list-style-type: none"> Promote market facilitation infrastructure like market and collection centers, cold/cool stores, market sheds and stalls, slaughter houses, processing plants, power supply, irrigation/ water supply, credit etc in strategic locations Rigorous implementation and expansion of agricultural road to increase market access of the production site/ production pockets/ blocks 	Market and marketing facilities established in the strategic locations Extended market access roads and other facilities	Mid to Long Term	Lead: MoAC/ MoLD, DDCs/Local Governments Supporting: NPC/ MoF/ Private Entrepreneurs
9	Low risk bearing capacity of small holder farmers, no risk sharing mechanism and weak vertical and horizontal linkage	Arrangement for risk sharing mechanism developed for commercial production	<ul style="list-style-type: none"> Development of risk-sharing mechanism at the level of financial institutions that can enhance the supply of credit to commercial agriculture. On this the role of CACGs as mentioned above should be made functional. Strengthening vertical and horizontal linkages Initiate crop insurance and expand the scope of livestock insurance 	Clear guidelines for risk sharing mechanism between the stake holders prepared Enacted and Promulgated crop insurance act	Mid Term	Lead: MoAC/ MoLJPA/ MoF/ NRB Supporting: NPC/ Commercial Banks

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
D	Research and Development					
10	Technology constraints exist both in production and post-production systems	Market oriented research and technology development and dissemination	<ul style="list-style-type: none"> • NARC, being one of the apex bodies for the R&D, must give special thrust in the areas of increasing productions and productivity for HVC, to maintain or to reduce cost of production, to improve and maintain quality and variety by collaborating with related institutions like IAAS, Institute of Forestry, DoFTQC and related institutions under MoAC and others • Institutional strengthening to carry out activities related to minimize the post harvest loss, product planning and processing and product diversification etc • Besides, research on agriculture marketing should be carried out as an integral part of the total research system • The participation of private agencies in research should be encouraged and promoted through PPP approach 	<p>High Level Research Coordinating Committee formed under NARC.</p> <p>Increased resource allocation on HVC research.</p> <p>Institutional capacity of NARC/ DoFTQC strengthened.</p> <p>Establishing Agricultural University may also be proposed</p> <p>Visible research outputs on identified activities</p>	<p>Short Term to Long Term</p> <p>Mid Term to Long Term</p>	<p>Leading: NARC/ DoFTQC/ IAAS/ IoF</p> <p>Supporting: MoAC/ NPC/ DoA/ DoLS/ MoES/ FNCCI/ CNI/ CoC</p>
11	Quality consciousness not sufficiently generated among the producers	Increase awareness among the producers for quality production to meet the taste and preferences of the consumers/ processing industry	<ul style="list-style-type: none"> • Vertical integration between the agro-industries and the products for appropriate varietal/ breed selection and quality production (e.g. collaborating foreign seed companies for improved seed (hybrid) production and to maintain seed quality of Nepalese seeds) maintained • Information on appropriate post harvest handling of the products 	Increased number of quality conscious generation programs in operation.	Short Term to Long Term	<p>Lead: DoA/ DoLS/ DoFTQC</p> <p>Supporting: MoAC/ NARC</p>

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
E	Miscellaneous					
12	Inadequate and inaccurate data base	Development of adequate data base system with adequate coverage (i.e. large number of information) and its reliability	<ul style="list-style-type: none"> • Development of good database both in terms of information coverage and its reliability • Net working for information sharing and promotion of web based data base system (like FAO data base and others) 	<p>Established central data base system with large pool of information</p> <p>Establishment of information networking</p>	Mid Term to Long Term	<p>Lead: MoAC</p> <p>Supporting: CBS/ MoST,</p>
13	Inadequate attempts to enhance Public Private Partnership (PPP)	Enhance public private partnership approach by exploring the immediate possibilities and further potentialities	<ul style="list-style-type: none"> • Different Models and possibilities for PPP must be explored right from the resource sharing to risk sharing and management sharing 	Enhanced PPP not just in a responsibility sharing but also in resource sharing and accountability	Mid to Long Term	<p>Lead: DoC/ DoA/ DoLS/ MoAC</p> <p>Support: Private Institutions/ FNCCI/ CNI/CCI</p>

