An Overall Assessment of the Agricultural Marketing Systems in Northern Province of Sri Lanka

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FOREWORD

One of the major challenges that need to be taken into consideration in terms of agricultural development in the Northern Province is “reconstruction of the suitable agricultural marketing systems. For restoration of the agricultural marketing systems, the policy makers do not have adequate proper information about the agricultural marketing systems as well as obstacles facing the market forces in the province. Therefore, they cannot identify the essential government complimentary role in promoting agricultural markets in the region. A survey on agricultural marketing systems helpful in identify the current agricultural marketing systems and weaknesses of the existing market structures of the province. In that senses, the overall objective of the survey is to undertake a market study aimed at generating information that would enable the authorities to gain understanding of the existing agricultural marketing systems, institutional arrangements and their management and operating procedures, covering the major players in respect of production and marketing of major agricultural commodities and to propose strategies to improve the efficiency of the marketing mechanisms in the north region of Sri Lanka.

This study has made an effort to investigate agricultural marketing system in the Northern Province. The information available in this report will be very useful to policy makers, planners, policy implementers, development workers, researchers, scholars and others who are interested in development of the Northern Province. I take the opportunity to thanks the author, Dr. T. A. Dharmaratne Research Fellow and the Head of the Agricultural Policy and Project Evaluation Division of the institute for undertaking the study which provide details on the agricultural marketing systems in Northern Province in Sri Lanka.

E.M. Abhayaratne
Director

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Dr. T. A. Dharmaratne
Co-ordinator

EXECUTIVE SUMMARY

Agricultural marketing will become sustainable solution for poor farmers who are great extent looking for a better life for generation in the Northern Province. The thirty years of extended war and crisis situation in the region and policy changes in the various government regimes had caused damaged to market systems and their infrastructures and its safety network. Close down of Paddy Marketing Board and free imports of food commodities are well examples. Rural-regional- national market network and farmers participation in the market development has been abandoned. Market value chain and supply chain was neglected or ruined. Farmers have their own marketing and production system for small quantities of commodities. No supply / value chain approach and integration.

Traditionally the Province, particularly Jaffna peninsula was considering the agricultural paradise of country and agriculture becomes a main economic activity of the people. From the history, Paddy/rice, red onion, green chili, potatoes, pluses, tobacco, dairy products, Palmyra products and eggs are the major agricultural products. Recently, Banana, Grapes, mangoes and vegetables such as beetroot, carats, cabbages and brinjal develop into more popular and commercial crops. It is obvious to not that the crop diversity is the prominent charter in Jaffna peninsula, while the mono crop culture is leading factor in some other districts. Marketable surplus are smoothly growing for many crops. Except for red onion, banana, grapes, other agricultural products are deficits to the consumption requirement of the province. The total production of paddy was 82 percent of the provincial consumption requirement, while, dry chili were 66 percent, Pulses only 14 percent, and Vegetables 60 percent. The total production of red onion was 195 percent of province consumption requirement.

Uneven development of the process of agricultural marketing systems is prime characteristics in the province. There are no proper marketing systems and operation activities in Kilinochchi, Mullaitive and Mannar districts, and most of the marketing activities are base on ad-hoc arrangements. However, the marketing systems those have in Jaffna and Vavuniya, mostly are neglected or ruined, due to the long term absences. Some improvements have been seen in recently, while there is no proper political and economic atmosphere for the development of agricultural marketing systems in the region. Land rights are the most essential policy issue for development of agricultural surplus production and markets. No social institutionalization for collective decision in coping with production and market challenges and dynamics.

After decades of war and conflict, now Northern Province has entered a new path of economic growth and development owing to the huge investment done by the government and international donors. Large untapped, unmarketed potential in the key agricultural crops of the area (paddy, red onion, chili, groundnut, cowpea, banana, grapes, mango and tobacco) and livestock produce – creating better market linkages, better utilization of agricultural/farming capacity and skills, are need to be urgent measures.

No social institutionalization for collective decision in coping with production and market challenges and dynamics. A complete re-governing of market system in the region in view of emerging trend of global market has to be planned for small farming sector that are not prepared for global changes and in ways that contribute to the resilience of rural economy in the region. To institutionalize the marketing systems, to develop the infrastructure facilities, to regularize resource mobilization, to promote market-led crop production, to promote public and private market participation and investments, to introduce and operate agri-business more efficiently, to develop self reliance in production and marketing, to facilitate formation of cooperative societies, to empower cooperative governance in production and marketing, and to ensure fair market access to all strata of the farming community are the leading issues of the package in the development programs and projects that would be need to grant by the government side. However, within the framework of present political and economic scenario, power devolution will meet only political aspiration of people interested with politics in the Northern region, but it will not bring tangible solution to economic struggles faced by hundreds and thousands of underprivileged poor farm producers in the province.

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CHAPTER ONE

An Overall Assessment of the Agricultural Marketing Systems in the Northern Province of Sri Lanka

1.1 Introduction

The top-most border of the Northern Province is located just 22 miles (35 km) off the southern tip of India. The two regions are in fact separated by the Palk Strait. The Northern Province of Sri Lanka has an area of 8,884 square kilometers or 3,430 square miles. Traditionally, both North and East were considered the granary of the country. The Northern and Eastern provinces comprise an area of 18, 640 square kilometers (including Inland waterways), or 28 percent of the total land area of the Island. The Eastern Province is the second largest province (9,996 km 2) after the North Central (10,472 km 2); and the Northern Province is the third largest in the country. The Northern Province tends to be hot and dry in the dry season (February to September), and moderately cool and wet in the wet season (October to January). Largely, a tropical climate prevails in the Province and therefore, there is a high probability of deluge during monsoons. In the lowlands the climate is typically tropical with the average temperature is around 28^{o} to 30^{o} in the year. However, on the whole, January is the coolest month and May is the hottest. Relative Humidity varies from 70% during the day to 90% at night.

The province is divided into two distinct geographic areas; Jaffna peninsula and the Vanni. The Jaffna peninsula is irrigated by underground aquifers fed by wells whereas the Vanni has irrigation tanks fed by perennial rivers. Most of the land surface consists of plains between 30 and 200 meters above sea level. A coastal belt of about thirty meters above sea level surrounds the province. Much of the coast consists of sandy beaches. Administratively, the Northern Province is divided into 5 districts (Jaffna, Mullaitivu, Kilinochchi, Vavuniya and Mannar) and into 33 Divisional Secretariat (DS) divisions and 912 Grama Niladhari (GN) Divisions. The total estimated population of the Northern Province was 1,311,776 and density of the population was 147 persons per km 2 in 2007. Meanwhile, the Northern Province is one of the most important parts of Sri Lanka's national economy. The economy of the province is centered on three key areas: agriculture, fisheries and livestock. However, being a focal point of the Sri Lankan civil war, the province was devastated by the war for nearly three decades.

1.2 Agriculture in the Northern Province

Traditionally, the Province, particularly the Jaffna peninsula was considered the agricultural paradise of the country and agriculture was the main economic activity of

the people. The Northern region has a variety of soils which can support the cultivation of paddy and many other crop such as onions, green chili, potatoes, cashew, coconut, palmyra and tobacco. Before the conflict period, production of these crops was far greater than the requirement of the people in the region, and the surplus was exported to other parts of the country. But the conflict which lasted more than 30 years made a significant impact on the agricultural production and marketing system in the region. The following study reveals the extent to which and the ways the war affected agriculture in the province.

> *"Agriculture has always been a central part of the economy in the North region with nearly two thirds of its pre-war population depending on agricultural farming, livestock rearing, and deep sea fishing for their livelihood. Out of its 369,000 ha of agricultural land, about 50 percent, is fed by irrigation tanks/run-off-river schemes and 16 percent by shallow open dug wells. Until the mid 1980s, the region had enjoyed a higher level of agricultural development than most other parts of the country, was a surplus rice producing area, and had a comparative advantage in the production of vegetables, fruits and other cash crops.*
>
> *Within the warfare period, the entire North-East Province and border villages of adjoining provinces are affected by the long-standing conflict between the Government and the Liberation Tigers of Tamil Eelam (LTTE). Until the war erupted in the 1980s, the region's agricultural production compared favorably with that of other parts of the country, specifically rice, vegetables, fruit, and other cash crops. During the last three decades, however, farmers' production, and marketing systems and organizations have collapsed, irrigation systems been damaged, and displaced populations have experienced severe barriers to markets.*
> *……The contribution of the North to the national GDP has been the lowest for a very long period. It was around 2.5 percent in 1999, which went only up to 2.9 percent in 2004. As a result, the people of Sri Lanka in this part of the country have suffered a substantial decline in agricultural production and farmer's incomes and living standards. Because of the long-running conflict, however, government of Sri Lanka and donors were undecided to launch large-scale investments and rehabilitation programs at the time".*
>
> *(The World Bank: Sri Lanka - North-East Irrigated Agriculture Project Document)*

In the past three decades (1980 – 2009) of the civil war in Sri Lanka, one of the most difficult internal conflicts in the world, almost 100,000 people died, more than one hundred thousand were physically injured, nearly a million were displaced, and over one hundred thousand houses and buildings were partially damaged or destroyed. The economic and social cost in terms of physical, human and environmental damage is billions of rupees. The economic and social costs of the civil war have been studied at national and international levels (**Arunatilake et al. 2000; Goonetilake 1998; Grobar and Gnanaselvam 1993; Gunatilake et al. 2001; Kelegama 1999; Richardson and Samarasinghe 1991; Ross and Samaranayake 1986).** The costs of civil war to the regional economy of Northern Sri Lanka have also been studied by **Ravano (2001) and Seabright (1986).** The economic cost of the war has been estimated to be around USD 200 billion in the last decade alone. This is around five times of the annual GDP estimated from the present amount.

Three decades of war distorted Sri Lanka's economy, hindered development, and reduced the country's potential growth and development. Many direct and indirect causes can be identified for economic and social decline in the region during the past three decades. These include; "an economic embargo imposed by the government of Sri Lanka on the conflict region, illegal taxation (extortion) by the Liberation Tigers of Tamil Elam (LTTE), unceasing violence against individuals, the establishment of high security zones, restrictions on fishing, land mines set on agricultural lands, closure of numerous roads, lack of transport facilities, massive displacement of the population, lack of physical security for inhabitants of the region" **(Economy of the Conflict Region in Sri Lanka: From Embargo to Repression, East West Center 2007, Policy studies 44)** These are the most important causes of the economic and social decline.

In that sense, however, it is important to note that there are some studies which reviewed the impact of economic cost of war and other related issues. Other than those sources, studies on its specific impact on agriculture, particularly in agricultural production and marketing are rare. A few authors have evaluated problems relating to agricultural marketing. Certain important political and economic issues directly connected with agricultural production and marketing policy questions have been highlighted. These were mainly, **Dunham David and Sisira Jayasuriya (2001), Obeysekere Gananath (1984), Lakshman, W.D. (1985), Uyangoda, J. (1992), Lakshman, W.D. and C. A. Tisdale (2000), Senaratne Jagath P. (1997), De Votta N (2004), Edrisinha, R. & Sevakkumaran, N. (2000).** All of them are thoroughly disapproved of the impact of economic liberalization on agricultural production and marketing in the province. When describing the demolition of local agricultural production and marketing systems, an emphasis is on economic liberalization of agricultural markets, which was one of most important reasons for the civil war in Sri Lanka. Summarizing the above research studies, the critique by Tilakasiri (**Tilakasiri** 2010) reads:

"Open economic policies widened wage gaps between rich and poor and destroyed livelihoods of both Sinhala and Tamil people. The problem of youth unemployment remained high and open economy impacted traditional livelihoods. Moreover, the Tamil population expressed grievances since Independence that remained unaddressed by successive governments.

Neo-Liberal Economic Policy destroyed self-sustaining farming systems that the majority of Tamil living in the North and East areas utilized. As a result of that Tamil youth took up arms against the state in the formation of LTTE. What unfolded over the subsequent years was increased militarization of society, continuing youth unemployment and deepening of the divide between Tamils, Sinhala and other minority ethnic groups in the country (Page 1-2)

*…… **Jayasuriya and Danham** point out the discriminatory nature of economic reforms, whereby class and ethnicity was interwoven in a highly complex way. Trade liberalization was selective, and this selectivity affected **Tamil farmers who cultivated crops such as grapes, chilies and onions** in the Jaffna peninsula, but this was not extended to paddy and potatoes grown by Sinhalese farmers. Other Tamils however, prospered. Urban middle class and wealthy Tamils with commercial interests gained. In subsequent years, development policy continued to be geared towards Sinhalese region. The Mahaweli extension to Tamil areas rejected and public sector job restricted because of Sinhala language requirement (p 25-26, Economic Liberalization and the Aftermath of war in Sri Lanka).*

The civil war was completely defeated by the government of Sri Lanka in May 2009, and the major idea for the contribution of the North to the national development is peace. After a decade-long civil conflict, Sri Lanka is in a process of strong economic growth and development. The country now stands at crossroads and needs to build a favorable economic environment and ensure that the benefits of growth are broadly distributed throughout the island. Agriculture is the most prominent sector in regional economy of the Northern Province. The primary goal of Sri Lanka's Northern agricultural development is to restore the agricultural production and marketing system as a means of restoring food security for rural farming communities in these regions. Sri Lankan government has identified the need for speedy implementation of the Triple "R" (Relief, Rehabilitation and Reconciliation) framework and meeting the needs identified in the Needs Assessment Surveys of the North undertaken by the government and donor agencies. The specified objective of the Triple "R" program is to help strengthen the capacity of the government to ensure the basic needs of the people affected by the

conflict, to build productive livelihoods and to facilitate reconciliation among all ethnic groups.

Small farmers are relatively more impoverished and disadvantaged in their access to facilities such as infrastructure and markets. The largest proportion of the employed population in the North is engaged in the agricultural sector as small farmers, sharecroppers, agricultural traders and agricultural laborers. They are engaged in low skill, low-income economic activities, considered as the informal sector and are concentrated in remote areas of the country. Their assets are limited mainly due to their low incomes but they are unable to increase their incomes, due to the lack of proper marketing facilities and various other socio-economic and cultural practices. Therefore, various livelihood support programs have been initiated by the government of Sri Lanka to help conflict affected communities with rehabilitation of irrigation schemes, agriculture related activities and capacity building for social and economic re-integration.

1.3 Problem Statement

Marketing is so vital for the survival of the entire production system in the economy. For the economy to function well, products should be successfully marketed. Market mechanism allocates resources in a market economy. The Government can make a complimentary contribution to improve the efficiency of the market mechanism.

Agricultural marketing is key for the survival of the agricultural production system in the rural economy. Market mechanisms provide signals to producers, traders, distributors and consumers in these areas. The Northern Province depends solely on agriculture and its related activities. At present, the main agricultural crops in this region are paddy, onions, green chili, potatoes, vegetables, bananas and mangoes. Previously, tobacco had been the major crop in the Northern Province. Due to marketing issues the crop had declined significantly in the war period. However, most of the other crops survived to a certain extent due to local market availability. However, absolute and relative declines in production of these products have been significant. One of the major challenges that needs to be taken into consideration in terms of agricultural development in the North is reconstruction of suitable agricultural marketing systems in the Province.

For restoration of the agricultural marketing systems, policy makers do not have adequate and proper information about the agricultural marketing systems as well as of the obstacles faced by the market participants in the province. Therefore, they cannot identify the essential government complimentary role in promoting agricultural markets in the region. A baseline survey on agricultural marketing systems will be helpful in identifying the current situation of agricultural marketing systems and weaknesses of the existing market structures of the province.

1.4 Objectives of the Study

The proposed activity is to carry out an in-depth research study on agricultural markets in the Northern Province. In that sense, the overall objective of the proposed baseline survey is to undertake a market study aimed at generating information that would enable the authorities to gain understanding of the existing agricultural marketing systems, institutional arrangements and their management and operating procedures. The study would cover the major players in respect of production and marketing of major agricultural commodities and propose strategies to improve the efficiency of the marketing mechanisms in the Northern region of Sri Lanka. Therefore, the study focuses on creating better understanding of the present operational situation of the agricultural marketing systems and provides information and data for policy makers to develop agriculture as a dynamic and vibrant sector of the economy of the Province. A critical evaluation has been made on the present situation and particular attention was paid to specify the nature of agricultural markets and their major characteristics of marketing systems that are perceived essential by farmers, and their organizational arrangements, weaknesses and suggestions for improving the existing systems. The baseline survey has the following specific objectives:

1) To identify and review the major characteristics of existing production systems, management and operating procedures, institutional arrangements, and market profiles for the key areas of agricultural marketing

2) To examine the current production and marketing patterns in order to identify main products, specific commodity chains, existing conditions of marketing practices that are needed to facilitate agricultural marketing systems

3) To investigate the main problems and constraints preventing the entry of government and private agencies that limit their expansion performance and to assess the potential performance of services provided by various government/private agencies in the areas

4) To identify opportunities for developing agribusiness activities and realistic policy directions to ensure effective sustainable development of the agribusiness existing in the region

5) To identify institutional recommendation for improving the efficiency as well as promoting the development of the marketing and processing activities that highlighted the roles to be played by both private and public agencies.

1.5 Methods of the Study

The basic sources of information in the study consist of two components:

1. Primary Data Collection: Interviewing of producers, traders, distributors, consumers, public officials, informed individuals, and community leaders. Focused group discussions are widely used here. Field observation is also part of the methodology.

2. Examining Secondary Data: There are sufficient secondary data on the recent developments in this province. Official reports and NGOs publications were referred.

The nature of this study is mostly qualitative because it produces descriptive data, using words and sentences to qualify and record information. It sought to document marketing knowledge on agricultural marketing practices as described by farmers and observed by the researcher and data collectors. "The goal in qualitative research is to collect data, formulate hypotheses based on the data, test the hypothesis and develop grounded theory, a process called analytic induction. Theory is called grounded theory, because it arises out of and is directly relevant to the particular setting under study" (Nachmias & Nachmias, 1996:294). This study employed a systems approach as a way of identifying agricultural marketing knowledge and its dynamics. This is done in order to gain an in-depth and holistic understanding and explanation of marketing. The study employed an approach in which the examination and analysis was performed on a logical and systematic basis, leading to a descriptive outline of the systems. The researcher possess adequate knowledge and background on agricultural marketing, social sciences, and the systems theory and is competent to use this multidimensional approach.

Target group of the Study: The target population of this study is commercial farmers, who are small and larger scale farmers, who are residents of the five selected districts, located in the Northern region of the country, produce surplus production for markets.,. They are the targeted population because they are believed to produce agricultural surplus production and could provide information that is required to accomplish the research objectives of the study.

Sampling procedures/ Selection Criteria/ Subject Selection: The study is carried out in five administrative districts of Jaffna, Mullaitivu, Kilinochchi, Vavuniya and Mannar in the Northern Province. These districts are selected considering the strategic importance of the Northern Province in terms of its contribution to the national economy as well as its political significance. In addition, the country's civil war had its roots in the province and the region was devastated by the war for nearly three decades. Rural, remote and traditional agriculture is practised in the province. Geographic and other practical considerations such as accessibility also played a significant role in the final selection of

districts in this qualitative field research. Key informants were requested to recommend individuals knowledgeable of agricultural marketing. The process was repeated until more knowledgeable ones are identified through repeated reference. The sample population in this study was therefore biased towards some farmers or traders groups when they are in a specific situation in the context of agricultural production and marketing. They were interviewed using a semi-structured questionnaire and are requested to recommend farmers who could participate in focus group discussions.