Part B Commodity Specific (Fruits, Vegetable, Vegetable Seeds, NTFPs Milk and Meat)

Fruits:

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
A	Policy					
14	Inadequate strategic planning for production and marketing of fruits	Strategic planning for Production and Marketing	<ul style="list-style-type: none"> • Crop specific policy for export promotion and imports based on the potential scale of production and competitiveness of specific types of fruits (moreover, strategy for fruits production in Nepal should be imports substitution in case of India and export promotion in case of Tibet and Bangladesh). • Promotion of contractual production and marketing to establish vertical linkages between the production and processing industries. 	<p>Strategic planning for specific potential crops formulated and implemented.</p> <p>Proposed contract law enacted and made operational.</p>	<p>10th and 11th Plans</p> <p>Within 10th plan</p>	<p>Lead: MoAC/ NPC Support: MoF/ MoICS</p> <p>Lead: MoAC/ MoLJPA Supporting: MoICS</p>
B	Institutional					
15	Inadequate Capacity of the existing institution and human resource for commercial scale horticulture production and orchard management.	Strengthening capacity of the institution and human resource to promote commercial scale production and post harvest handling	<ul style="list-style-type: none"> • Promotion of the post harvest handling facilities improvement programs • Enhance orchard management capability through human resource development. 	Increased quality of service delivery	Mid Term	Lead: DoA/ FDD Supporting: MoAC

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
C	Infrastructure or Logistics					
16	Inadequate marketing extension service for fruits.	Develop/ strengthen fruit market extension services	<ul style="list-style-type: none"> Agricultural marketing extension services promotion to create market orientation among the producers to improve harvesting and post harvest handling. 	Initiation and implementation of market extension programs	Short to Mid Term	Lead: DoA/ FDD Supporting: MoAC
D	Research and Development					
17	Inadequate varietal recommendation and genetic purity of the planting materials	Adequate research for appropriate varietal recommendation and regulate the genetic purity of planting materials	<ul style="list-style-type: none"> Quality regulation act (nursery regulation) for varietal purity of the fruit saplings/ propagating materials strictly implemented 	Quality regulation (including nursery regulation) act enacted	Mid to Long Term	Lead: MoAC/ MoLJPA Supporting: NPC

3. Commodity Specific (Vegetable)

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
A	Policy					
18	Adequate scale of strategic production planning lacking	Strategic production planning based on the local markets accessibility and nearby boarder markets	<ul style="list-style-type: none"> • Appropriate pocket with adequate scale and appropriate vegetable selection for each region and for each season. • Off -season vegetable production and marketing 	<p>Sizable scale of production pockets identified</p> <p>Increased vegetable production and marketing</p> <p>Increased off -season vegetable production and marketing</p>	<p>Short to Mid Term</p> <p>Mid to Long Term</p>	<p>Lead: DoA/ VDD/ MDD/ DDC</p> <p>Supporting: MoAC/ NPC</p>
B	Institutional					
19	Restricted entry of Nepalese vegetable in cross boarder transaction	Bilateral agreements with the importing countries for perishable commodity for cross border movement arranged on the reciprocal basis	<ul style="list-style-type: none"> • For export promotion of the Nepalese vegetables to the Indian markets the government has to play an iterative role to identify and minimize the non tariff barrier that the Nepali produce like fresh vegetable has to face • Alleviation of hassle in internal movement 	Free movement of vegetables both in internal or cross boarder movement realized	Short Term	<p>Lead: DoA/ MoAC/ MoICS</p> <p>Supporting: MoLD/ MoH</p>
C	Infrastructure or Logistics					
20	Inadequate market and transportation facility	All weather road-linking production to markets has to be developed	<ul style="list-style-type: none"> • Infrastructure development like road that provides accessibility to the market • Development of adequate collection and 	<p>Extension of agriculture road</p> <p>Adequate number of</p>		Lead: DoLIDAR / MoLD/

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
			<p>market centers, cool and cold storages including at the airport terminals</p> <ul style="list-style-type: none"> • Transportation vehicle with special rebate for operating vegetable transportation mini trucks etc 	<p>market and collection centers established</p> <p>Increased number of vegetable transporting vehicles</p>	Mid to Long Term	<p>DDC, MoAC</p> <p>Supporting: NPC/ MoF</p>
D	Research and Development					
21	Inadequate research on HVC and its development	HVC focused Research system has to be established	<ul style="list-style-type: none"> • Off-season vegetable production technology generation • Research for post harvest handling, including transportation and packaging 	Technology generated for off-season vegetable production and post harvest handling	Mid to Long Term	<p>Lead: NARC/ DoFTQC</p> <p>Supporting: MoAC/NPC</p>

4. Commodity Specific (Vegetable Seeds)

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
A	Policy					
22	Inadequate promotion of vegetable seed industry	Promotion of vegetable seed industry	<ul style="list-style-type: none"> Promotion of collaborative seed production program by enhancing PPP approach with the foreign companies As per the market demand Nepal should enter into the production of hybrid seeds especially for vegetables and thus NARC should be mandated accordingly The subsidies on inputs, transport, easy access to formal sector credit and market and custom duty relaxation in processing equipments and packaging materials etc need harmonization <p>Strengthening SEAN/ SSSC and promotion of PPP to undertake works like timely updating of cost of production, cost of marketing as well as support to farmers by establishing strong linkages to have their quick and easy access to improved technology, credit, transport, collection centre, market and other related aspects need to be looked into. Further, similar institutions need encouragements for establishment</p>	<p>Increased collaborative seed industries established</p> <p>Increased production of improved seeds and specially hybrid seeds</p> <p>Increased production of vegetable seed production, marketing, exports and import substitution</p>	<p>Mid to Long Term</p> <p>Short to Mid Term</p> <p>Mid to Long Term</p>	<p>Lead: SQCC/ MoAC/ NARC/ MoF</p> <p>Supporting: DoA/ VDD/ SEAN/ other private sectors</p> <p>Lead: DoA/ VDD/ DDC/ SEAN/ Other private sector</p> <p>Supporting: MoAC/ NPC</p>

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
B	Institutional					
23	Weak institutions and inadequate lab facility for seed quality promotion and regulation	Strengthening institutions like SQCC, NSB, CSTL, VDD and private sectors like SEAN and SSSC etc for their extension and increased service delivery	<ul style="list-style-type: none"> Establishment of regional and central seed laboratories accredited regionally and internationally Acquiring ISTA accreditation and improving quality control of exportable seed Regulating and restricting imports of low quality seeds and other inputs by strengthening plant quarantine check-post with sufficient lab facility 	<p>Adequate facilities in the seed testing labs generated</p> <p>International accreditation of the seed labs acquired</p> <p>Strengthened plant quarantine check post with necessary equipment and human resource</p>	<p>Mid Term</p> <p>Short to Mid Term</p>	<p>Lead: MoAC/ SQCC/ SEAN</p> <p>Supporting: NPC/ MoF/ MoICS/</p>
C	Infrastructure or Logistics					
24	Unavailability of nearest boarder point for the exports of seed from Nepal to India	Bilateral negotiation to facilitate the exports of Nepalese vegetable seeds	<ul style="list-style-type: none"> Discussion with the concerned Indian authority to settle the issue related to the exports points, quarantine, fumigation and supervision requirements and treatment fees, and on validation of the SPS certificate and seed testing reports issued by Nepal should be timely initiated 	Bilateral talk arranged and such facilities initiated.	Short to Mid Term	<p>Lead: MoAC/ MoFA/ MoICS</p> <p>Supporting: NPC/MO F</p>