Instruments: A semi-structured questionnaire comprising of open ended questions was designed following the study of available literature on agricultural marketing. This semi-structured questionnaire was used to interview key informants. A questions guide comprising of open ended questions were designed based on the information of the key informants and was used to conduct focus group discussions. Both the facilitators guide and the questionnaire were piloted for reliability and validity, to obtain experiences of the farming communities in a different area.

Data Collection: For the best research results of the qualitative study, multiple data collection methods were used and these were focus group discussions, key informant interviews, and observations. These methods of data collection were well suited for exploratory research. They allow discovery of new aspects of the problem by exploring the explanations provided by respondents in detail. Focus group discussions are particularly suitable to collect data on production and marketing since they allow open discussions and sharing of opinions while creating deep understanding of the topics being studied.

Focus group discussions (FGD): Five data collectors were trained on the use of focus group discussions as a tool of data collection. Training covered in-depth understanding of the purpose of the study and facilitating focus groups and recording information from focus group discussions. Data collectors were graduates of agricultural economics or social sciences. Focus group discussions and note taking is conducted in the local language. Focus group discussions for large, medium and small scale farmers were held jointly because the subject was not sensitive and therefore all could participate freely.

The focus groups consisted of between five and eight respondents who were interviewed together. The data collectors facilitated the focus group discussions using a question guide. Focus groups were particularly important as they captured discussions on agreements and disagreements by the group, which helped, explore the topics further thereby producing a much deeper understanding of the problem. In addition, focus groups provided an opportunity for the respondents to learn from each other. Each facilitator obtained permission from the FGD participants to take an audio recording of the discussions before the discussion started. There is no objection from participants to record the discussions since the topic is not a sensitive one. The

facilitator then established a focus group discussion protocol together with the participants.

The following protocol was implemented to participants:

- Tamil/English/ Sinhala were the languages used as the medium of communication
- All participants was given an opportunity to voice their views
- Participants were allowed to agree or disagree
- Each focus group discussion was not longer than 2 hours

By design, only one focus group was interviewed per day. After each interview, the principal researcher met with each data collector to discuss the questions and responses. This not only allowed for the immediate translation of the responses but it also permitted the extraction of additional information about data collection method, correction of mistakes and interpretation of local language usage.

Key informant interviews: A semi-structured questionnaire was used to interview community leaders and farming people who were knowledgeable on agricultural marketing practices. The key informants were asked to provide their history in relation to agricultural markets and in general, their way of life and how each one of them practices marketing. Their homesteads were also observed and details were considered. Information collected provided a detailed and broader perspective of farming and marketing practices used by the key informants.

Observation: As a data collection technique observation was used to study marketing practices in the community. The areas were recommended by key informants and FGD as they were of interest to them. Comprehensive field notes and photographs were taken during observation. Observations were recorded immediately to avoid the possibility of distortion and unintentional misrepresentation.

Ethical considerations: A letter indicating the purpose of the research and specifying the kind of cooperation requested from participants (respondents) served as an introductory tool to the officials of government, provincial, local and international NGOs, officials of the security forces, private trade agencies and leading farmers, before data collection resumed. The findings of the study will be shared with the community after completion. This will be through community meetings in the community which will either be conducted by the researchers or any organization in the area.

Data Analysis: In-depth data analysis involved using appropriate techniques such as organizing them into themes, patterns, trends, and relationships that were easier to understand. Interpretation of data involved extracting meaning and integrating views of other authors, thus, the final product is not mere rewriting of existing knowledge but new knowledge drawn from findings and conclusions. Data is classified into main themes such as production and management practices, marketing practices, various types of costs and marketing margins, prices of farm gate, wholesale, retails, processing values and infrastructure facilities in the province. Some of the major themes were broken down further into sub-themes where it was deemed necessary to enhance understanding of the concepts. Under each theme or sub-theme of the agricultural marketing, practices were described by means of narrative explanations. Furthermore, induction and deduction were applied to interpret the results, in particular how the themes or systems relate, one to the other and the significance of such relationships.

1.6 Study Location

The province is divided into two distinct geographic areas; Jaffna peninsula and the Vanni. Jaffna peninsula is irrigated by underground aquifers fed by wells whereas the Vanni has irrigation tanks fed by perennial rivers. Most of the land surface consists of plains between 30 and 200m above sea level. A coastal belt about thirty meters above sea level surrounds the island. Much of the coast consists of sandy beaches. Administratively, the Northern Province is divided into 5 administrative districts (Jaffna, Mullaitivu, Kilinochchi, Vavuniya and Mannar) and into 33 Divisional Secretariat (DS) divisions and 912 Grama Niladhari (GN) Divisions.

Table 1.1: Summary of the Number of Focus Group Discussions and Key Personal Intervened in Five District of the Northern Province

District	Number of Focus Group Discussions	No. of Key Persons Interviewed
Jaffna	1.Thirunelvely - 01 2. Chunnakam - 01 3. Kodikamam - 01 4. Chavakachcheri - 01 5. Nalliyady - 01 Total - **05** (Traders, farmers and other stakeholders)	➢ Provincial Director of Agriculture in the Northern Province ➢ Deputy Director of Agriculture in Jaffna ➢ Deputy Commissioner of Agrarian Services ➢ Senior Lectures in Economics, University of Jaffna ➢ Agricultural Instructors in farming areas and other agricultural officials in the district ➢ Selected leading traders and farmers in the district
Kilinochchi	1.Kilinochchi - 01 2.Mulankavill- 01 Total - **02** (Traders, farmers and other stakeholders)	➢ Deputy Director of Agriculture in Kilinochchi ➢ Agricultural Instructors in farming areas and other agricultural officials in the district
Mannar	1.Mannar - 01 2. Murugan - 01 3. Admpan - 01 Total - **03** (Traders, farmers and other stakeholders)	➢ Deputy Director of Agriculture in Mannar ➢ Agricultural Instructors in farming areas and other agricultural officials in the district ➢ Selected leading traders and farmers in the district
Mullaitivu	1. Mullaitivu - 01 2. Muliyavalai - 01 3. Silawathu - 01 Total - **03** (Traders, farmers and other stakeholders)	➢ Deputy Director of Agriculture in Mullaitivu ➢ Agricultural Instructors in farming areas and other agricultural officials in the district ➢ Selected leading traders and farmers in the district
Vavuniya	1. Vavuniya - 01 2. Chettikulam - 01 3. Vavuniya - 01 Total - **03** (Traders, farmers and other stakeholders)	➢ Deputy Director of Agriculture in Vavuniya ➢ Agricultural Instructors in farming areas and other agricultural officials in the district ➢ Selected leading traders and farmers in the district **(For details see annexed X)**

1.7 Limitations of the Study

Except for the city areas of Jaffna and Vavuniya, accessibility of rural villages and major farming areas in all other part of the region is very low. The road network and market infrastructure facilities are very poor. Therefore, there were no recognized proper marketing and social institutions or systems in many parts of the region. As a result, the collecting of information and use of other data collecting methods were extremely difficult. On the other hand, the lack of knowledge on proper Tamil language was another limitation. Further, it was noted that most of the farmers in some remote areas were unable to explain their marketing systems, as they have not had experience in marketing of agricultural production in the last 10–15 years. At the same time, there were no previous records of production and marketing statistics and information in rural village level organizations in many parts of the five districts, except for major government agricultural offices in Jaffna and Vavuniya Districts. Moreover, many of the underprivileged farm producers in the province are facing difficulties with regard to basic amenities, which prevent them from producing a marketable surplus. Thus, they do not directly participate in the process of agricultural marketing in the region. This portion of the farming population (Displaced Farm Families) is constituted of a considerable number and agricultural marketing is the most neglected aspect. Therefore, all these limitations severely curtailed the scope, data and information and analytical framework of the research study in several ways.

CHAPTER TWO

Socio-economic and Agricultural Profiles of the Northern Province

This chapter examines the agricultural and socio-economic profiles of the Northern Province of Sri Lanka and explores the existing performances of the agricultural and socio-economic situation in the region two years after the civil conflict. The province consists of five major administrative districts: Jaffna, Kilinochchi, Mannar, Mulativu and Vavuniya. The geographical structure of the Northern Province is shown in figure.1. An analysis was done separately for each district and finally an overview of the agricultural/socio-economic profiles in the Northern Province is provided. Geographic and climatic features, demographic characteristics, land and land use patterns, land distribution, nature of agriculture and crop production situation are major components of the analysis.

Figure 2.1: Geographical/Agricultural Structure of the Northern Province

2.1 Socio-economic and Agricultural Profiles in the Jaffna District

The Jaffna District is located in the far north of Sri Lanka in the Northern Province and occupies most of the Jaffna Peninsula. It has an area of 1,025 square kilometers (396 sq mi). The Jaffna District occupies the land that constituted part of the pre-colonial Jaffna Kingdom. At the time Sri Lanka gained independence, Jaffna was one of the key districts located in the Northern Province. Parts of the Jaffna District were rearranged with the creation of the Kilinochchi and Mullaitivu districts. The district is divided into four areas geographically; Thenmarachchi, Vadamarachchi, Valikamam and Jaffna Islands. The Jaffna District is divided into 15 Divisional Secretariat (DS) Divisions. The DS Divisions are further sub-divided into 435 Grama Niladhari (GN) Divisions (villages). Population density of the district is the highest in the region. The availability of the natural resources is very high. The location of the district is also very specific in terms of defense and transport. The port was built in the colonial period. Soil fertility is high and the presence of limestone is a considerable advantage for agriculture. The district is also important for other communities such as Sinhalese due to their historical and religious places. However, there are many economic subsectors in the district that consist agriculture, fisheries, livestock, rural industries, service sector, and tourism.

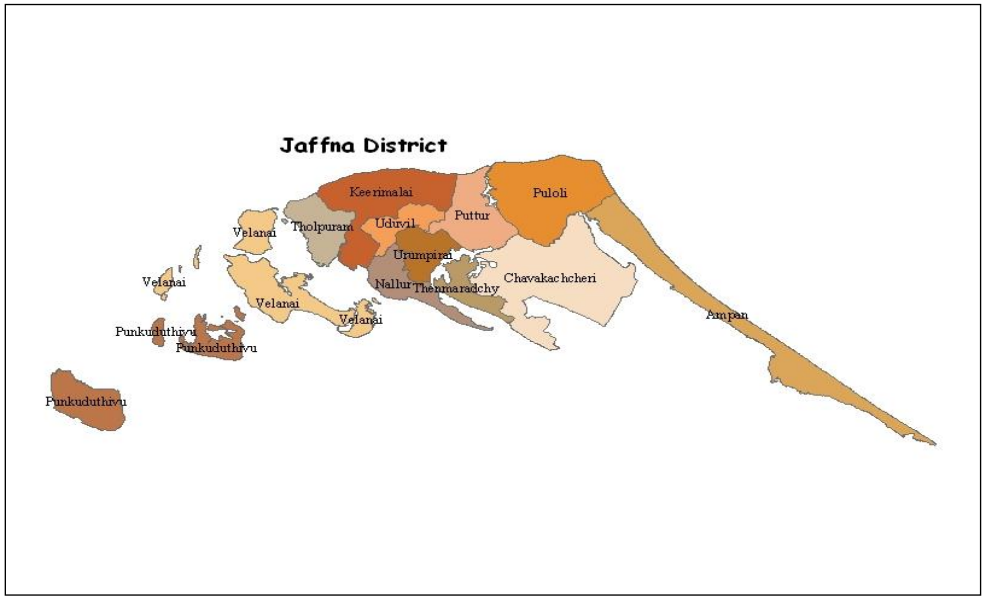


Figure 2.2: Administrative Map of the Jaffna District

Jaffna is the most important well recognized and historical city nationally and internationally. It was the cultural heritage of the Tamil communities of Sri Lanka. Jaffna is also a social, political and economic center. Several decades ago, Jaffna was a well accepted and organized education hub in the country. As the capital city of the Northern Province, economy of the Jaffna District played a vital role over centuries, because the

district is the agricultural centre that produced various foods and agricultural commodities. Milk was the key livestock production. Jaffna tobacco, Palmyra toddy and jaggery, grapes, onions, fish and dried fish were well known consumer items in many other parts of the country. A few decades ago, a unique agricultural "farming system" was well established and socially accepted as being economically viable and environmentally sustainable. The specific irrigation method was highly popular and further made use of compost fertilizer. However, during the last three decades, when the impact of the war situation is considered, the society and economy in Jaffna was no exception.

2.2 Socio-economic and Agricultural Profile in the Kilinochchi District

The Kilinochchi District is located in the North of Sri Lanka in the Northern Province. The area was colonized in 1936 by Sri Lankan Tamils as part of a scheme that sought to ease overpopulation and unemployment in Jaffna. It has an area of 1,279 square kilometers (494 sq mi). The four DS Divisions of the district are further sub-divided into 95 Grama Niladhari (GN) Divisions (villages). The average population density is 146 persons per square km. in 2008.

Table 2.1: Administrative Information in Kilinochchi

DS Division	Main Town	GN Divisions	Area (km^2)	Population
Kandavalai	Kandavalai	16	209.70	58,286
Karachchi	Kilinochchi	42	410.96	100,700
Pachchilaipalli	Pallai	18	167.70	7,602
Poonakary	Poonakary	19	448.75	29,224
Total		**95**	**1,237.11**	**195,812**

Source: Provincial Public Administration - Northern Province 2010

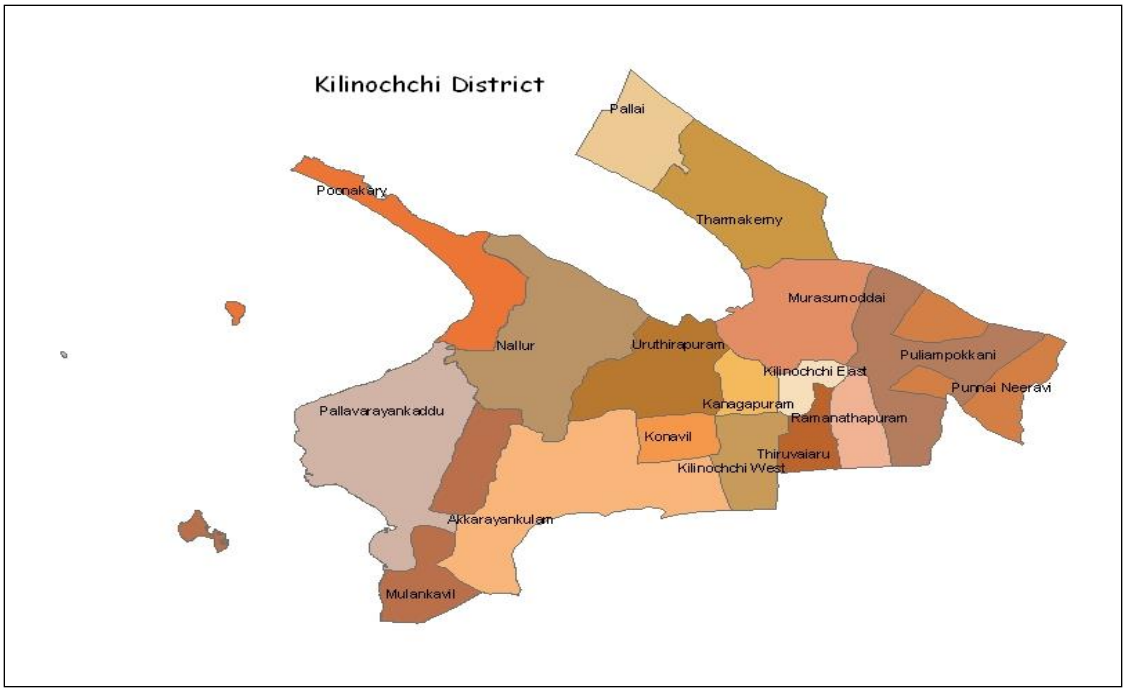


Figure 2.3: Administrative Map of the Kilinochchi District

A chaotic situation prevailed in the district in 1980, 90s and 2000s leading to a collapse of all agricultural, industrial and commercial activities This instability affected the rest of the country and its affairs.. As a result, only a limited quantity of food was allowed to be brought to the district and fuel was completely banned in 2006. Therefore, electricity, internal transport, water supply, sanitation and health services were seriously affected by this unfavorable situation. Due to the unavailability of fuel, agricultural production and harvesting activities were also disrupted. Small industries were completely paralyzed due to the lack of raw materials. The ultimate result was the unusual increase in the prices of almost all commodities. Economic, commercial and environmental uncertainty became a prominent characteristic of the district.

The district falls within the dry zone eco-climate division of the Island. The average annual rainfall in the area is of 722 mm. The district receives nearly 75 percent of the rainfall during the North Eastern monsoonal period from September to December. The remaining period of the year is as dry with the driest period being June to August. The monthly average temperature ranges from 25to 30°C. Next to agriculture, fisheries sector is the second largest occupation of the peoples in the district. The district has two coastal belts—one of 28 miles in the east and another of 52 miles in the west. The district has 30 fisheries villages with great potential to exploit at the seas. About 75 percent of the land in the district is under forest cover while the marginal land accounts

for 60 percent of the total land area. The extent of cultivable land in the area is 19 percent. Nearly 70 percent of the cultivatable land is cultivated with paddy and 15 percent of the land is cultivated with subsidiary and other food crops. The balance 15 percent is planted with perennial crops such as coconut, mangoes, bananas, palmyra and limes. The cultivation of paddy is the major and main occupation of more than 80 percent of the population. An extent of 20,342 hectares was targeted annually for paddy cultivation.

In the year 2008, according to reports, 37,419 students attended 101 schools. There were 1340 teachers. Prior to the war situation, some studies estimated that over 70 percent of the population in the Kilinochchi District had been living below the poverty-income level. The literacy rate among adults of both sexes was 89 percent. However, the literacy rate among the males was higher than that of females as 88 and 83 percent respectively.

2.3 Socio-economic and Agricultural Profiles in Mannar District

The Mannar District is located in the North Western Sri Lanka. It is one of the five administrative districts of the Northern Province. The district covers 2,002 sq. km, approximately 3% of the total land area of Sri Lanka. Geographically, most of Mannar is on the mainland within the dry zone. High temperatures and low rainfall characterize the climate. Monthly temperatures range between 26.5° and 30.0°C with the highest normally recorded between May and August. Mannar receives nearly 60% of its rainfall during the North East monsoon, which lasts from October through December. The land area is relatively flat and situated at low elevations. Towards the interior the terrain is slightly undulating, favoring the storage of rainwater in tanks that facilitate irrigation for the majority of the district's arable land. Primary economic activities in Mannar are crop cultivation (mainly paddy), fisheries and animal husbandry. Employment opportunities in the district are highly seasonal, and there are no institutional facilities for tertiary education.

The average rainfall in the district is 960 mm per year. Most of the rainfall occurs during the North East monsoon from October to March. Low population density is the outstanding feature of the district. The history of the Mannar city goes back to the period of Portuguese time in the colonial period. Some estimation done by government officials in 2006 revealed that there were nearly 100,000 people in the district. However, it has decreased to 60-75,000 in the year 2008 - 2009. The population has grown to about 150,000 in year 2010. After thirty years, the district is recovering. When compared to other districts, the extent of natural resources is less. It is one of the disadvantaged districts of the region. However, beautiful beaches and coast line may attract tourists in future. Recently, the government introduced a fossil fuel extraction

project in this district. This project may change the socio-economic and geographic scope in the entire region in future.

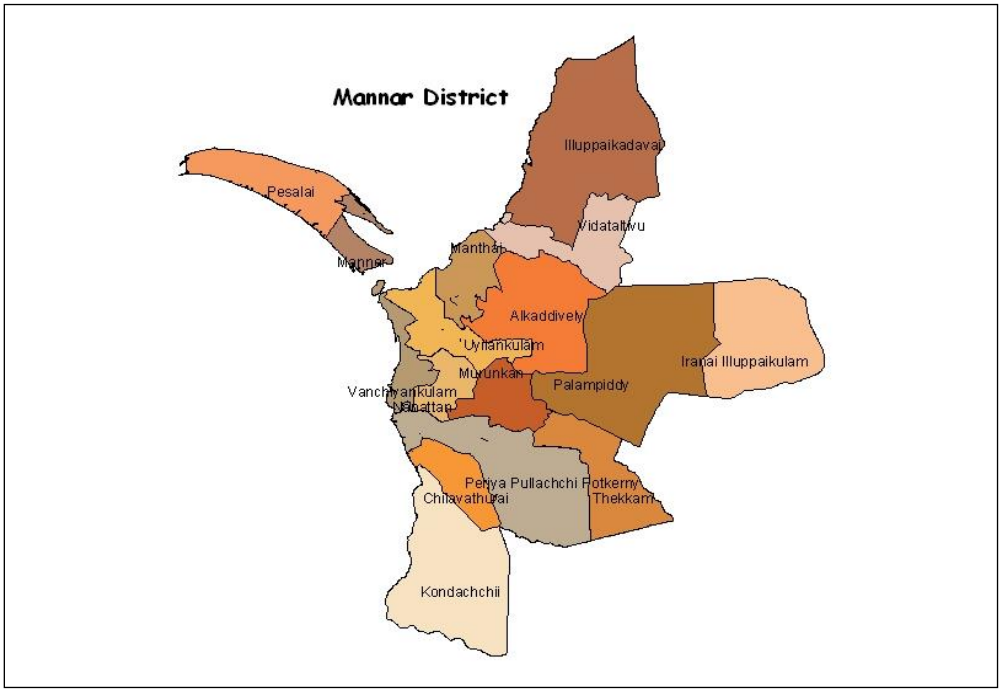


Figure 2.4: Administrative Map of the Mannar District

The agricultural practices are dependent on the climate and tradition. Agriculture is one of the key economic sectors in the district providing livelihoods for over 5,000 families, approximately 67% of the population. Out of a land area of 200,206 ha, the total cultivable land is 37,160 ha (19%). Over 65% is under forest cover. Out of the total cultivable land, 62% is used for paddy cultivation, 16% for palmyra, 9% for highland crops, 7% for coconuts and 6% for cashew (Department of Agriculture – Administrative Report 2001 and Adopted from Resettlement Program Mannar District, 2010). Recently, paddy has become an important sector in the district due to the rehabilitation of irrigation scheme. The development of new infrastructure such as roads, houses, public buildings in education and health service contribute to the improvement of livelihoods and socio-economic conditions of the Mannar District.

2.4 Socio-economic and Agricultural Profiles in Mullaitivu District

The Mullaitivu District is located in the North East of Sri Lanka in the Northern Province. The district was carved out of the northern part of the Vavuniya District together with some parts of the then Jaffna District (now Kilinochchi District), Mannar District and

Trincomalee District in September 1978. The Mullaitivu area was settled in the second half of the 18th century by Jaffna Tamils primarily from Alaveddy, Udduppidy and Navaly. It has an area of 2,617 square kilometres.

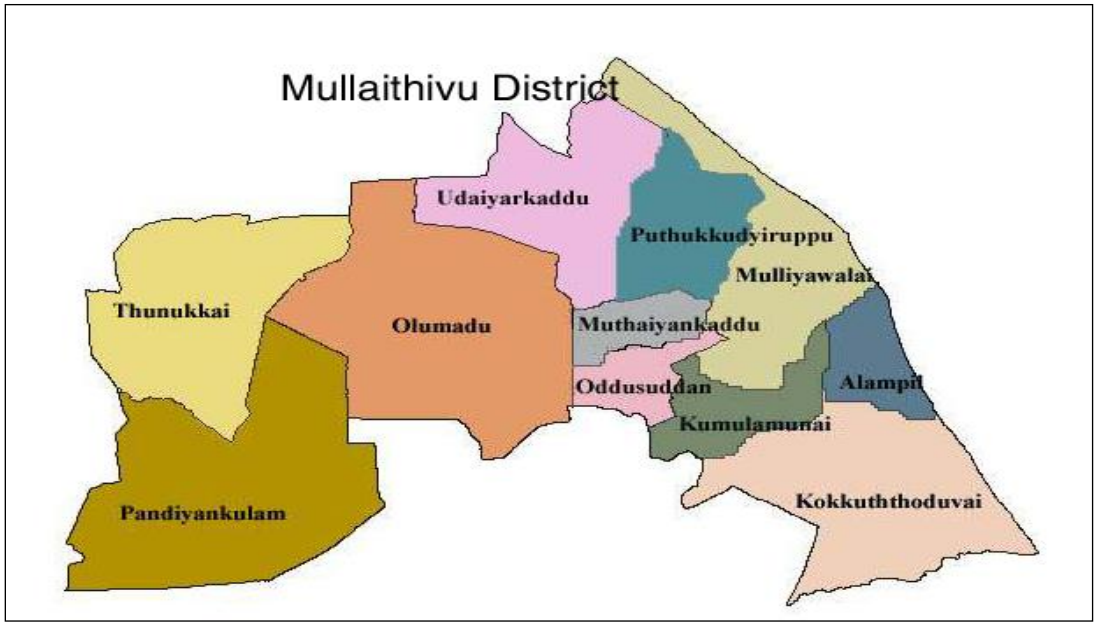


Figure 2.5: Administrative Map of the Mullaitivu District

The district is divided into 5 Divisional Secretariat (DS) Divisions. The DS Divisions are further sub-divided into 127 Grama Niladhari (GN) Divisions (villages). Forest, lagoons and coastline are the main resources. The beautiful Eastern costal belt of the district is rich in natural resources in the region. Being located far off from other major cities of Jaffna and Vavuniya, the Mullaitivu District faces severe disadvantages. Mullaitivu is the most affected district by the war which totally destroyed human and physical resources. The larger part of the district is covered with thick forest and jungles. Previously, there was no road network and no connection with other parts of the country. A large amount of uncultivated land and damaged irrigation structures are the key features of agriculture in the district. Most of the production assets of small scale farmers in these areas have been lost and are mostly vulnerable to poverty and food insecurities. The institutional setup of the agricultural production system is still not properly organized. Recently, agricultural crop cultivation has rapidly grown in some parts of the district. Paddy and some low country vegetable varieties are mostly produced Nedunkerni areas and small quantities of surplus are sent to Vavuniya market. Most of the displaced farmers are trying to reorganize the system. Education, health and public sector services

are also poor. The government in the recent past has made considerable efforts to rebuild the district.

2.5 Socio-economic and Agricultural Profiles in Vavuniya District

Vavuniya district is located in the north of Sri Lanka in the Northern Province. It has an area of 1,967 square kilometres (759 sq mi). The district is divided into 4 Divisional Secretariat (DS) Divisions, and the DS Divisions are further sub-divided into 102 Grama Niladhari (GN) Divisions (villages). The district administration structures are as flows.

Table 2.2: Administrative Information in the Vavuniya District

DS Division	Main Town	GN Divisions	Area (km^2)	Population
Vavuniya South Tamil	Vavuniya	42	609.7	130,445
Vavuniya North	Nedunkeni	20	769.6	15,931
Vavuniya South Sinhala	Vavuniya	20	188.5	12,965
Vengalacheddikulam	Cheddikulam	20	399.1	23,705
Total		**102**	**1,966.9**	**183,046**

Source: Provincial Public Administration - Northern Province 2010

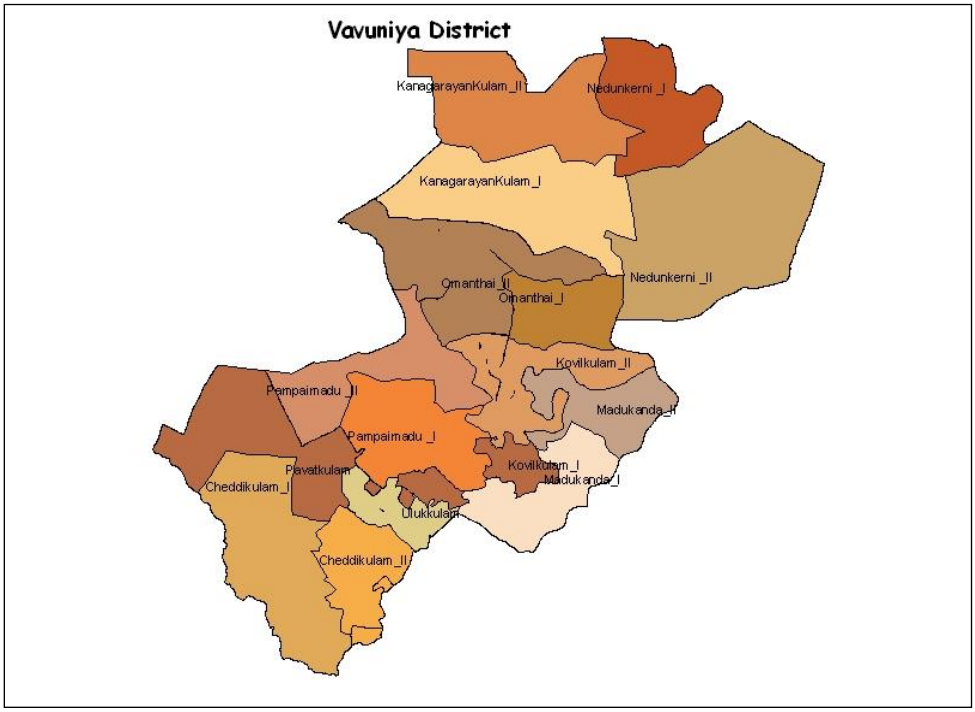


Figure 2.6: Administrative Map of the Vavuniya District

Vavuniya is a landlocked and a multi ethnic district that consists of Tamil, Sinhalese and Muslim communities. Agriculture is a major livelihood strategy of the most of inhabitants. The paddy, subsidiary food crops and vegetables are major food commodities produced in the district. The city of Vavniya was rapidly developed recently due to rehabilitation moves of the war affected areas. On the hand, the district has recorded less damage of the human and physical resources when compared to the other four districts of the Northern Province.

2.6 Overview of the Socio-economic/Agricultural profiles in the Northern Province

The Northern Province is one of the 9 provinces of Sri Lanka. The provinces have existed since the 19th century but did not have any legal status until 1987 when the 13th Amendment to the 1978 Constitution of Sri Lanka established provincial councils. Between 1988 and 2006, the province was temporarily merged with the Eastern Province to form the North-East Province. The capital of the province is Jaffna.

> *The Indo-Lanka Accord signed on 29 July 1987 required the Sri Lankan government to devolve powers to the provinces and, in the interim, to merge the Northern and Eastern provinces into one administrative unit. On 14 November 1987 the Sri Lankan Parliament passed the 13th Amendment to the 1978 Constitution of Sri Lanka and the Provincial Councils Act No 42 of 1987, establishing provincial councils. On September 2 and 8 1988 President Jayewardene issued proclamations enabling the Northern and Eastern provinces to be one administrative unit administered by one elected Council. Thus the North-East Province was born. The combined North-East Province occupied one fourth of Sri Lanka. On 14 July 2006, after a long campaign against the merger, the JVP filed three separate petitions with the Supreme Court of Sri Lanka requesting a separate Provincial Council for the East. On 16 October 2006 the Supreme Court ruled that the proclamations issued by President Jayewardene were null and void and had no legal effect. The North-East Province was formally demerged into the Northern and Eastern provinces on 1 January 2007.*

Table 2.3: Geographical Land Information in the Northern Province

Districts	Total Areas		Land Areas		Inland Water	
	Sq. Km.	Percent	Sq. Km.	Percent	Sq. Km.	Percent
Northern Province	8847.98	100	8596.61	100	251.30	100
Mullaitivu	2616.90	29.58	2516.90	29.28	100.00	39.79
Vavuniya	1966.90	22.23	1966.90	22.28	0.00	0.00
Mannar	2002.07	22.63	1991.00	23.16	11.00	4.38
Kilinochchi	1237.11	13.98	1192.81	13.88	44.30	17.63
Jaffna	1025.00	11.58	929.00	10.81	96.00	38.20

Source: Provincial Public Administration NP

The province has an area of 8,847 square kilometers (3,430 sq miles). The province is surrounded by the Gulf of Mannar and Palk Bay to the west, Palk Strait to the north, the Bay of Bengal to the east and the Eastern, North Central and North Western provinces to the south. The province is divided into two distinct geographic areas: Jaffna peninsula and the Vanni. Jaffna peninsula is irrigated by underground wells fed by aquifers whereas the Vanni has irrigation tanks fed by perennial rivers. Major rivers include: Akkarayan Aru, Aruvi Aru, Kanakarayan Aru, Kodalikkallu Aru, Mandekal Aru, Nay Aru, Netheli Aru, Pali Aru, Pallavarayankaddu Aru, Parangi Aru, Per Aru, Piramenthal Aru, Theravil Aru. The largest being Jaffna Lagoon, the province has a number of lagoons; , Nanthi Kadal, Chundikkulam Lagoon, Vadamarachchi Lagoon, Uppu Aru Lagoon, Kokkilai lagoon, Nai Aru Lagoon and Chalai Lagoon. Most of the islands around Sri Lanka are to be found to the west of the Northern Province. The largest islands are: Kayts, Neduntivu, Karaitivu, Pungudutivu and Mandativu in the Northern Province.

Natural resources in the Northern Province

The Northern Province is rich in natural resources in its extensive coastal area, in its dense forests and mineral deposits. Forest resources are largely intact despite many decades of conflict and form a considerable percentage of the total forest cover in the country. From extensive sand dunes in Jaffna peninsula, to quarry metal and clay for bricks the Province is especially rich in mineral resources needed for construction. The land is generally flat and undulating with no significant elevation, however, the highly diverse coastal belt more than compensates for the deficit. Lagoons, bays, salt flats, wetlands, coral reefs, islands and islets, and estuaries are some of the prominent coastal features that are important both ecologically and economically.

Water Resources

The Northern Province does not have a single perennial river, but very limited seasonal streams and rivers. Traditional water storage except in the Jaffna district was through built irrigation tanks. The area belongs to the dry zone of Sri Lanka with low annual rainfall. The ground water surveys done prior to the conflict indicate that intensive agriculture, especially paddy, cannot be supported without adequate replenishment of surface water storage.

Table 2.4: Minor Tanks by Districts in the Northern Province – 2009

District	No. of Minor Tanks	Total Irrigable Area (Ha.)	No. of Farmer Families Benefited
Mullaitivu	167	9369	4117
Vavuniya	642	34575	13304
Mannar	372	14368	4076
Kilinochchi	391	12705	10488
Jaffna	494*	9662	10066

Minor Tanks: If Irrigable area<200 arc

*Jaffna district Ponds

Source: Ministry of Agriculture, Land, Irrigation in the Northern Province.

Water scarcity is a main constraint in many parts of the province, even for drinking and domestic use. The major tank cascade systems and existing major irrigation schemes (Iranamadu, Giant's Tank, Pavakkulam, Kalmadu) should be closely examined to determine the productive capacity of agriculture and irrigation, in addition to the quality of drinking water available in the Northern districts.

Rainfall: Rainfall is the main source of water. Surface water is stored in the irrigation tanks. The region has 23 major / medium size tanks and 698 minor tanks. Pumping water from 12000 agro-wells and 16 tube wells is extensively practised in the region. The Northern Province receives rainfall mainly from North-East monsoons during October to February and slightly from South-East monsoon. It is called as bi-model rainfall pattern. On other hand, convection process also gives the rainfall during April, which is very erratic. The North-East monsoon rainfall is favorable for wet season crop cultivation. The Jaffna district has the highest number of rainy days than other districts because it gets rainfall due to convection.

Temperature: Temperature is another factor that affects crop cultivation. The temperature varies in the range of 25^{o}-32^{o}C from December to July. However, the monthly average temperature fluctuation during the year is not distinct. The mean annual temperature is 28^{o}C, the highest temperature recorded is 32^{o}C and the lowest is

25°C. Farmers were able to cultivate crops successfully. High temperature in dry season has not favored traditional rice varieties cultivation like Patchaiperumal, Moddaikarruppan. High temperatures during night affect potato tuber formation in Maha season cultivation. Therefore, temperature has a potential effect on the crop formation.

Table 2.5: The Temperature in the Northern Province

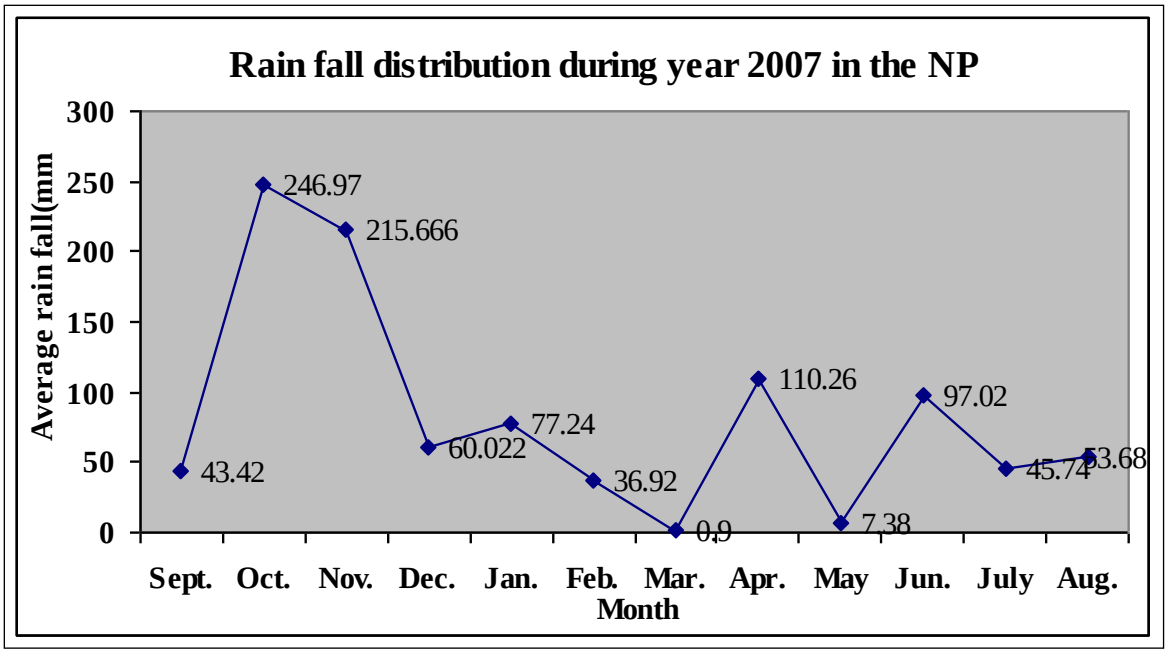
	Seashores	Inlands
Maximum Temperature	28 °C (82 °F)	30 °C (86 °F)
Minimum Temperature	24 °C (75 °F)	22 °C (72 °F)

Relative Humidity: Relative humidity determines the pest and disease attacks in crop cultivation. In the region, the average relative humidity is -72% in Maha & 71% in Yala. Sri Lanka enjoys a typical tropical monsoonal climate. The Northern Province tends to be hot and dry in the dry season (February to September), and moderately cool and wet in the wet season (October to January). The climate of the Province is tropical and therefore during monsoons there is always the chance of flooding.