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
E	Miscellaneous					
25	Inadequate promotional activities	Promotional activities to be carried out	<ul style="list-style-type: none"> Participation of the private sector for the promotion of vegetable seed marketing should be acknowledged and promoted to establish efficient marketing system Promoting group marketing approach Identification of market niches and carry out market promotional activities 	<p>Increased participation of the private sector for the marketing of the vegetable seeds</p> <p>Market promotional activities initiated.</p>	Short to Mid Term	<p>Lead: MoAC/ DoA/ VDD/ DDC</p> <p>Support: SEAN/ other private agencies/ MoF/ NPC</p>

5. Commodity Specific (NTFPs)

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
A	Policy					
26	Lack of incentive mechanism to promote commercial scale farm production of NTFPs	Legal arrangement for commercial scale farm production of NTFPs and incentive mechanism like royalties (or tax) exemption of farm	<ul style="list-style-type: none"> Promoting commercialization of the NTFPs by providing right incentives including exemption of royalties etc to producer at their own farms Promoting private/community involvement in forest and agro-forestry management etc 	<p>Royalty collection on farm produced NTFPs removed.</p> <p>Increased production and marketing of</p>	Mid to Long Term	<p>Lead: MoAC/ MoFSC/ MoLJPA/ MoF</p> <p>Supporting: NPC/ AEC- FNCCI</p>

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
		produced NTFPs		NTFPs		
27	Lack of policy support to exports of processed NTFPs	Policy support to export of processed NTFPs	<ul style="list-style-type: none"> Encouraging the exports of processed products and promoting the processing plants with appropriate technology and other supportive facilities like credit facility, tax exemption on the processing equipments, and export facilities etc 	Export volume of the processed NTFPs increased	Mid Term	Lead: MoFSC/ MoICS Supporting: NPC/ MoF / MoAC
B	Infrastructure or Logistics					
28	Strengthening the capacity of the coordinating institutions for NTFPs exports and promotion	Logistic support to the coordinating institutions	<ul style="list-style-type: none"> Establishment of wholesale market along the north-south market corridor especially in the Eastern, Western and Midwestern Region (where there exists the highest NTFPs transactions) to establish a competitive price. Strengthen NTFP coordination committee for promoting production, processing and marketing of NTFPs 	Wholesale markets along the north- south corridor developed Support to the NTFPs coordinating committee increased	Mid to Long Term	Lead: MoFSC/ MoICS/ MoLD/DDC Supporting: MoF/ MoAC/ NPC
C	Research and Development					
29	Not sufficient scientific studies conducted for sustainable resource utilization	Focus must be given for the scientific studies of the NTFP promotion and development	<ul style="list-style-type: none"> Sufficient scientific studies must be conducted to generate and determine future plans and programs to tap the potential resource in a sustainable basis Separate research wing must be established within the research 	Scientific research and study for sustainable exploitation of the	Mid to Long Term	Lead: MoFSC/ NARC Supporting: MoF/ MoAC/

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
			institutions for the promotion and development of NTFPs <ul style="list-style-type: none"> • Constant watch for over exploitation of endangered species of NTFPs 	resource completed		NPC
E	Miscellaneous					
30	Stock taking of NTFPs is still lacking by the public sector	Establish a data base system for basic information highlighting the status of NTFPs	<ul style="list-style-type: none"> • Data base must be generated to know the in-depth situation of the NTFPs in Nepal 	Data base established to conduct scientific study and research.	Mid to Long Term	Lead: MoFSC/ MoAC/ CBC Support: NPC
31	Adhoc system of royalty collection, ban or restriction on the collection and exports of some of the NTFPs	Scientific system of royalty collection and restriction on the collection of the endangered species of NTFPs	<ul style="list-style-type: none"> • Each intervention like royalty collection or restriction on collection or exports must be backed up with in-depth scientific studies and methods. • Strong mechanism to regulate the ban or restriction on collection of endangered species of NTFPs 	Scientific methods implied for the royalty collection and ban. Smooth functioning of the mechanism to regulate the ban or restrictions prevailed	Mid to Long Term	Lead: MoFSC/ MoF Support: NPC/ MoAC