Table 2.6: The Number of Rainy Days

District	2006				2007								Total
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	
Jaffna	3	15	22	5	3	5	0	7	1	5	4	4	**74**
Mannar	0	15	21	7	5	0	2	7	0	1	0	1	**59**
Mullaitivu	0	14	18	5	2	3	0	0	0	5	4	6	**57**
Kilinochchi	1	19	17	4	1	1	0	6	0	5	4	1.0	**59**
Vavuniya	5	11	14	6	2	4	0	2	2	8	1.0	1.0	**56**
NP Total	9	74	92	27	13	13	2	22	3	24	13	13	**305**

Source: Administration Report 20210, Provincial Department of Agriculture



Source: Administration Report 2010, Provincial Department of Agriculture

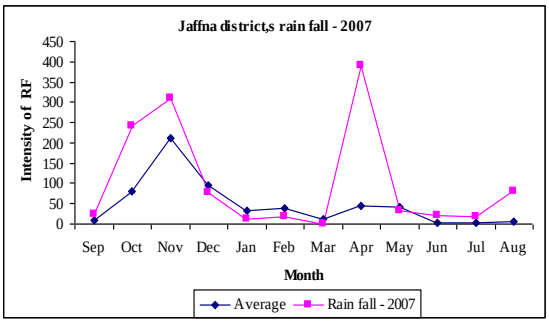
Figure 2.7: Rainfall Distribution During Year 2007 in the NP

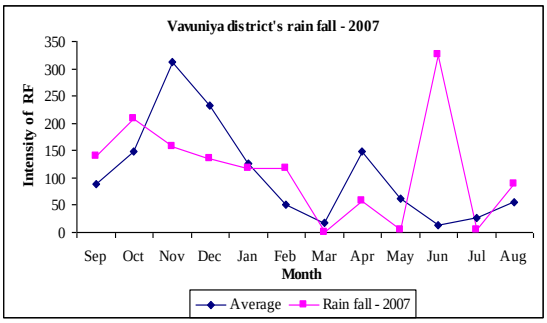
The amount of rainfall received during the year 2007 in the Northern Province districts ranges from 683 to 1355mm with little fluctuation in intensity and duration. The Vavuniya district received the highest rainfall in 2007.

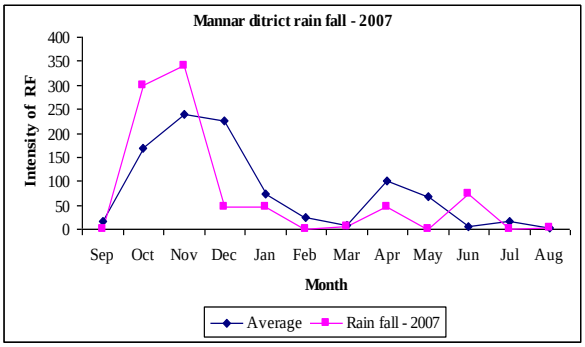
Table 2.7: Monthly Rainfall in 2006 - 2007

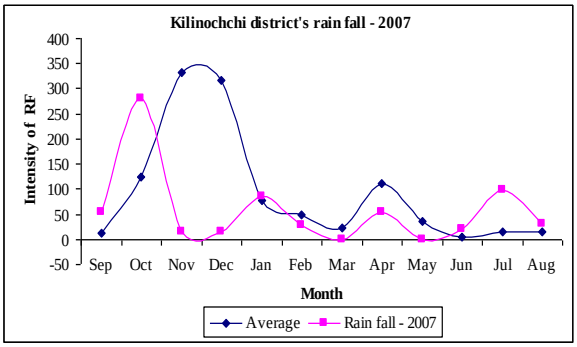
District	2006				2007								Total
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	
Jaffna	23.5	240	309.9	78.7	12.5	19.2	0	390	33	19.7	18.9	81.2	1226.6
Mannar	0	299.6	340.6	46.3	45.2	0	4.5	47.6	0	74	0	4	861.8
Mullaitivu	0	204.6	256.7	25.1	127	19	0	0	0	45.3	108	63.4	849.1
Kilinochchi	54.1	281.4	14.5	15.0	85.0	29.1	0.0	55.2	0.0	21.1	97	30.8	682.99
Vavuniya	139.5	209.3	156.6	135.0	116.5	117.3	0.0	58.5	3.9	325.0	5.0	89.0	1355.6
NP Total	217.1	1234.9	1078.3	300.1	386.2	184.6	4.5	551.3	36.9	485.1	228.9	268.4	4976.09
Average	72.36	246.98	215.56	60.02	77.24	61.53	4.5	137.8	18.5	97.02	57.22	53.68	995.2

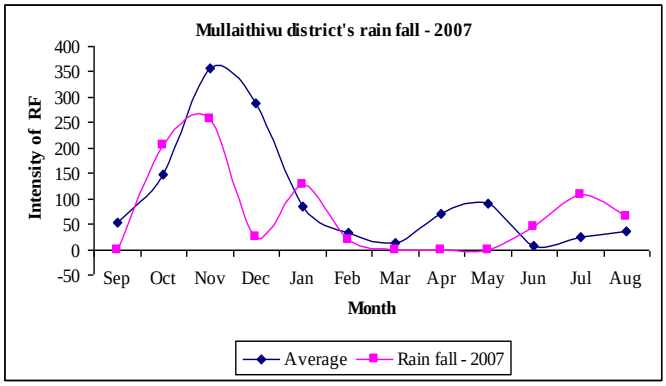
Source: Administration Report 2010, Provincial Department of Agriculture











***Average denotes average rainfall received during last 10 years
Source: Administration Report 2010, Provincial Department of Agriculture

Figure 2.8: District wise Comparison of Rain Fall during 2007 with Average Rain Fall of Last 10 Years

The graphs indicate the pattern of rainfall during 2007 and ten year average rainfall in each district. In the region, the total rainfall was very much lower than the amount of

rainfall received in 2006. The rainfall during 2007 was not favorable for effective crop cultivation in the region. Due to low rainfall received in the month of November to January, paddy and other field crop cultivation was reduced by 42% and 21% respectively.

In the lowlands the climate is tropical with the average temperature is around 28º to 30º for the year. However, on the whole, January is the coolest month and May is the hottest month. Relative Humidity varies from 70% during the day to 90% at night. The dry zone of Sri Lanka is affected by the North East monsoon (December to March) and South West monsoon (June to October). It is thought to be dry because most of the rains occur during the North East monsoon. The annual rainfall is less than 1250 mm in the North West and South East of the Inland. It has two rainy seasons; South West Monsoon- May to August, North East Monsoon- November to February.

Ecology: The region falls under low country dry zone with 04 agro-ecological sub divisional zone as DL1, DL2, DL3 and DL4. The mean annual temperature is **28^{o}C,** the highest temperature recorded is **32^{o}C** and the lowest is **28^{o}C**. Annual rainfall is 1200 mm to 500 mm. 75% of the precipitation is received from North- East monsoon in the months of October-December. Average Relative humidity is 72% in *Maha* & 71% in *Yala*.

Land and Soil: Northern region has a total area of nearly 8850 sq km which is only 12% of the land area of the country. Over 50% of the land area is occupied by perennial, annual and seasonal crop. Forest and rangelands cover nearly 27000 ha of the land area. The per capita land holding is 1 ha against the National average of 1.5 ha. The land of the region is relatively flat and is of low elevation towards coast. Six major soil groups have been identified in the region. The dominant soil group is Reddish Brown Earth associated with Low humid clay. The district wise soil group distribution in NP is given in the chart.

Table 2.8: Soil Distribution in the Northern Province (Extent in Hectares)

	Mullaitivu	Vavuniya	Mannar	Kilinochchi	Jaffna
1. Sandy Regasoals	6478		8102	19000	20464.4
2. Alluvial	2419	7864	2131	37410	10232.2
3. Grumosol	7014	1000	13380		
4. Alkaline		1966	2970		6139.32
5. Reddish Brown		179968	7362		
6. Latosol			750	46300	21487.62
7. Calcic Red Yellow Lattesol					28650.16
8. Red Yellow Lattesol	59127		8436		11255.42
9. Coral Lime stone					4092.88
10. Rock Knob Plain	1500	3932			
11. Earths and Low humid clay soils	111362				
12. Solidized Solozatz & Solonchak	11222			21100	
13. Eroded land	30779				
14. Erosional Remnants		1966			
15. Others			3471		

Source: Deputy Directors of Agriculture (Extension) of Respective Districts

Marine and Coastal

With 40% of the country's coastline, the province has immense potential for fisheries, aquaculture and tourism. While the existing marine and lagoon based fishery industry needs to be modernized and reequipped to enable the population to benefit from the rich and under tapped fishing grounds, new aquaculture-based industries could be established to increase productivity and offer more livelihood options for young people. The main fishing areas are in Jaffna, Mullaitivu and Mannar Districts. For this purpose the fishery potential, looming threats and important conservation areas (such as sea grass beds and coral reefs) should be surveyed and mapped so that exploitation of the resources is done within the limits of sustainability with adequate emphasis on conservation and protection for future use.

Mineral Resources

One of the gravest issues of current importance is construction materials. Out of the construction materials required, sand and some other resources are considerably available in the Province. In addition, the province has limestone deposits, clay for bricks and tiles and beach mineral sand. Possible oil deposit off the Gulf of Mannar has not been fully explored yet. A survey of the quantity and quality of building materials available in the North and their extraction capacity is necessary because of the huge demand brought on by reconstruction and development projects that involve large scale construction.

Forests and Wildlife

The North has by far the most extent of dry monsoon forests in any province. The forest cover has remained intact largely despite the conflict and due to lack of development of the province. Kilinochchi, Mullaitivu and Mannar districts are extensively forested, while Vavuniya is partially covered in forest. Jaffna has no significant forest areas.

Generally, the Province is covered in tropical forests, with no rivers flowing through them. The North Western coast is part of the deep Cauvery (Kaveri) River basin of South East India, which has been collecting sediments from the highlands of India and Sri Lanka since the breakup of Gondwanaland. Most of the island's surface consists of plains between 30 and 200 meters above sea level. A coastal belt about thirty meters above sea level surrounds the island. Much of the coast consists of sandy beaches. The important wildlife areas are Wilpattu north, Madhu road, Giant’s Tank, Chundikulam and Kokilai. But this has not taken new biodiversity hotspots and other ecologically important areas (river catchments, salt marshes, lagoons and estuaries, islands, arid zones of Mannar etc) into consideration. The forest and wildlife reproduce is important as an economic resource for forest products (non-timber) and tourism.

History and Culture

There are many areas of exceptional archaeological value in Jaffna and Mannar. These include ancient temples and sites mentioned in chronicles, sites of pre-historic significance and old churches and temples of high cultural value to the Northern people. Many of these sites have been recorded in documents of the Archaeological Department, but there could be many that are unrecorded and undiscovered. The value addition prospects to local tourism is immense, especially sites such as Thiruketheeswaram (Mannar), Nallur (Jaffna) and Madhu Church (Mannar).

The Provincial Administration

The Northern Province is divided into 5 administrative districts, 33 Divisional Secretariat (DS) Divisions and 912 Grama Niladhari (GN) Divisions (villages).

Table 2.9: Administrative Divisions and Population in the Northern Province

Administrative District	DS Divisions	GN Divisions	Area (km^2)	Total Population (2009 Estimate)	Population Density (/km^2)
Jaffna	15	435	1,025	624644	594.07
Kilinochchi	4	95	1,279	23625	153.10
Mannar	5	153	1,996	93961	51.95
Mullaitivu	5	127	2,617	36741	84.18
Vavuniya	4	102	1,967	206885	93.06
Total	33	912	8,884	985,856	147.66

Source: Provincial Public Administration - Northern Province 2010

Population: The population of the Northern Province's was 1,311,776 in 2007. The majority is Sri Lankan Tamils, while a minority Sri Lankan Moor and Sinhalese constitute the rest of the population. The population of the province, like that of the Eastern Province, was heavily affected by the civil war. The war has cost between 80,000 and 100,000 lives. Several Sri Lankan Tamils, possibly as many as 1,000,000, have emigrated to the West since the beginning of the war. There are 300,000 internally displaced persons in Sri Lanka living in refugee camps in the North and East, depending on aid provided by GOs and NGOs. There are also approximately 100,000 Sri Lankan refugees in India. Many Sri Lankan Tamils have also moved to the relatively safe Colombo. The war has forced most of the Sri Lankan Moors and Sinhalese lived in the province to flee to other parts of Sri Lanka.

Table 2.10: Ethnicity in the Province (Language - 2008)

Tamil (%)	Sinhala (%)	Others (%)	Total
98.96	1	0.04	100

Source: Provincial Public Administration - Northern Province 2010

Sri Lankan Tamil is the main language spoken in the province by a majority of the population. The other language is Sinhala spoken by 1 percent of the population. English is widely spoken and understood in the cities. Tamil and Sinhala are official languages of Sri Lanka. Tamil is the official and administrative language of the Northern Province.

Transportation: Transportation in the Province is poorly developed and it is still a hindrance to the development of the Province. Major roads in the Province are divided into two categories such as; 'A' Class roads or National Highways maintained and controlled by central government. 'B' Class roads or Provincial Highways are maintained and controlled by the provincial government. There are a number of C and D class roads in the Province, which are under developed. Sri Lanka Government Railways operates the country's railway network and the lines to Jaffna, Kankesanthurai and Mannar have been destroyed by the war. Most of the railways were developed during the British colonial period. Airways and airports have been developed in this province. Daily flights between Colombo and Jaffna are available. There are few small airports and airstrips in Vavuniya and Iranamadu.

Economy: Majority of the people earn their livelihood as farmers, fishermen and professionals in the civil and business sectors. Small scale industries such as chemical, light manufacturing and textiles were present before the civil war. The Northern Province is an agriculture dominated province where agricultural sector is 16.4% and trade sector is 5.4 %. Most of the people were engaged in the service sector covering 77.8% of the total GDP in 2007.

Table 2.11: Composition of GDP in 2008 -2010 by Economic Sector in The Northern Province (Rs:Million)

Economic sector	2008	2009	2010
Agriculture	27837	28582	30608
Industry	10496	14537	27139
Services	100668	112711	133776
Total (Northern)	139001	155828	191526

Sources: Central Bank of Sri Lanka and Department of Census and Statistics

Prior to the conflict, i.e. in 1980s, the contribution to GDP by the Northern Province was around 7% in national level. Later this suffered a negative trend and in 2009 it was shown as 3.3% and there was a slight improvement when compared to 3.2% recorded in 2008.This shows that there is huge potential in the Northern Province which should be tapped. The structure of the provincial economy has not changed over the period. However, agriculture, including fisheries and animal husbandry, which is the mainstay of the economy has shown a positive growth after 2002. The growth rate has now reached a negative phenomena resulting in a per capita income of Rs.134,000 equivalent to US$ 1166 per year as opposed to the national average of Rs.235,945 equivalent to US$ 2053 in 2009.

2.6.1 Recent Development of the Socio-economic situation in the Northern Province

The diversification process which gained momentum in the country after 1970 and the declining trends of agricultural contribution to the GDP is not properly reflected in the current statistics of the Northern Province. However, its contribution to the GDP from agriculture and fisheries sectors has declined during the conflict period. Contribution of these sectors has been gradually increasing form the year 2010 and this trend has to be strengthened. The Province struggles to sustain its literacy rate at 92.5% while suffering from severe disruption in the educational system resulting in high rate of drop outs and non attendance.

Table 2.12: Selected Health Indicators for Northern Province

	Infant Mortality Rate 1000 Live Births in 2000	Maternal Mortality Rate Per 1000 Live Births in 2000	Low Birth Weight in 2001	Underweight in 2001	Home Deliveries in 2001	Safe Sanitation in 2001
Jaffna	22.3	62	30.5	43.1	4.4	79.0
Mullaitivu	20.3	123	NA	NA	NA	NA
Vavuniya	8.8	76	38.8	50.6	12.3	71
Mannar	22.3	97	12.7	38.3	39.4	70.9
Kilinochchi	27.8	158	NA	NA	NA	NA
North & East	14.7	81	25.7	46.2	19.4	48.2
Sri Lanka	11.2	14	16.7	29.4	4.0	72.6

Source: Provincial Public Administration - Northern Province 2010

Resettlement activities are taking place in all 5 districts in the Northern Province; Jaffna, Kilinochchi, Mullaitivu, Mannar and Vavuniya. The total number of displaced people in the country are estimated at 350,028 and out of this, in the North, 329,973 have been re-settled by November 2010. However, under the “Vadakkin Vasantham Program” the government began rehabilitating buildings, restoring livelihoods, reconstructing the damaged infrastructure and has taken action for the maintenance of property, and to increase the level of service delivery and production.

In terms of prosperity index, the Northern Province occupies the last position as per prosperity ranking in the country. In terms of productivity in paddy sector, the Northern Province had recorded the highest yield in the country for several years in the past. It made the highest contribution in the fish production (30%) during pre conflict time while dominating significantly in crop sector (Red onion 60%, Chili 30%). Since the end of the war, due to the continued support by the Government in the Northern

Province, the production of the crop sectors has also been increasing gradually and the market for agriculture products has expanded. This trend has further continued. The province has nearly 1/3 of the coastal area and around 250,000 ha of cultivable land, most of these resources are now accessible to the people to engage in economic activities.

In the irrigation sector, due to lack of maintenance, functional ability of the irrigation schemes decreased. Rural and agricultural roads and agriculture related services deteriorated. With the issue of displacement, the situation led to loss of farm income, employment opportunities and increase in poverty levels. Since the province had enormously suffered three waves of impact due to the war, Tsunami and development deprivation, the combined effect of these has further deprived the poor.

Table 2.13: Some selected Socio-economic Development Indicators of the Northern Province

Socio economic Indicators		**2006**	**2010**
Water Consumption	No. of Consumers	4439	6456
	Quantity of Water Sold (Cu. Meters million)	1.3	1.4
Electricity Services	No. of Consumer Accounts	11965	132331
	Electricity Sales (Gwh)	108	129
Telecommunication Services	Land Phones - Sri Lanka Telecom Ltd. (Wire line and CDMA)	18906	49895
	Wireless Local Loop & CDMA(provided by Suntel and Lanka bell)	5906	50407
	Public Pay Phones	150	79
Postal Services	No. of Sub Post Offices	261	336
	Total No. of Post Offices	265	342
Regional Bus Companies Services	No. of Buses Operated	134	169
	Operated Km. million.	8.6	14.2
	Passenger Km. million.	326.8	484.7
Private Operator Bus Services	No. of Buses Operated	54	530
	Operated Km. million.	2.6	25.5
	Passenger Km. million.	136.5	1341.9

Source: Annual Report of the Central Bank of Sri Lanka: 2012

Table 2.14: Crude Birth Rates and Death Rates by District in Northern Province – 2004-2010 (Per 1,000 Persons)

District	2004		2005		2009		2010	
	Crude Birth Rate	Crude Death Rate	Crude Birth Rate	Crude Death Rate	Crude Birth Rate	Crude Death Rate	Crude Birth Rate	Crude Death Rate
Jaffna	17.8	4.8	17.2	6.8	12.1	5.5	15.8	6.2
Mullaitivu	15.4	5.1	13.9	26.1	26.4	3.4	9.6	59.0 **(b)**
Mannar	20.3	3.0	20.8	3.3	13.4	2.8	13.5	3.1
Vavuniya	27.1	5.2	23.9	4.6	17.7	5.5	38.7	6.8
Kilinochchi	18.1	3.1	19.8	4.5	31.9	4.1	22.8	3.2
Colombo	7.1	8.7	27.2	8.2	22.9	8.3	22.1	8.3
Sri Lanka	18.5	5.8	18.8	6.6	18.4	5.9	17.6	6.2

Source: Central Bank of Sri Lanka 2010. (b) Due to abnormal situation in NP past deaths were registered in Mullaitivu 2010

Table 2.15: Departure for Foreign Employment by Districts and Province in the Northern 2003-2010

District	2005		2006		2008		2009		2010	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Northern	3,095	1,734	3,364	1,328	4,987	1,416	3,826	1,117	4,765	1,705
Jaffna	2,263	659	2,218	449	3,617	545	2,625	384	3,580	648
Kilinoch-chi	-	-	-	-	1	2	0	3	5	5
Mannar	279	365	371	291	419	221	293	179	367	267
Mullativu	109	39	698	563	134	40	129	30	112	28
Vavuniya	444	671	77	25	816	608	779	521	701	757
Western	30,478	31,239	28,688	25,766	36,450	26,728	37,292	30,061	40,223	30,006
Total	93,979	36,999	90,608	113,016	128,232	122,267	119,381	127,745	135,502	130,943

Source: Central Bank of Sri Lanka 2010

2.6.2 Recent Development Programs of the Government: Uthuru Vasanthya - (Vadakkin Vasantham)

The government of Sri Lanka has given the utmost priority to develop the Northern Province. The program called “Vaddakkin Vasantham” was initiated in mid-2009. The

major task of the program was to accelerate the resettlement and rehabilitation process within 180 days. It was a two year program for the rehabilitation and development activities that were planned previously in the Province. A total investment of Rs. 295 billion has been allocated for the planned investment program for the period 2010-2012 and the program's medium term development strategy included the following goals;

- Restoration of socio economic and personal stability and safety.
- Reconciliation across ethnic borders.
- Revitalization of livelihoods and productive sector.
- Infrastructure, Roads – Electricity – Ports – Transport – Housing – communication –Water supply and sanitation.
- Rural economy through technological transformation.
- Pro poor growth and minimizing of disparities.
- Exploitation of marine resources and mineral resources.
- Information Technology and vocational education.
- Institutional reforms and performance improvement.
- Industrial estates, economic centers and private investment

The following interventions will be pursued for formation of productive and sustainable livelihoods and employment opportunities for the rural communities in the Northern Province.

- Provision of the necessary resources and amenities such as machinery, tools, equipment and skills training for basic livelihood restoration.
- Provision of microfinance services such as credit facilities and insurance for the poor who lack access to traditional / formal financial institutions.
- Reconstruction of damaged community service facilities such as marketing centers, etc.
- Revitalization of productive sectors such as agriculture, fisheries, industry, tourism and trade by providing the necessary infrastructure facilities.

Strategies for Resettlement of Internal Displaced Persons (IDPs)

- Creation and maintenance of a safe and secured environment
- Provision of immediate humanitarian needs for returnees
- Adoption of a holistic approach to the social protection of the vulnerable groups
- Restoration of capacity of productive, infrastructure and service sectors

Under the program, 2944 activities were implemented in 2010. Total estimated cost for these activities was is Rs. 6,388.62 million. A sum of Rs.1, 734.84 million have been spent up to 30th September 2010 (Sources: The Governor, Budget Speech 2010, Provincial Council of the Northern Province).

CHAPTER THREE

Agricultural Commodity Production in the Northern Province: Patterns and Profiles

Agricultural production is vital for the survival of the rural economy in the Northern Province because it has always been the central part of the economy in the Northern region. Two thirds of its pre-war population depended on farming, livestock and deep sea fishing as livelihoods. The region has a variety of soil conditions which can support the cultivation of paddy, many other crops such as onions, potatoes green gram, chilies, cashew, vegetable, grapes, bananas and coconut, palmyra etc, primarily for domestic consumption. Therefore, this chapter examines the current production patterns in order to identify main products, specific commodities and existing conditions of marketing practices that need to facilitate agricultural marketing systems. Hence, it discusses the production trends of agricultural commodity in the region and the performance of the marketable surplus and some profiles of the production system.

3.1 Agriculture in the Province

The Northern Province was an agricultural paradise before the conflict. Even at present, 80 percent of household in the Northern Province are involved in farming related activities. Currently it is estimated that crop production may be of the order of 1, 50,000 tons as against 800,000 tons earlier (The Hindu-2009). A large proportion of farmers are utilizing home gardens of about 0.1ha producing a variety of horticultural and animal products. There is great scope for dairy, goat and poultry framing and there is a large number of fisher- families along the coast. Most of the agricultural activities of the province, comprising the districts of Jaffna, Kilinochchi, Mulaitivu, Mannar and Vavuniya, depend on farming activities for occupation and income generation. Prior to the conflict, the province had a cultivatable area of about 300,000 hectares of which over 110,000 ha. was paddy. The rest were onion, chilies, sesame, groundnut, potato, yams, fruits, vegetables, coconut and Palmyra.

The region has a variety of soil conditions that support the cultivation of all the above crops. Before the outbreak of the conflict, the production of these crops was far greater than the requirements of the people in the region and the surplus was exported to other parts of the country. Despite being inhabited by a large dedicated farmer community and enriched with many natural resources, the province failed to make its due contribution to the economy for more than 30 years. The potential for the development of agriculture, including crops, livestock and fisheries, agro based industries and agro-tourism are still curtailed. However, the recent development program initiated by the government of Sri Lanka attempts to promote sustainable and commercial farming system for sound socio-economic development of the province by

providing efficient and effective need based technical services facilitating input supply which enables the farmer community for optimum utilization of resources. The following table has described the number of farmer families and total population in the Northern Province at present.

Table: 3.1: No. of Farmer Families and Total Population in the Northern Province

District	No. of Farmer Families	Total Population
Jaffna	66171	604766
Kilinochchi	19950	198590
Mullaitivu	21979	132291
Vauvniya	28605	180943
Mannar	10842	103973
Total	147547	1220527

Source: Master Plan for crop Sector Development, Provincial Department of Agriculture, Northern Province: 2010

The province is endowed with natural resources helpful for agriculture development such as fertile land, water resources, favorable climate and encouraging human resources. Region has total area of nearly 885,000 ha of which only 17% of the land is for crop sector development with 23 major irrigation scheme and 698 functional minor irrigation schemes along with open day well for domestic irrigated agriculture. Since the region receives North-East monsoon rain fall during the period October to February, and extensive rain fed cultivation is favored and the reservation of run off water in the major medium and minor tanks with irrigation infrastructure facilities facilitates dry season intensive crop cultivation in the region.

Table 3.2: Land Use Pattern and its Distributions – 2010

Type of Land	Vavuniya	Mannar	Mullaitivu	Kilinochchi	Jaffna	Total
Total Land Area (ha)	196640	200200	251690	123711	102369	874610
Agricultural Land	7550	33815	53506	59782	66241	288894
Paddy Land (Irrigated)	16841	18951	9052	12487	-	57331
Paddy Land (Rain fed)	4169	4109	7484	12353	13131	41448
Forest Land	9226	36890	167850	35110	290	332350

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province: 2010.

Annual rainfall is 1200 mm to 1500 mm; out of these 75% of the rainfall is received from North-East monsoon in the months of October- December. Weather is one of the most important factors that determine the crop extent to be cultivated and the yield to be obtained. The region falls under the low country dry zone and agro ecological zone of DL-1 and DL- 4. The total mean annual rainfall ranges from 1250 mm to 1720 mm out of which 65% - 75% is received during October – March period *(Maha* season) and the rest during April – September period (*Yala* season). The total rainfall in the region when compared with arid regions is high in aggregate but highly seasonal. The North- East monsoon is the main source of rain for the dry zone and lasts from October or early November to late December or early January. During these months, most dry zone stations receive 45% - 55% of the total annual rainfall. The rainfall during the pre North – East monsoon period, i.e., late September or early October is caused largely by cyclonic activity and provides another 20% - 25% of the rainfall. Thus, about 65%-75% of the rainfall is concentrated into a period less than 4 months (October to January). Though occasional heavy rains occur in late March and early April, the seasonality of the rainfall is so marked that three to four months of drought is common in normal years. In lean years, there has been six months of absolute drought. These rainy periods determine the cropping seasons and cropping extent. Temperature prevailing in the region ranges from 23°C to 38°C with a mean ambient temperature of 28.7°C and it is low during the period of October to January (Provincial Department of Agriculture, Northern Province: 2010).

Out of 2038 minor tanks there are 65 major and medium irrigation schemes and 698 functional minor irrigation schemes. Iranamadu and Giant Tank are the largest and the oldest irrigation schemes in the region. The irrigation schemes mainly depend on rainfall run off and river basins for capacity filling. As there are no perennial rivers, seasonal rivers drain off the rainfall water into the tank. Nevertheless, surface run-off water is stored in the irrigation tanks. More than thousand minor irrigation schemes are available but only some of them are functional with irrigation system for crop cultivation. Under the donor agent projects, minor irrigation schemes have been rehabilitated with improved irrigation structures for cultivation. The physical resource base suggests that the region has tremendous potential for agriculture. However, there are certain environmental issues, particularly the inland salinity and major and minor irrigation tank pollution that need careful consideration in the region.

Table 3.3: Type of Water Sources for Agriculture in the Region - 2010

Major Source	Jaffna	Killinochchi	Mullaitivu	Mannar	Vavuniya	Total
Major Tanks	-	04	03	03	01	11
Medium Tanks	-	10	15	08	21	54
Minor Tanks	-	216	178	344	690	1428
Agro wells	19261	14880	1890	10499	733	47263
Tube Wells	-	16	-	50	25	91
Functional Minor Tanks	-	293	112	144	500	1009
Open dug Wells	110000	12500	-	-	5621	128121
Abundant Tanks	-	-	60	50	53	163
Rehabilitated Tanks	-	25	25	26	40	116
Ponds	722	-	35	No	No	757

Source: Master Plan for crop Sector Development, Provincial Department of Agriculture, Northern Province: 2010

Clearing land mines, resettlement of the displaced and creating favorable living environment are essential for development activities to take off in the province. Moreover, rehabilitation and reconstruction of the damaged infra-structure, both economic and social with the participation of both public and private sectors are essential for better utilization of the available physical and human resources to revitalize the Northern economy. Such revitalization of the Northern Province could make a significant contribution to the national economy of Sri Lanka in future.

3.2 Major Agricultural Production

Traditionally, the Northern Province, particularly Jaffna peninsula was considered the agricultural paradise of the country and agriculture is a main economic activity of the people in the region. Since ancient times Paddy/rice, red onion, green chili, potatoes, tobacco, fish, dairy products, palmyra products and eggs are the major agricultural products of the region. Recently, banana, grapes, mangoes and vegetables such as beetroot, carrot, cabbages and brinjal have developed into more popular and commercial crops. It is noted that the crop diversity is the prominent character in Jaffna peninsula, while the mono crop culture is leading feature in some other districts of Mullaitivu, Mannar, and Kilinochchi.

3.3 Characteristics of Agricultural Production System in the Province

Prior to the conflict, the region was a major supplier of rice, dry chili, and red onion and grain legumes to the southern part of the country. However, the agriculture sector at present can be well characterized as unorganized, and unregulated due to inefficiency. Mostly, production is not for markets and marketing activities are very arbiters. This kind of production and marketing feature is common in the region under conflict and crisis management. Some parts of the province still operate in a state of "closed economy" with marginal contacts with the rest of the country. Most of the agricultural production is limited to local consumption of the region. The food crop sector development has not provided a dynamic encouragement to agricultural production. As a result, small holding rural sector has not properly transformed into commercial agricultural sector. The main problem is therefore is to transform the present subsistence level closed economy to the commercialized surplus producing sector.

The study observed and identified the following macro level problems and constraints faced by the agricultural sector in the region.

- Increased scarcity of water, land resources and other inputs
- Damaged condition of most of the agricultural assets of farming communities and the Department of Agriculture in the province.
- Lack of satisfactory transport and communication facilities.
- Need to strengthen the institutional capacity of the agricultural extension services and training.
- Most of the agricultural extension ranges are very large to be managed by a single extension officer (Agricultural Instructor).
- Non- availability of transport facilities affects the efficiency of the extension services.
- Some of the key positions are still vacant. The shortage of field officers serving in the agricultural development institutions affects the reorganization and strengthening of farmer organizations at village level and timely supply of inputs.
- Marginal producers and resettled farmers face difficulties in obtaining credit from banks. Affected and displaced farmers are unable to meet the rigid collateral requirements of the banks.
- To ensure availability of high quality seeds and fertilizer, there is a need to reconstruct and develop the service in the region by the seed and planting material division of the central government.
- There is an urgent need to provide storage facilities.
- Credit facilities at concessionary interest rate should be made available to private sector for enterprise development and to farmers to purchase four wheel and two wheel tractors.

Land is key for agriculture in Northern Province. The land extent under cultivation during the last 30 years had declined considerably due to war situation. However, the situation has changed within the last two years and land extent under cultivation on most of crop varieties has increased tremendously. The following sections describe the agricultural production performance and land extent under various crops in the Northern Province.

3.3.1 Extent and Production of Paddy Sector

Food and nutrition security are two important considerations in the development of a healthy population and poverty alleviation of the new development programs in the Northern Province introduced by the government of Sri Lanka. Out of various crop categories, cereals contribute to the consumption of carbohydrate as an energy source; 70-75% of the energy is derived from carbohydrate. Most important cereals cultivated are rice, kurakkan and maize in the Northern Province. Rice is the staple food crop of the region. Annual per capita requirement of rice is about 106 kg/year, according to Medical Research Institute. Accordingly the Northern region needs 0.5 million metric tons of rice per annum. The requirement is produced in the region. Among the agricultural crops, paddy is a major subsector in the country and is the region as well of. The annual 800,000 ha of paddy land cultivated in the island, 80,000 ha are in the Northern region. About 45% of paddy lands come under irrigated condition and the rest is rain-fed lands. The extent and the production have not shown a steady increase or being constant over the past two decades due to unfavorable socio-economic and political environment. Nevertheless, the present cumulative annual extent cultivated for paddy production on an average over the past 10 years was around 50,000 ha, in both wet and dry seasons in the region.

Paddy cultivation takes place in two seasons – rain-fed wet season (October- February) and irrigated dry season. During wet season, most of the paddy tract is in dry or semi dry condition. The paddy cultivation tract having irrigation facilities from the irrigation schemes is successful with supplementary irrigation if rainfall is inadequate and the absolute rain-fed cultivation tract suffers when there is no rain. This results in variation in the production level. The cultivation extent under irrigation in dry season is decided on the availability of water in the irrigation schemes. Intensive technical applications for better production has been experienced in dry season cultivation, thus, returning higher average yield during dry season than in the wet season. The estimated average yield in wet season and dry season is 4.5 mt/ha and 3 mt/ha respectively. Table 3.4 describes the land extent of paddy in the province.

Table 3.4: Five Years Average of Paddy Cultivated Extent in Northern Province 1985 2010

District	Season	1985	1986- 90	1991- 95	1996-2000	2001-2005	2006-2010
Cultivated extent (ha)	*Maha*	65629	54759	47124	39550	54668	32904
	Yala	5994	3797	7112	6619	8658	5605
	Total	71623	58556	54236	46169	63326	38509

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Table 3.4 shows the trend in paddy production during the last twenty years. In the past, the unsettled condition that prevailed due to the protracted war had badly affected paddy production. Nevertheless, cultivators under crisis management have sustained the rice production at low level with limited resources and technology application. Potential for paddy development in the region is very high about 45000 ha of the 100,000 ha developed paddy lands come under irrigation schemes. Lands under schemes have not been fully utilized for cultivation due to poor irrigation facilities.

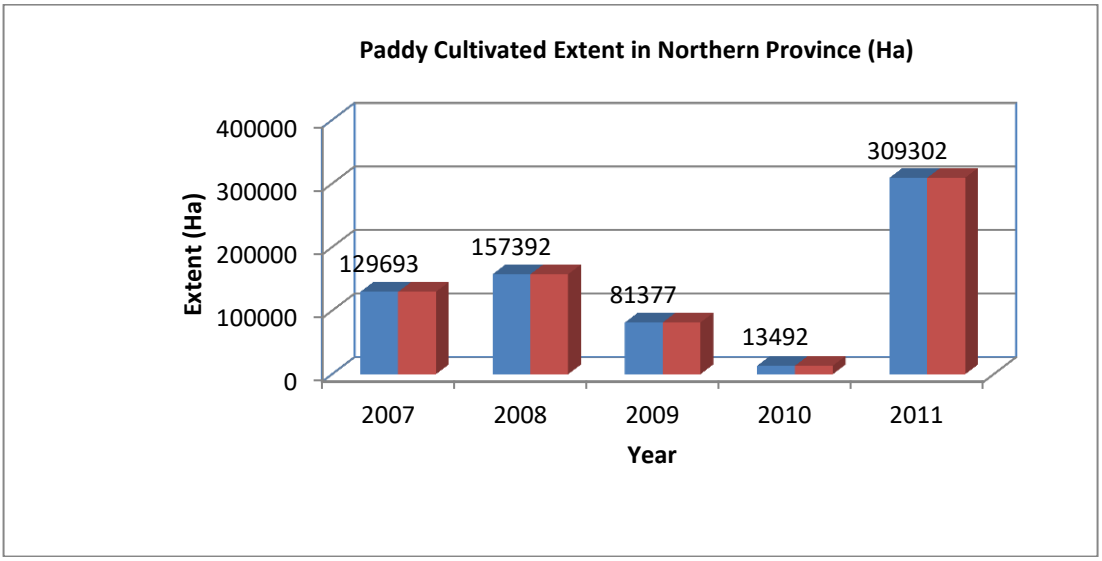


Figure 3.1: Paddy Land Extent in the Northern Province 2007-2011

Table 3.5: Five years Average Paddy Production in the Northern Province 1985-2010

District	Season	1985	1986-90	1991-95	1996-2000	2001-2005	2006-2010
Production (Mt)	*Maha*	162359	133043	109792	87540	145303	131120
	Yala	15539	11257	17153	19835	32807	30116
	Total	177898	144299	126945	107375	178110	161236

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Hence, rehabilitation of schemes and irrigation infrastructure in modernized form will facilitate effective water management and further land utilization with crop cultivation. Adoption of technology can boost the yield potential up to 8 mt per ha. However, the highest yield achievement at present was 6 mt/ha while 4 mt/ha has been the average in the region. Paddy production potential in the region is about 0.8 million mt.