6. Livestock Commodities (a. Milk and Milk Products)

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
A	Policy					
32	Administered pricing policy hindering the development of dairy industries and restricted competitive environment	Promote competitive and free market pricing mechanism	<ul style="list-style-type: none"> • Pricing system based on open market mechanism initiated • Promotion of cost effective production system 	Market pricing system established	Short to Mid Term	Lead: MOAC/ MOLD/DDC Supporting: NPC/ MoICS
33	Inadequate processing plants and product diversification	Encourage and promote joint ventures for product processing and diversification (like skimmed milk powder)	<ul style="list-style-type: none"> • Assess and find out factors to encourage foreign investment in dairy sector • Based on findings promote more investment through appropriate measures • Adequate technical support especially for the product processing, packaging and storing. The focus should be more to the rural areas where the farmer does not have access to private dairy company or DDC • Product processing and diversification through value added long self-life milk products production like baby food, milk whitener, condensed milk, powder milk, chocolate or flavoured milk drinks, cheese and ghee etc. 	Increased participation of joint venture and product diversification	Mid to Long Term	Lead: MOAC/ MOLD/DDC Supporting: NPC/ MoICS

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
B	Institutional					
34	DDB not sufficiently addressing the related issues of dairy development (e.g. milk holiday and pricing)	Strengthen the functioning and capacity of DDB with adequate financial and legal support	<ul style="list-style-type: none"> Strengthening DDB to support and improve all dairy related institutions Restructuring of DDC to support and strengthen dairy cooperative movements by replicating the successful experience from India 	DDB supported with adequate financial and legal measures	Short to Mid Term	Lead: DDB/ DoLS DDC Support: NPC/ MoF/ MoAC
C	Infrastructure or Logistics					
35	Insufficient infrastructural support	Milk being one of the highly perishable commodity, it needs special infrastructures like collection and chilling centers and refrigerated trucks and appropriate processing outfits etc	<ul style="list-style-type: none"> Encourage private dairies to establish adequate number of collection centers especially in the rural and inaccessible areas with the facility on imports of chilling plants, refrigerators, refrigerated truck and reduced electricity tariff/ fare Promoting product processing, packaging and storing technology and equipments or materials at affordable price to rural areas 	Increased number of dairy collection and chilling centers Promoted/ disseminated product diversification technologies	Mid to Long Term	Lead: NARC/ DoLS/ DDC Supporting: MoF/ NPC/ DDB

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
36	Lack of assured market including problems like <i>Milk Holiday</i> in flush season	Attempts have to be made to maintain the year round production volume on a regular basis with the reduction in the cost of production	<ul style="list-style-type: none"> Increased supply of high quality feeds, green fodder, upgrading to productive/ high quality breeds, veterinary services, better livestock management practices etc Explore market opportunity in the adjoining dairy industry in India and make necessary arrangements to provide outlets for the domestic marketable surplus milk Commercial scale of production and increasing marketing efficiency Rigorous exploration of cost effective product processing and diversification possibilities to establish the processing plants to produce baby food, powder milk, condensed milk, other flavored milk drinks etc Promotional activities to increase the per-capita consumption of milk and milk products highlighting the nutritional benefits 	<p>Increased exports of milk and milk products to neighboring countries.</p> <p>Alleviation of Milk holidays</p> <p>Reduced gap of milk production between lean and flush season</p> <p>Increased per capita domestic consumption</p>	Mid to Long Term	<p>Lead: MoAC/ DoLS/ DDC/ DDB</p> <p>Supporting: MoICS/ NARC/ DoC/ Private agencies (CNI/ CCI)</p>