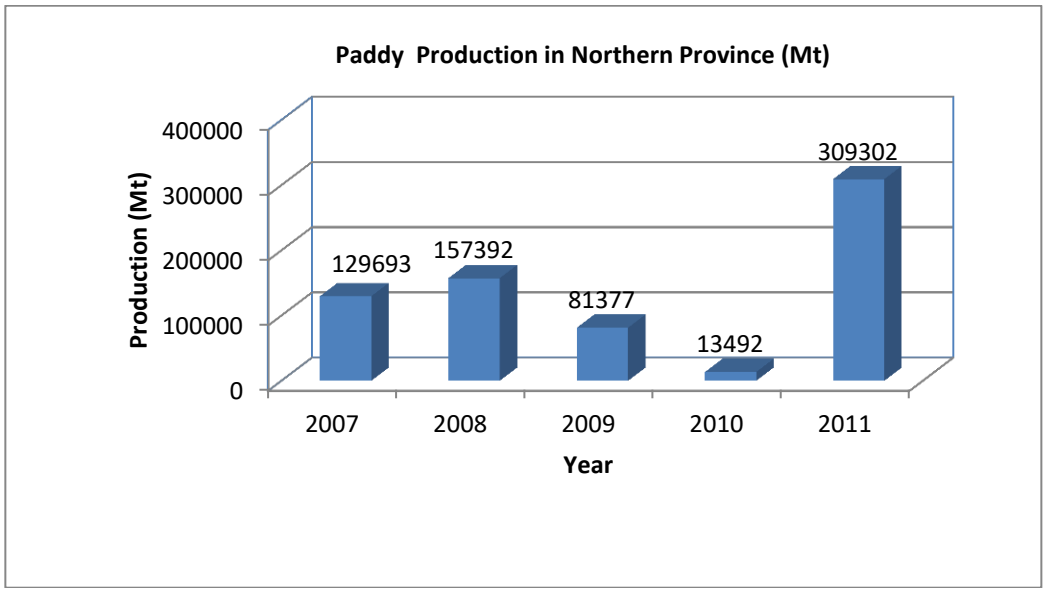


Figure 3.2: Paddy Production in the Northern Province

Weaknesses in current production system and strategies for improvement are:

- ❖ Irrational land use patterns
- ❖ Absence of effective water management as most of the irrigation infrastructure of both downstream and upstream is either in a damaged or dilapidated condition.
- ❖ Prevalence of scattered cultivation due to poor socio economic conditions and shortage of labor supplies.

- ❖ Absence of competitive production and organized marketing system
- ❖ Unavailability of efficient marketing network system
- ❖ Low popularity of rice based products
- ❖ Inadequate storage facilities and application of poor processing and milling technology
- ❖ Poor input accessibility and affordability
- ❖ Poor and ineffective supply of quality seeds as and when it is needed.
- ❖ Lack of technological know-how in the rural society.

Productivity improvement activities include land preparation to harvesting. The paddy sector has already developed and achieved average yield to the national average. The major problem in improving rice production is to facilitate marketing which will automatically motivate farmers to adopt productivity enhancement technologies. Post-production sector with regard to value addition of rice is at primary level in the region. Promotion of value addition of rice will pave way to the increase in paddy yield and entrepreneurs' income. Paddy processing in the region is considered ineffective and inefficient as most of the paddy processing mills are very small and cater only to the domestic needs with crude processing methods. Raw rice is consumed by the people in the form of cooked rice and steamed rice. Normally, rural Sri Lankan consumer consumed rice three times a day. But most of the Tamil communities of the region do not consume rice three times a day. They consume rice only once a day. Rice flour is used in some food industries for the production of noodle, instant hoppers and string hoppers etc. But the value addition to rice flour in the region is at a very minimal level.

3.3.2 Extent and Production of Subsidiary Food Crop Sector

The region has responded to the demand created by the 'inward looking import substitution' policies of the government in the late sixties and seventies through cultivation of subsidiary food crops on commercial basis. During this period, a large number of agro–wells and tube wells were constructed. Lift irrigation system was popularized not only to pump underground water but also to supply water from irrigation tanks. The subsistence farming community in the Northern region became profit oriented commercial farmers. The educated youth have recognized farming as a gainful employment venture.

The situation has changed since the mid eighties with the escalation of ethnic violence and the unrestricted imports under liberalized trade regime. The farmers of the Northern Province lost their competitive edge in the market for those crops. After the end of war in 2009, the displaced farmer families returned to their villages and recommenced crop cultivation. The Provincial Department of Agriculture in North, has identified several objectives of the subsidiary crop development sector for an increase in the production of selected crops through the development and introduction of new

technologies to meet the regional requirement. For the national market, while improving productivity, marketing and processing of selected OFCs through farmer cluster extension programs is required. The specific objectives of the sector are;

- To ensure adequate supply of quality seeds at village level.
- To increase farm income of OFC producers.
- To encourage private investment in value addition product preparation
- To use appropriate varieties
- To apply appropriate technology
- To use appropriate culture
- To promote value addition of crop produce at cottage level.

However, subsidiary food crop cultivation in the Northern region in the present context is well characterized as small scale and subsistence level cultivation with low value rain-fed highland with minimum cultivation, inputs and management as permitted by the soil condition. Due to poor resources and technology used for these crops production, yield obtained is very low. Though chilli, red onion and potato are cultivated for commercial orientation as cash crops, the extent has been reduced to local market level due to the prevailing market situation. Due consideration is necessary in reducing unit cost of production in national competitive market. The local government needs to extend its arm for proper market infrastructure arrangement to market the product.

Red onion is one of the major commercial crops in the province. Red onion comes under the condiment crop. Onions are used everywhere, everyday as a condiment vegetable in the country's household, and therefore, onion is a high priority vegetable crop. Onions are used fresh or dried. There is dehydrated onion in the market. People use onion to prepare chutney. Onion cultivation in the region is sufficiently cater to the regional population. But, high demand exists in the Southern part of the country due to its level of pungency. Over other regional production onion is potentially cultivated in all districts in the region. But the Jaffna district is prominent for red onion cultivation. Red onion production of the province was 66,989 mt. in 2011. Onion production is severely affected in Jaffna due to limitations in disease management practices owing to non availability of required agro chemical in the area. Introduction of micro irrigation system had promoted red onion production by 25%. (Administration Report 2008 Provincial Department of Agriculture, Northern Province).

Due to the characteristics of red onion produced in Jaffna such as pungency and hardness has high consumer preference and the local varieties cultivated in different areas consist of varied characteristics. Hence, Jaffna red onion is famous in the country. Jaffna and Killinochchi have rain-fed and irrigated red onion cultivation whereas other districts have only irrigated cultivation. The present selection by research has returned a

yield of 40 mt/ha. In general, the onion production is in the range of 10-15 mt/ha in all districts.

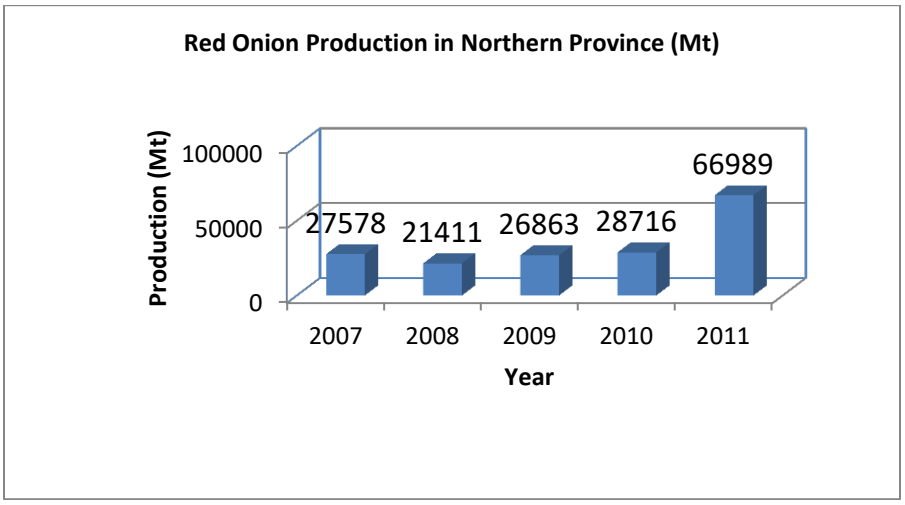


Figure 3.3: Red Onion Production in the Northern Province

Table 3.6: Five years Average of Red Onion Cultivated Extent in the Northern Province (Period of 1985-2010)

District	Season	1985	1986- 90	1991-95	1996 - 2000	2001-2005	2006-2010
Cultivated extent (ha)	*Maha*	1682	2458	2070	697	1027	1039
	Yala	2754	2715	2734	992	1501	1148
	Total	4436	5173	4804	1689	2528	2187

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

The total extent cultivated under red onion was 3788 ha and the estimated production was 66989 mt. in the year 2011. Average production was estimated as 12 mt/ha. Both extent and production considerably increased, when compared to the past few years, by extent and production. This is attributed to the improvement of water and other input availabilities, infrastructure development, markets, crop profitability and many other socio-economic and political factors.

Table 3.7: Five years Average of Red Onion Production in the Northern Province (Period of 1985-2010)

District	Season	1985	1986-90	1991-95	1996-2000	2001-2005	2006- 2010
Production (Mt)	*Maha*	20118	28360	24239	5937	13825	12912
	Yala	31152	30630	30891	11045	20247	14412
	Total	51270	58990	55130	16982	34072	27324

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Onion is cultivated large scale in all districts in the region as a cash crop with intensive management with irrigation in dry season and to a lesser extent with rainfall in wet season. Especially shallot type red onion is cultivated in the region. Introduction of micro sprinkler irrigation facilitated improvement in productivity and water management. Many local red onion families are found in the region. However, basically two kinds of onion are grown- multiplier onion (shallot) with red skin and a large single-bulb type with red skin. The former was first produced from seeds and is now grown from small bulbs. Many Jaffna local varieties were found to be cultivated. They are differently named by the farmers. Big onion variety is also cultivated in the area.

The problem of seasonal availability is already tackled by improved storage facilities, mostly at the farmer level. Meanwhile, regularized seed production will improve production. Lack of an inter and intra district seed supply Mechanism, unavailability of red onion during part of the year, and disease and insect problems are the serious limitations of onion production. Identifying the better variety for cultivation in terms of market demand, promoting local storage facilities, facilitating the year round production of onion system, of assist producer for storing of seed bulbs, are some of the remedial measures. Further extension of reliable seed production industry and formation of farmer groups for production of seed onion and educating the farmers on the availability of seed and storages are vital needs for further improvement of the production and marketing system.

Chili is categorized under condiments and used in the preparation of curry all over Sri Lanka. Chili is potentially cultivated in all districts in the region under the irrigated facilities. The total extent cultivated in the year 2011 was 1499 ha, and production of dry chili was 2768 mt. There was almost a similar trend on the previous year's performance. However, the Jaffna district is prominent as previous years. According to the provincial Department of Agriculture, the average yield was 1 – 1.5 mt/ha.

Table 3.8: Five Years Average of Chili Cultivated Extent in the Northern Province (Period of 1985-2010)

District	Season	1985	1986- 90	1991-95	1996-2000	2001-2005	2006- 2010
Cultivated extent (ha)	*Maha*	2640	4358	1904	1543	1535	1082
	Yala	1151	3377	1734	404	241	234
	Total	3792	7735	3638	1947	1776	1316

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Chili is grown as a cash crop on highland under irrigated conditions and are harvested fresh and marketed either fresh or dried or after being processed as chili powder. The production of chilli in the region is adequate to meet the demand of the regional population. As this crop has a continuous demand throughout the year, it fetches more income to the farmer, thus technology applications are intensive in chili cultivation. There are two varieties of chili developed in Sri Lanka, MI-I and MI-2, are the standard varieties. However, new varieties such as KA lines and hybrid MI hot and other varieties under screening are available for better production. Availability or accessibility of seeds is poor in the region.

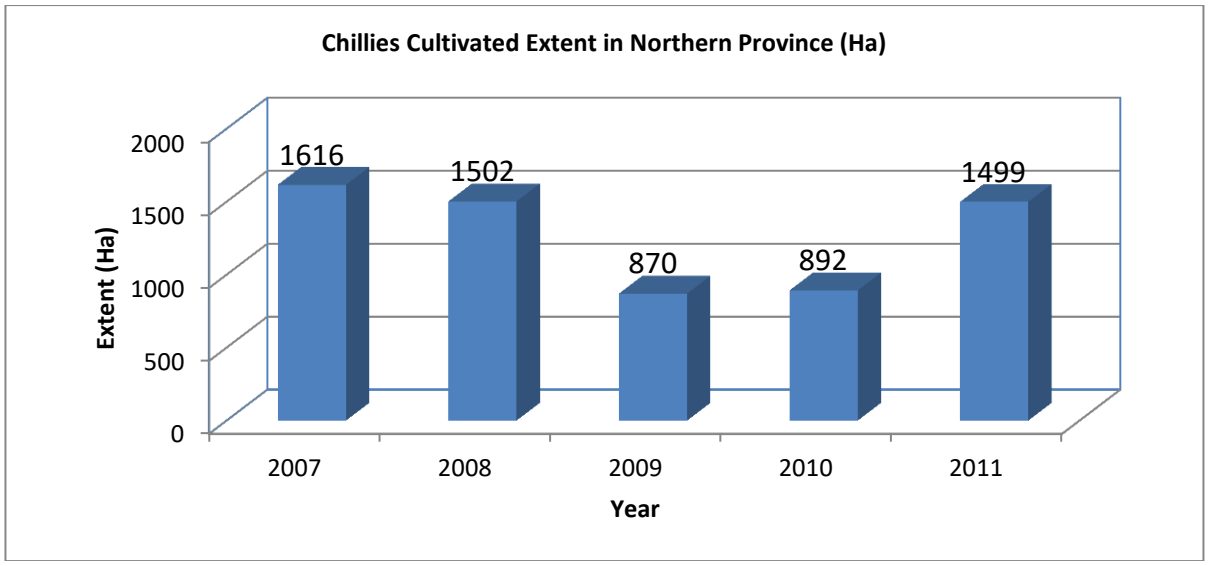


Figure 3.4: Land Extent of Chilies in the Northern Province

There are some factors that limit the Chili production extent in the Northern Province. A major factor is the combination of disease, insects or mite and virus. This is called as leaf curl complex or little leaf disease. A minor factor limiting production is loss of fruit due to Anthracnose disease during the wet season. Further, yellowing of leaves too is a problem in some areas. This is a crop for which pesticides are used excessively.

Table 3.9: Five years Average of Chilli Production in the Northern Province (Period of 1985-2010)

District	Season	1985	1986- 90	1991- 95	1996-2000	2001- 05	2006-2010
Production (Mt)	*Maha*	2027	5582	2366	1703	2388	1913
	Yala	3210	4858	1026	306	365	549
	Total	5237	10440	3392	2009	2753	2462

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Some of the land area is not economical for paddy cultivation as its yield cannot be increased beyond a certain limit. There are nearly 20,000 ha of such low potential areas in the Northern region. This extent can be explored for crop diversification, if paddy production continuously becomes unprofitable as at present. Hence, huge potential for promotion of subsidiary food crops is seen in the region. It is estimated that about 50,000 ha of arable highland available for promotion of subsidiary food crops can be rehabilitated if it is cleared jungle and brought under irrigation scheme. Lands under minor irrigation schemes are yet to be rehabilitated. Storage is a major problem faced by the farmers. Grain productions are subject to be sold at the farm gate at a minimal price due to lack of storage facilities in the glut production season. Hence promotion of coarse grains production is very much restricted and is possible if due consideration is given to local storage facilities and promotion of value addition.

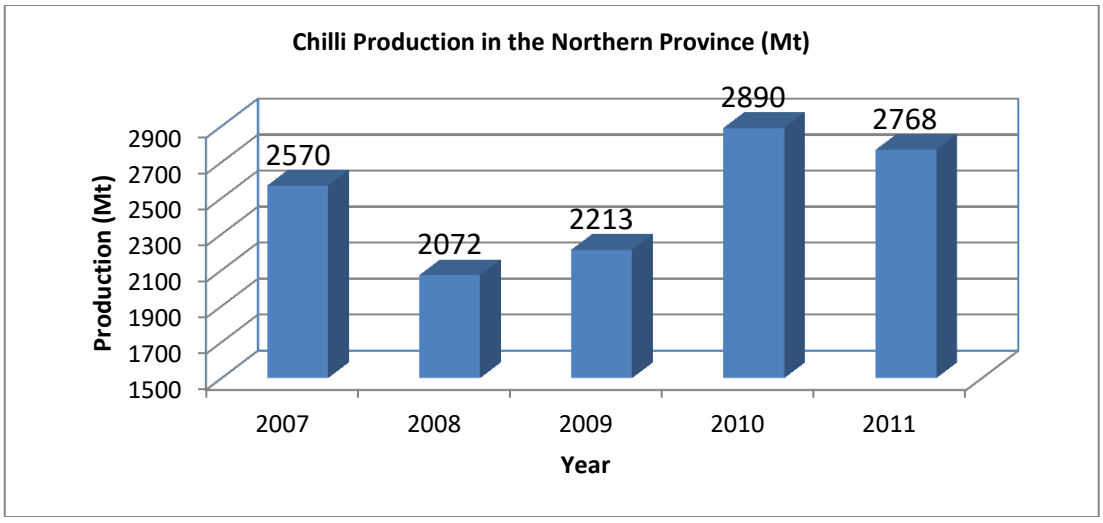


Figure 3.5: Chilli Production in the Northern Province

Weaknesses in subsidiary food production system in the region are as follows.

- Lack of new high yielding varieties
- Lack of knowledge on new technologies at village level
- Low productivity due to rain-fed cultivation
- Irrational land use and crop management
- High incidence of pests and diseases
- Lack of technology adoption
- Lack of quality seed and required varieties repetition
- Lack of regularized local and institutional seed production and input supply mechanism at village level
- Lack of farmer group activities
- lack of private investment in processing and agro – based industries
- No promotional activities implemented by the policy regulation
- No regulatory market arrangement for raw and value added products

3.3.3 Extent and Production of Pulses

Grain legumes include cultivation of green gram, black gram and cowpea. Generally, these crops are extensively cultivated during rainy season and in the modest scale in the dry season either under irrigated mix cropping or mono cropping with irrigation. Black gram is cultivated only in the rainy season. Vavuniya and Southern of Mullaitivu area are prominent for rain-fed black gram cultivation. Green gram and cowpea are cultivated at

subsistent level. The poor supply of seed material caused reduction in extent in Kilinochchi, Mullaitivu and Jaffna district.