6. Livestock Commodities (b. Meat Products)

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
A	Policy					
37	Buffalo farming for meat purpose has not been given due priority	Meat buffalo farming should be promoted as an separate enterprise and raised for commercial scale production (min of 8 to 10 heads)	<ul style="list-style-type: none"> • Launching special programs to promote meat buffalo farming as a separate enterprise • Promoting meat-buffalo farming near the community managed forest areas and degraded/ barren land by introducing/promoting fodder/ pasture development programs 	Increased meat buffalo production	Short to Long Term	Lead: DoLS/ MoFSC/DDC Supporting: MoAC/ MoF
B	Institutional					
38	Lack of adequately equipped / full fledged markets and collection centers for livestock marketing	Develop and expand adequately equipped market and collection centers at the strategic locations	<ul style="list-style-type: none"> • Live animal market should be established in each strategic location with all the basic facilities 	Livestock markets established at strategic locations	Short to Mid Term	Lead: DoLS/ MoLD/ DDC Supporting: MoAC/ MoF/ NPC

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
C	Infrastructure or Logistics					
39	Inadequate livestock marketing and transportation facilities	Promotion of livestock marketing and transportation means to reduce the stress to the animals	<ul style="list-style-type: none"> • Appropriate livestock market centers and transportation means and mechanism/methods to be established to reduce stress to the animals 	Number of appropriate livestock market centers transportation means increased	Short to Mid Term	Lead: DoLS/ DDC Supporting: FNCCI/ CNI/ Municipality
40	Lack of proper slaughter houses and hygienic retailing outlets	Establishment of adequate slaughter houses and regulation of hygienic meat distribution	<ul style="list-style-type: none"> • Appropriate number of slaughter houses developed through PPP approach • Regulate hygienic meat production and distribution by establishing appropriate institutions 	Hygienic meat production regulated	Mid to Long Term	Lead: DoLS/ DDC Supporting: FNCCI/ CNI/ Municipality/ MoAC/ MoICS
D	Research and Development					
41	High cost of production	Reduce cost of production through the use of appropriate technology and proper management	<ul style="list-style-type: none"> • Research specially focus on the technological innovation to reduce cost of production in buffalo fattening • Promote raising green fodder based buffalo calves in the group of 8-10 heads • Selection and recommendation of appropriate breeds for fattening. 	Cost of production of meat buffalo animals reduced	Short to Long Term	Lead: DoLS/ NARC/ DDC Supporting: MoAC/ MoF/ MoFSC

S.N.	Constraints	Recommended Improvement/ Action	Activities	Indicators	Time Frame	Responsible Agency
E	Miscellaneous					
42	Unregulated imports of animal/ birds creating undue pressure on market prices and spread of pest and diseases	Appropriate regulation mechanism should be strengthened	<ul style="list-style-type: none"> Strictly follow the minimum sanitary and phytosanitary in animal/ birds imports 	Sanitary measures adopted and implemented	Short to Mid Term	Lead: MoAC/ DoC Support: MoF/ MoICS

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Annex 1:

Table 1: Marketing cost and margin for fruit marketing from Bhairahawa to Gorakhpur, India

S.N.	Description	Orange	Apple	Average	Fraction (%)
1	Purchasing Price at Kapurkot	4.32	6.08	5.20	25.00
2	Total Marketing Cost	7.68	8.48	8.08	38.85
3	Transportation Cost	2.8	3.2	3.00	14.42
4	Loss During Transportation	1.76	1.6	1.68	8.08
5	Total Cost	12	14.56	13.28	63.85
6	Wholesale price at Nepalgunj Market	17.6	24	20.80	100.00
7	Marketing Margin	5.6	9.44	7.52	36.15

Source: MDD, DOA. 2000. Study of High Value Commodities Marketing in Indian Market Centers, Harihar Bhawan.

Note: The marketing cost includes costs like transportations, cost due to loss and damage, packaging, loading/ unloading, grading etc.

Table 2: Marketing cost and margin for fruit marketing from Birgunj to Patna, India.

S.N.	Description	Orange	Apple	Average	Fraction (%)
1	Purchasing Price at Kapurkot	4.4	7.2	5.80	32.95
2	Total Marketing Cost	7.12	6.8	6.96	39.55
3	Transportation Cost	2.88	2.8	2.84	16.14
4	Loss During Transportation	1.6	1.6	1.60	9.09
5	Total Cost	11.52	14	12.76	72.50
6	Wholesale price at Nepalgunj Market	16	19.2	17.60	100.00
7	Marketing Margin	4.48	5.2	4.84	27.50

Source: MDD, DOA. 2000. Study of High Value Commodities Marketing in Indian Market Centers, Harihar Bhawan.

Note: **The marketing cost includes costs like transportations, cost due to loss and damage, packaging, loading/ unloading, grading etc.**

Table 3: Cost and Margin of Farmers and Marketing Intermediaries of Minor Early Radish Seed.

S.N	Description	Cost/ Margin	
		(Rs/ Kg)	Percentage
1	Farmers		
	Cost of Production	53.12	22.1
	Packaging & Transportation	4.04	1.7
	Margin	2.84	1.2
	Sales Price	60.0	25
2	Wholesaler's Agent at Road-head Collection Centre		
	Packaging	1.00	0.4
	Storage Rent	0.13	0.1
	Other Cost	2.00	0.8
	Transportation/ load/ unload	0.80	0.3
	Margin	4.00	1.7
	Sale Price	67.93	28.3
3	Wholesaler/ Exporter at Tulsipur		
	Processing	0.15	0.1
	Loss	1.05	0.4
	Packaging/ Handling/ Storage	16.52	6.9
	Other Cost	0.60	0.2
	Transportation/ Load/ unload upto Lucknow	3.50	1.5
	Export Duty	0.05	0.0
	Margin	20.20	8.3
	Sale Price	110.00	45.8
4	Wholesaler in Lucknow		
	Cost including Tax	20.00	8.3
	Margin in wholesale price	26.80	11.2
	Margin in Retail price	110.0	45.8
	Wholesale price	156.8	65.3
	Retail Price (consumer's price)	240.0	100

Source: APROSC, A Study on Exploring Market Potential of Selected High Value Commodities in Mid-Western Development Region Nepal. Ramshah Path, Kathmandu, Nepal. April 1999.

Annex 2:

Institutional & Functional Arrangements of HiLCAP:

The High Level Committee (preferably Council/Authority) for Agribusiness Promotion must be chaired preferably by the prime minister or the deputy prime-minister with MoAC functioning as the secretariat. Alternatively, the committee can be chaired by the agriculture minister but agriculture minister by default be deputy prime-minister as well. The committee must be constituted with the ministry level representation from the key ministries such as MoICS, MoLD, MoF, MoLJPA, MoLRM, MoFSC, MoFA, MoH and other key institutions working for agricultural commerce and industries such as FNCCI, CNI, CoC, CCI, and other private sector; and related national/ central level council/ board/ company/ corporation etc. BOI like body must be created and duly represented in such high level committee/council /authority.

The HiLCAP should embody with the schemes and programs like Commercial Agriculture Network (CAN), Commercial Agriculture Credit Guarantee Scheme (CACGS) and Commercial Agriculture Fund (CAF). Establishment of a CAN will facilitate the exchange of information among key stakeholders (producers, traders and processors) and service providers. Establishing an institution like CACGS will reduce the risk involved in credit transactions by sharing the risk between borrowers and lenders, and thereby facilitate access to credit - a vital component for Agribusiness development. Similarly, establishment of CAF will provide a mechanism for different types of key stakeholders to work together by formulating, selecting and implementing investment plans and programs that move commercialization to a higher level. The fund will be utilized to carryout the activities like constructing small infrastructure, market vigilance service, market study and research and other logistic supports.

The functional implementation modality of this committee/council/authority need detail dialogue and discussions from various stakeholders' of concerned government authorities (such as MoAC, MoICS, MoF, MoLD etc), private sector (from industry, commerce and producers) organizations such as FNCCI, CNI, CoC, CCI, BOI, farmers/ producers, banking sector, local government bodies and I/NGOs etc.