These crops are normally cultivated with little care of agronomic practices during the wet season and with moderate care under lift irrigation in dry season. It plays an important role in improving farm income of the families and supplying vegetable protein to consumers. Black gram cultivation was affected in the Vavuniya district with the displacement of people from North of Vavuniya and the resettlement in some areas resulted in the increase in production in 2011. The achievement of pulses (Green gram, black gram and cowpea) were around 58% in Yala and 94% in Maha season in 2011 against the target. It is because the abandoned black gram fields in Vavuniya were re-established and cultivated. The total production was 788 mt in Yala and 11,452 mt. in Maha season. The achievement in dry and wet season was 63% and 57% respectively. Cultivation of this crop in Jaffna increased beyond the target due to the need of food security.

Table 3.10: Five years Average of Black Gram Cultivation Extent in the Northern Province (Period of 1985-2010)

District	Season	1985	1986- 90	1991- 95	1996- 2000	2001- 05	2006- 2010
Cultivated extent (ha)	*Maha*	7539	5937	5062	4303	4107	3644
	Yala	-	26	28	11	4	30
	Total	7539	5963	5090	4314	4111	3674

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Table 3.11: Five years Average of Black Gram Production in the Northern Province (Period of 1985-2010)

District	Season	1985	1986- 90	1991- 95	1996- 2000	2001- 05	2006- 2010
Production (Mt)	*Maha*	5892	4917	37066	2319	3224	3250
	Yala	-	26	22	7	5	24
	Total	5892	4943	3728	2327	3230	3274

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Table 3.12: Five years Average of Cowpea Cultivation Extent in the Northern Province (Period of 1985-2010)

District	Season	1985	1986- 90	1991- 95	1996- 2000	2001- 05	2006-2010
Cultivated extent (ha)	*Maha*	976	1026	1211	1056	1023	873
	Yala	132	135	188	161	244	209
	Total	1108	1161	1999	1217	1267	1082

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Table 3.13: Five years Average of Cowpea Production in the Northern Province (Period of 1985-2010)

District	Season	1985	1986- 90	1991- 95	1996- 00	2001- 05	2006- 2010
Production (Mt)	*Maha*	820	892	881	591	1046	1019
	Yala	118	127	143	197	241	350
	Total	938	1019	1024	788	1287	1369

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Major coarse grain crops are kurakkan (finger millet) and maize as cereal crops and black gram, green gram and cowpea as leguminous crops which contribute to vegetable protein intake of the population. The other field crop cultivation in the region is mainly focused on supplying the local requirement and capturing the national market. Tables show the trend of pulse crop cultivation and production as in 05 year average. Maize is cultivated in a dry system during rainy season for human consumption and kurakkan is cultivated on small scale for traditional domestic consumption. As these two crops have no persistent commercial market demand in the region, cultivation extents are limited.

However, the maize production gains market in line with provisions of industry promotion. Though chickpea and pigeon pea cultivation proved successful in the region, due to poor post-production sector development and poor post harvest technology, these crops cultivation was not highly taken up. Cultivation of soya bean was constrained due to lack of seed supply and its dependency on bacterial inoculums for better production. However, this crop can be developed when there is market demand for food industry.

The present day cultivation is tradition bound and mostly rain-fed condition, except the irregular irrigated cultivation with minimal application of productivity enhancement technology. Hence, development strategy of the food grain will be based on productivity enhancement and value addition programs. Crop production system adopted by the

farmers at present in the region mostly consists of traditional application practices. Though the farmer's knowledge on economic cultivation of other field crops is considered sound, it should be further improved with training on diversified alternative technology program and market technology. The formation of commodity based production societies for effective marketing will be encouraged.

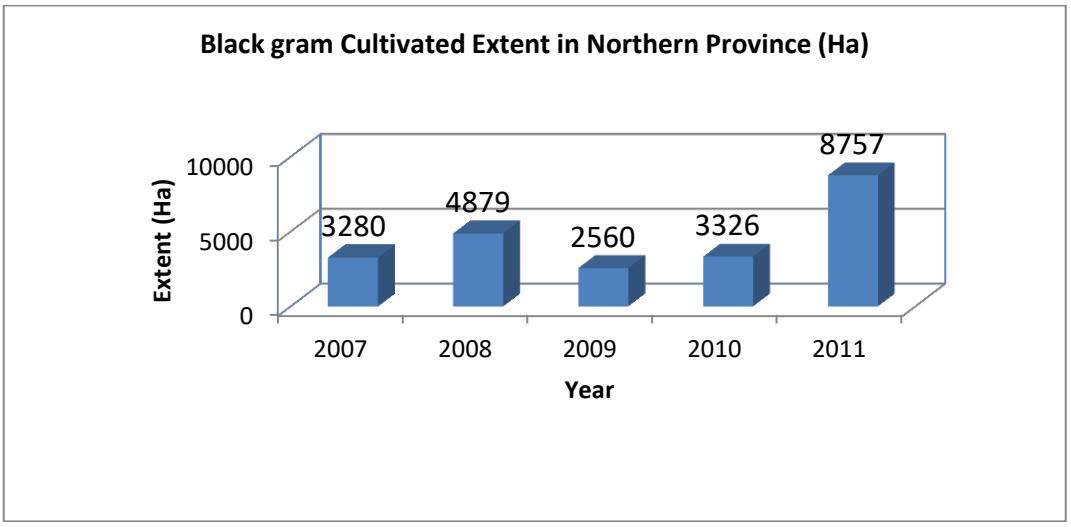


Figure 3.6: Land Extent of Black gram in the Northern Province

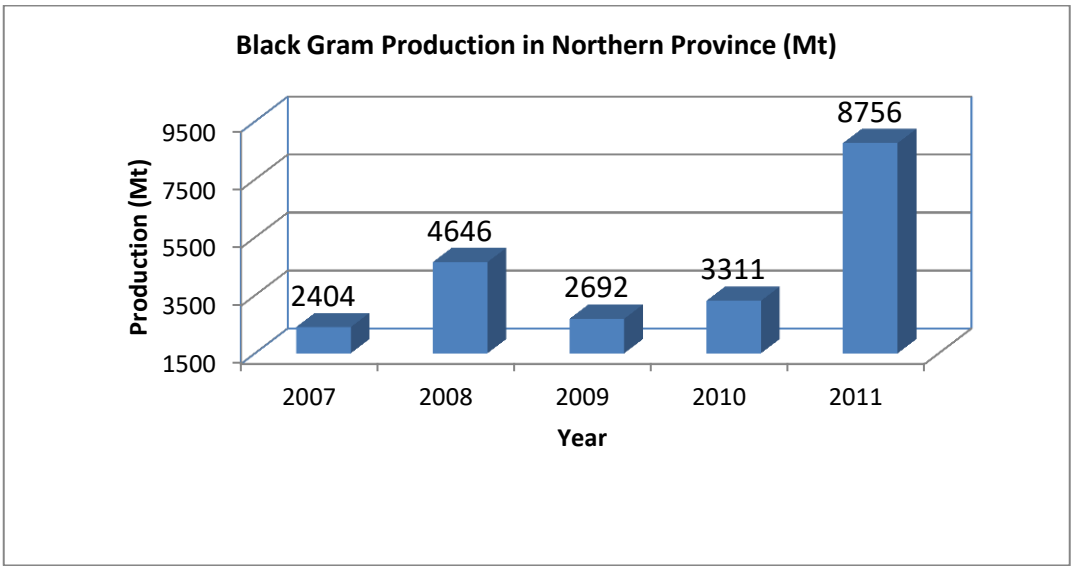


Figure 3.7: Production of Black gram in the Northern Province

Maize is cultivated mainly for dual purposes. It is cultivated for direct human consumption as a green crop and as an industrial crop. Nearly 20% of the production goes to the local poultry feed industry. The need for maize in the production of poultry mash is not fully satisfied by the production and its demand as raw material for the feed industry is expanding rapidly matching the pace of livestock industry. Thus, there is high potential for maize as an industry. Maize is imported annually for the industrial sector. The present maize production is not sufficient to meet the demand. To cater to the need of local demand for maize particularly to manufacture poultry feed, maize cultivation is to be expanded in areas with lesser cost of production. The well drained paddy soil is suitable for maize cultivation.

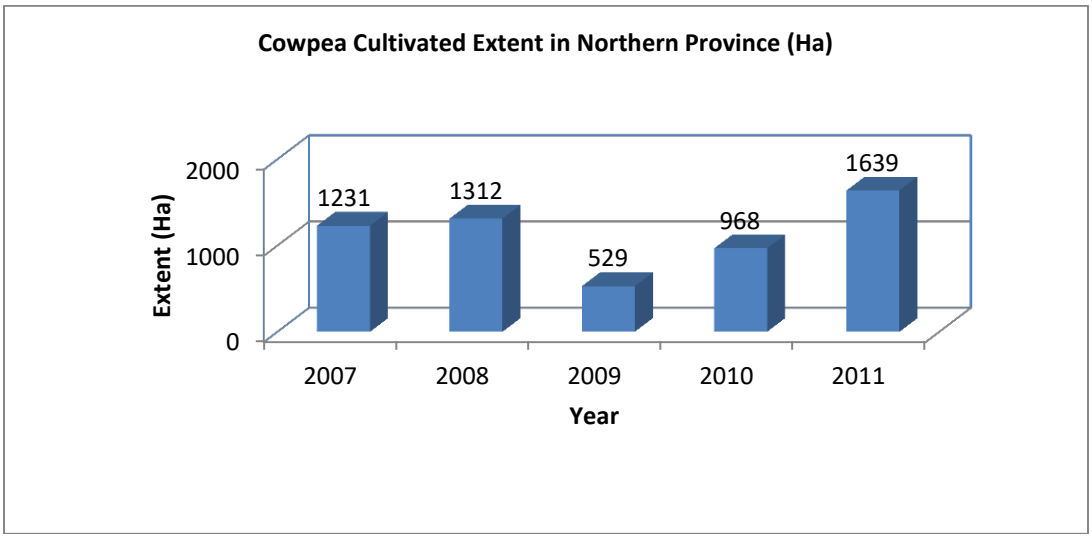


Figure 3.8: Land Extent of Cowpea in the Northern Province

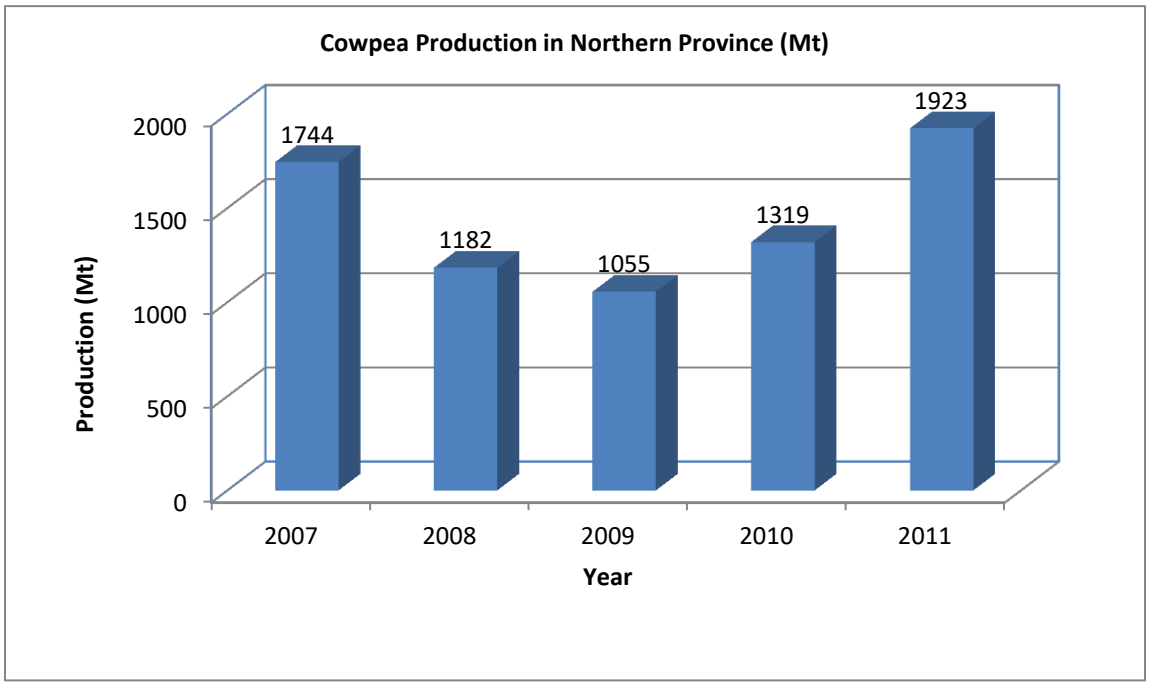


Figure 3.9: Production of Cowpea in the Northern Province

3.3.4 Extent and Production of Oil Crops

Oil crops that are being cultivated in the region are sesame and ground nut. Sesame is used to extract oil for cooking purposes and ground nut is used for raw consumption. Groundnut is cultivated in all districts in the province. The Mullaitivu district is important for this crop production. Generally, about 3000 ha cultivated.

Table 3.14: Cost of Production of Major Agricultural Crops in the Northern Province (*Maha* Season 2009/2010)

Crops Varity	Material cost (Rs/ac)				Machinery & equipment cost (Rs/ac)	Labor unit/ac				Laborer cost (Rs/ac)	Total cost of cultivation /ac in Rs.	Yield/ac in kg	Cost/kg in Rs.
	Seed/ Planting material	Fertilizer	Chemical	Organic manure		Family		Hired					
						M	F	M	F				
Paddy	3600	980	3200	12000	15000	2	-	15	16	15000	488780	1640	29.00
Ground nut	6000	6250	5000	8000	8000	12		24	78	45000	78250	1000	78.00
Black gram	3840	7280	2000	-	8000	4	-	8	16	12000	33120	400	83.00
Cowpea	2800	7280	2000	-	8000	6	-	8	28	18000	38080	400	95.00
Maize	800	7500	2000	10000	4000	8	-	16	18	20000	44300	800	56.00
Chilli	600	14000	16000	45000	8000	12	-	32	62	45000	128600	1000	129.00
Onion	80000	8000	12000	45000	8000	20	-	24	128	65000	218000	8000	28.00
Banana	10000	5400	-	80000	96000	48	-	110	-	94800	334800	40000	8.37

Sources: Department of Provincial Agriculture 2010, Northern Province

Table 3.15: Five years Average of Groundnut Cultivated Extent in the Northern Province (Period of 1985-2010)

District	Season	1985	1986-90	1991-95	1996-00	2001-05	2006-2010
Cultivated extent (ha)	*Maha*	217	970	2209	2916	1949	1432
	Yala	97	312	531	619	713	554
	Total	314	1282	2740	3135	2662	1986

Source: Master Plan for Crop Sector Development, Provincial Department of 9Agriculture, Northern Province, 2010

Table 3.16: Five years Average of Groundnut Production in the Northern Province (Period of 1985-2010)

District	Season	1985	1986-90	1991-95	1996-2000	2001-2005	2006-2010
Production (Mt)	*Maha*	226	927	1990	1926	2771	2194
	Yala	98	447	248	712	1217	934
	Total	324	1374	2238	2638	3988	3138

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Sesame cultivation in Jaffna is more than in other districts. Due to high demand for oil extraction, extent has also increased in the Vavuniya district. Irrigated cultivation of Gingerly is very much low and cultivation takes place in the paddy field after harvesting. The oil is extracted from gingelly through traditional methods. There are about 150 small traditional mills utilized for oil extraction. The by-product can be used as an animal feed. The total production was 628 mt. in 2010. The achievement in dry and wet season were 55% and 69% respectively.

Table 3.17: Five Years Average of Sesame Cultivated Extent in the Northern Province (Period of 1985-2010)

District	Season	1985	1986- 90	1991- 95	1996-2000	2001-2005	2006-2010
Cultivated extent (ha)	*Maha*	537	621	331	716	662	727
	Yala	11	96	111	152	38	131
	Total	548	717	442	868	700	859

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

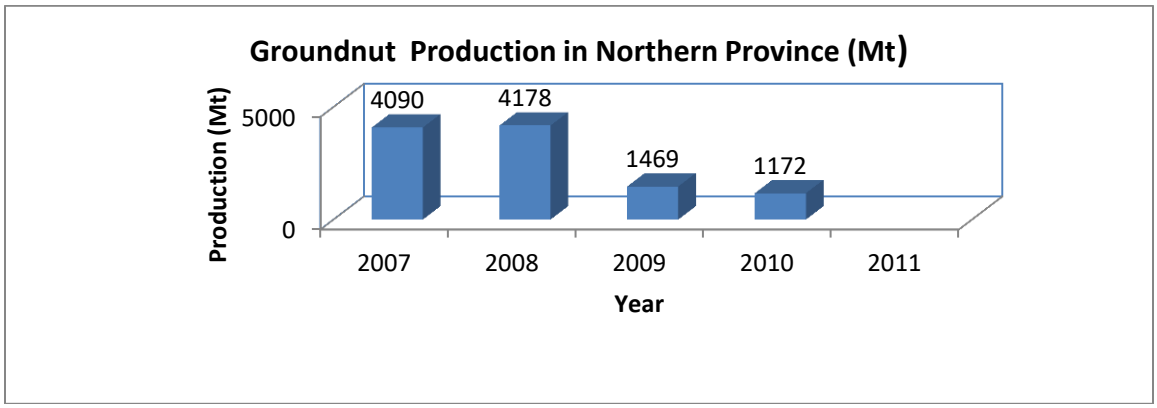


Figure 3.10: Groundnut Production in the Northern Province

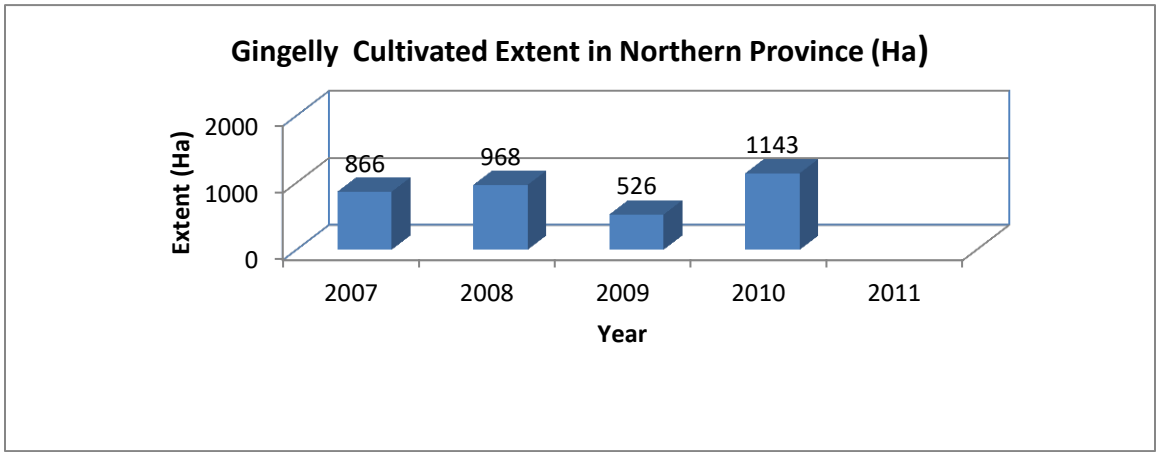


Figure 3.11: Land Extent of Sesame in the Northern Province

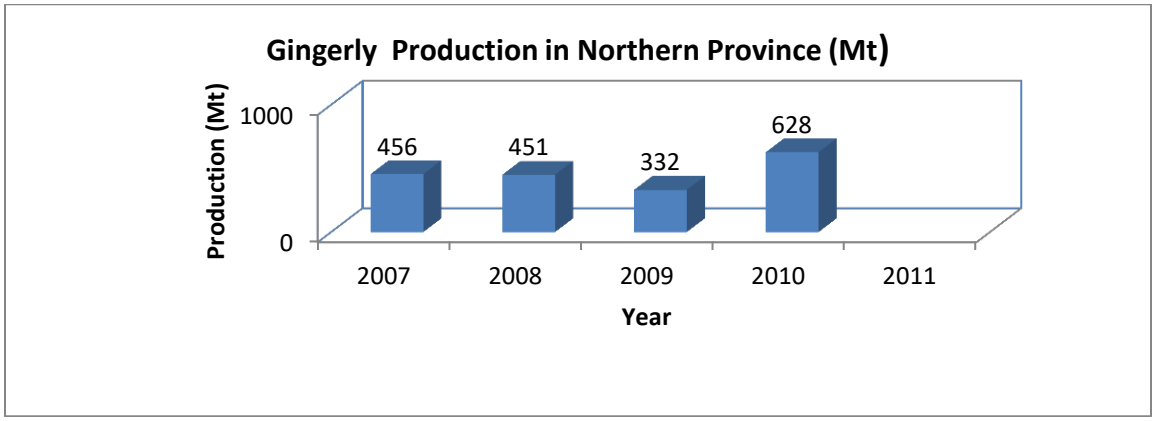


Figure 3.12: Sesame Production in the Northern Province

Table 3.18: Five years Average of Sesame Production in the Northern Province (Period of 1985-2010)

District	Season	1985	1986-90	1991-95	1996-2000	2001-2005	2006-2010
Production (Mt)	*Maha*	328	403	330	309	366	382
	Yala	3	67	62	67	22	73
	Total	331	470	392	377	388	455

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Gingelly (Sesame) and groundnut are cultivated as oil crops in the province. Though these two crops are cultivated in all districts in the region, Jaffna and Kilinochchi are more important for sesame production and Mullaitivu is prominent for ground nut cultivation. The Mullaitivu area has a good potential for expansion of ground nut cultivation and at the same time drained soil tract is extensively available in the district. Farmers in this area are used to large scale cultivation of ground nut during rainy season. Further, feasibility of castor oil production is to be evaluated in terms of market and economic production for its development in the province. Sesame is generally cultivated with residual moisture in the paddy land after harvest of paddy in February in Jaffna and Kilinochchi districts. In some locations, highland cultivation takes place at the end of the rainy season. White and black seed varieties are available for different purposes of cultivation.

Many varieties of ground nut were developed and released by research organizations for crop production improvement of which Tissa and Indhi are leading in the province. The variety "Walawa" is a confectionary type which can be used for confectionary industry. This crop product has potential platters for the industrial sector in oil extraction and confectionary production. Many cottage level industries have evolved in value addition of sesame and groundnut crop products in the country. Gingelly oil extraction practices using "Chekku" is popular in Jaffna, Vavuniya and Kilinochchi districts, About 500 Gingelly oil extraction units were developed in the province previously. The production is not sufficient to supply the requirement at that time. Groundnut is cultivated in both rain-fed and irrigated conditions. Crop management is very poor due to limited market and the demand is available only for raw nut which is consumed fried or boiled. Though oil production is very much feasible, investment in this direction is not encouraged.

Sesame is generally cultivated in paddy lands after harvest of paddy in February without much consideration on adoption of technologies. Due to its harvesting and processing difficulties, a particular group of people undertakes this cultivation. There is increased potential to promote sesame cultivation in the region. There are no seed supply

mechanisms and the use of old varieties are the key problems. Lack of investment in value added product preparation, poor crop management, traditional cultivation methods and no proper organization of market network are other weaknesses in the production system.

3.3.5 Extent and Production of Yam and Tuber Crops

Most forms of yam and tuber crops are perceived as "poor man crops". They were cultivated as backyard crop in homestead level for food security and surplus was marketed. But in recent years, these crops are cultivated on commercial basis. Manioc (Cassava), elephant foot yam, Diascorea and sweet potato were popular root crops in the province. Cultivation of Cassava due to its chip production as a cottage industry has increased. Potato is cultivated traditionally as a high value cash crop in Jaffna and was introduced to other districts. Due to the free imports situation and the availability of imported seed potato is restricted to cultivation in the Jaffna areas.

Table 3.19: Five years Average of Manioc Cultivated Extent in the Northern Province (Period of 1996-2010)

District	Season	1996- 2000	2001- 2005	2006- 2010
Cultivated extent (ha)	*Maha*	944	1240	892
	Yala	550	689	399
	Total	1494	1923	1291

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

The total yam cultivation in 2008 was 1705 ha, and production was 30980 mt. The extent of root crops was decreased by 606 ha and 14071 mt. when compared to the year 2007. Cassava cultivation consisted of 85 percent of total yam cultivation. The total cassava cultivation and production in year 2010 are 580 ha. and 10623 mt. respectively.

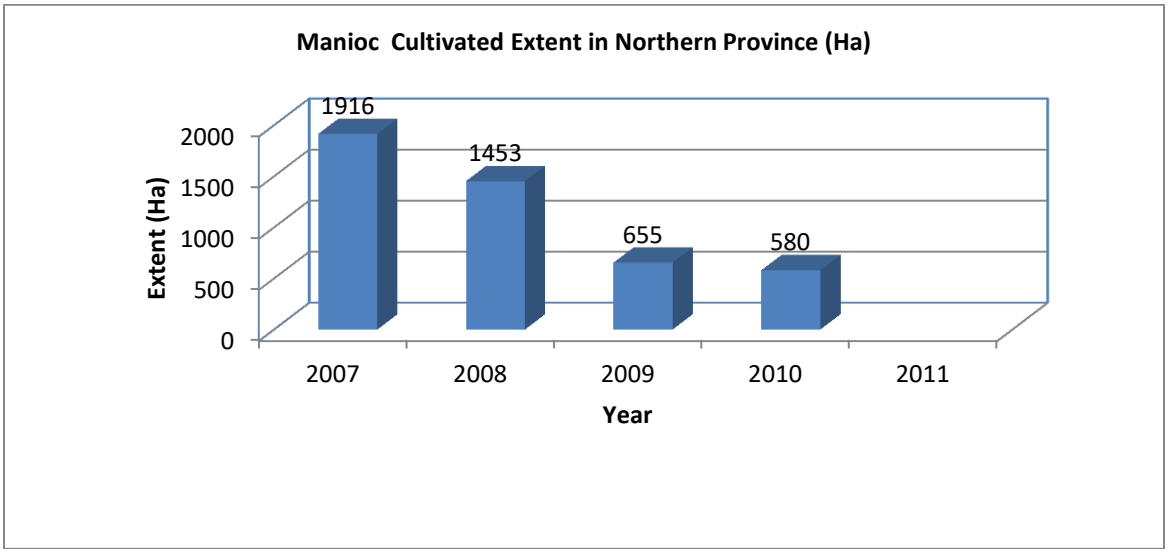


Figure 3.13: Land Extent of Manioc in the Northern Province

Potato was cultivated in the extent of 11 ha in Jaffna in 2007. The cultivation was comparatively half of the extent when compared to 2006. The production in 2007 was 133 mt at the rate of 12 mt. per ha. The official sources said that the latest extent in 2011 was nearly 5 ha. This decrease was mainly owing to the low consumer preference, local and import competition and the higher cost of production. Promotion of potato cultivation is not limited. This crop is cultivated during wet season in Jaffna. Farmers obtain a yield of 1:10 fold in the field but it can go up to 15 fold with good management. This crop is considered as a high income cash crop by farmers. Farmers prefer to cultivate imported seed to avoid disease incidence. Accessibility for seed potato will be facilitated to farmers through Agrarian Service Department.

Table 3.20: Five years Average of Manioc Production in the Northern Province (Period of 1996-2010)

District	Season	1996- 2000	2001- 2005	2006- 2010
Production (Mt)	*Maha*	15043	24597	16880
	Yala	9884	14356	7977
	Total	24927	38953	24875

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Yams are considered as poor man's diet Cassava, sweet potato and King Yam are cultivated as backyard crop in every homestead. Since yams are long aged crops and need irrigation for longer period for a bountiful harvest, large scale yam cultivation does not exist, but cultivated in small scale for market purpose in homesteads. For

homestead food security, yams can be cultivated on very small scale with kitchen waste water. Sweet potato is cultivated under rain-fed condition in suitable land and marketed. Only cassava is cultivated as a continuous commercial crop in the region. The price of cassava is very much low, thus affordable for all for carbohydrate intake. With the development of cottage level fried chips production as an income generation means by farm women, manioc has now become a potential crop for enterprise development resulting in an increase of cassava production in the province. Sale of value added cassava as fried chips has become a profitable enterprise in the street market. Cassava and sweet potato are important crops for exploring bio-fuel production in the industrial sector too. Exploration of value addition of yams will entail industrial promotion. Potato is cultivated as high value cash crop during the rainy season mainly in Jaffna and on small scale in other districts. Potato cultivation will be promoted to meet the requirement of the region a population with less production cost.

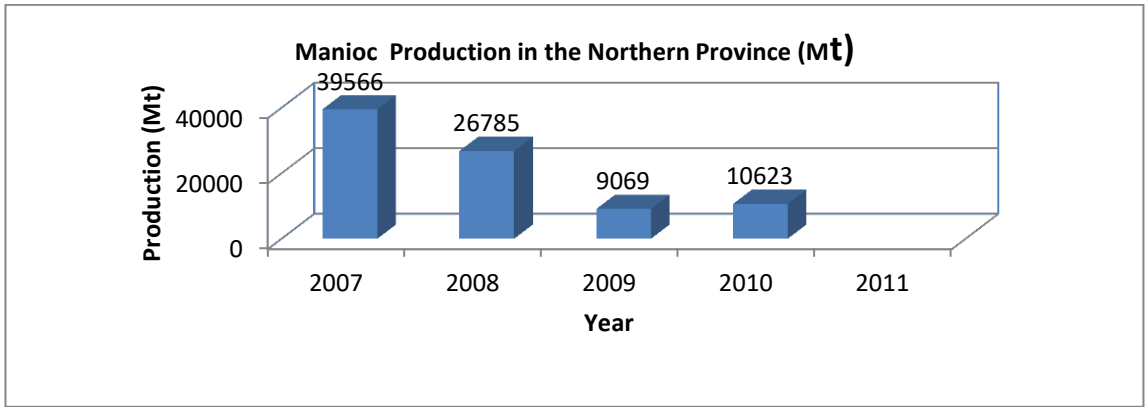


Figure: 3.14. Manioc Production in the Northern Province

3.3.6 Extent and production of Vegetables

Sri Lanka is a tropical horticultural paradise blessed with an agro-climate suitable for a wide range of tropical, subtropical and some temperate fruits and vegetables. The Northern regional fruit and vegetables are highly preferred by consumers due to their unique flavors and the taste. This nature is strength to crop development in the region and the horticultural sector in the province seems to offer the best promise for expansion of the agricultural sector in the future as this sector gains prominence in vegetable and fruit industry. Production systems in the region are traditional, timed to take advantage of the monsoon patterns and the demand. Pest management methods in fruit and vegetables are dangerously out of date. Estimated losses in post-harvest

handling channels have been approximately 40 percent. The potential perishable vegetable production is restricted by poor storage facilities in the local condition. Fruit and vegetable processors and exporters cite the unavailability of quality produce in sufficient quantities and the lack of good post-harvest facilities as the major constraints to the growth of their business. This is especially crucial if horticultural sector offers opportunities for economic expansion and development in the agricultural sector, perhaps more than any other group of crops.

Vegetables play a major role in household farm income and contribute to nutritional intake of people. Both low and upcountry vegetables are produced in the region. Vegetables are cultivated in all the areas in the region. But the management of vegetable crop a poor due to restricted market and limited accessibility for inputs. Jaffna has produced more vegetables and was unable to have a good profit margin due to closed market. Extension has introduced carrot juice preparation to increase the vegetable usage in value added form. Poor vegetable seed supply in many Northern districts affect the cultivation extent similarly, the non availability of agro chemicals and fertilizer has led to poor crop management. Business environment was not conducive to increase the vegetable production in the region. The requirement of vegetable for the region is approximately 0.1 mt./million per year. Total production of vegetable is adequate to meet the requirement of the Northern Province but due to poor transport facilities, some districts are affected by shortage of vegetables. The total production of vegetable in the year 2007 was 69400 mt. while the predicted vegetable production in 2011 is 79511 mt. The achievement of vegetable cultivation was 80% in the Maha season.

Table 3.21: Five years Average of Vegetable Cultivated Extent in the Northern Province (Period of 1996-2010)

District	Season	1996- 2000	2001- 2005	2006- 2010
Cultivated extent (ha)	*Maha*	3956	5497	4563
	Yala	1876	3413	2933
	Total	5832	8910	7496

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

Table 3.22: Five years Average of Vegetable Production in the Northern Province (Period of 1996-2010)

District	Season	1996- 2000	2001- 2005	2006- 2010
Production (Mt)	*Maha*	57451	92733	69512
	Yala	26058	54454	36008
	Total	83509	147187	105521

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

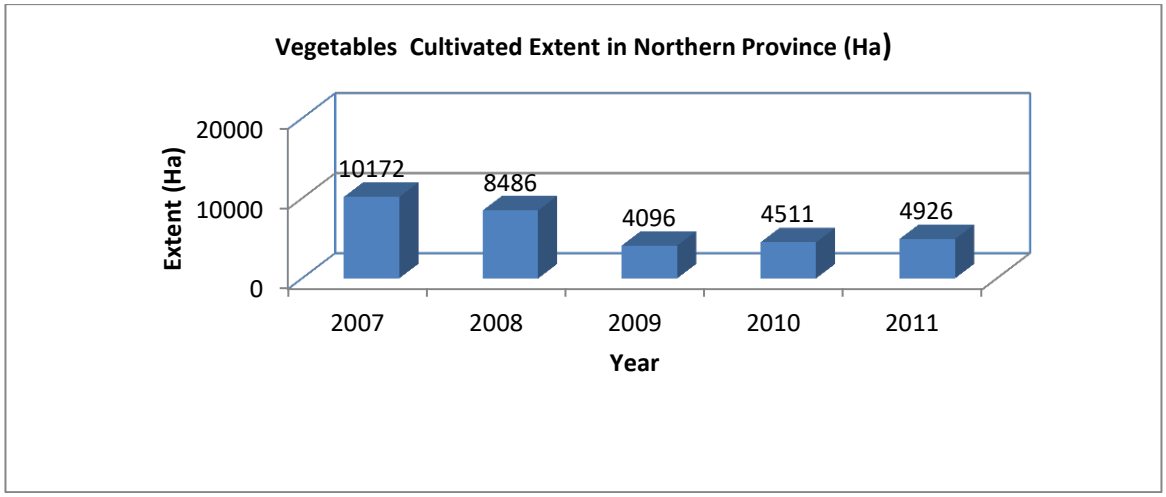


Figure 3.15: Land Extent of Vegetable in the Northern Province

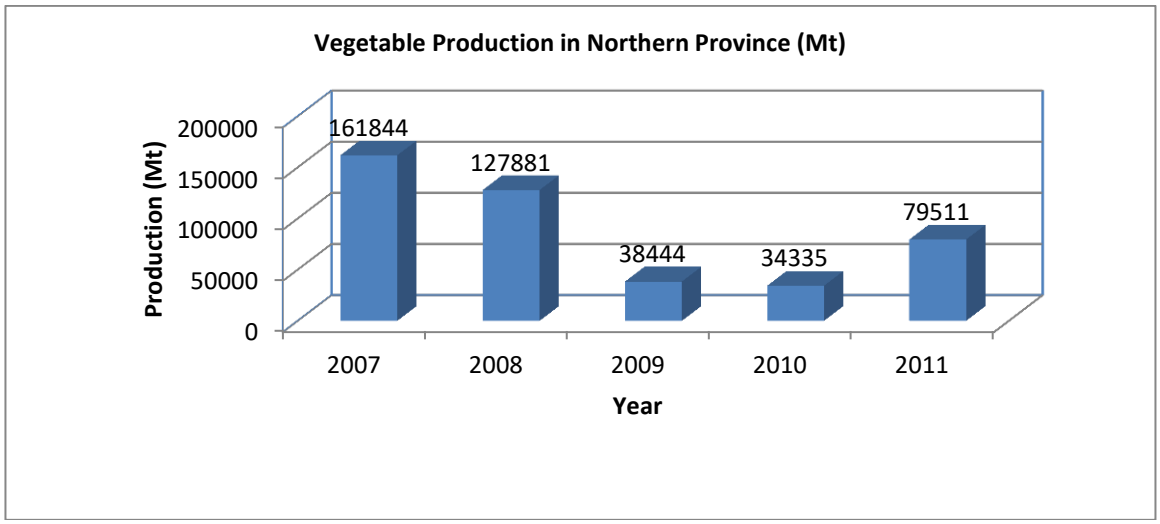


Figure 3.16: Vegetable Production in the Northern Province

Historically, vegetable cultivation in the region is a prominent venture and traditional varieties which had potential features for pest and disease resistibility were cultivated. With the advent of new technology, vegetable cultivation was replaced with new inbred and hybrid varieties and also genetic engineering has advanced to generate Genetically Modified Plants. Hence, farmers in the Northern Province have a good knowledge on vegetable cultivation and they cultivate vegetables throughout the year. A wide range of vegetable crops are grown in the region and included in the daily diet. However, climate has a considerable effect on the production of up-country vegetables, such as beans, leeks and cauliflower, in the dry season unless these are cultivated in a controlled condition. Therefore, to obtain up-country vegetable produce year round, control system of cultivation (net house, protected agriculture, shade net cultivation) should be adopted. Introduction of net house cultivation has shown encouraging results to farmers. Safe vegetable cultivating technologies are available but costly. This is possible when export markets are explored. Some of the most important vegetable crops being cultivated in the region are grouped by importance or use and listed. The popular vegetables in the Northern province were green beans, Yard long beans, winged beans, Okra, tomato, Kankun (Ipomia.), Spinach (Basella), Gotucola (Centinela), Mukunuwenna (Alternanthera), Eggplant, Cucumber, Luffa, Bitter gourd and Snake gourd.

Among many other vegetables, tomato is the essential vegetable and used daily in diets. It is therefore a very important vegetable crop. Tomatoes are commonly used fresh, but to a lesser extent as processed paste, puree, and to an even lesser extent, as juice. There is potential in promoting this crop as a value added product as tomato-ketch -up. Poor technological know-how for cultivation and unavailability of a heat tolerant variety for dry season are the major weaknesses in the current production system. Green beans are also an important supplementary vegetable often used and cooked alone or mixed with other vegetables. In reality, there are three varieties that are somewhat interchangeable in use, the common bean, the yard-long bean and the winged bean. However, the region consumes only the second. Most are used fresh although some are pickled in vegetable mixtures. In the province, mostly yard-long bean is cultivated at household level but those have now become very rare. Green beans are attacked by a wide variety of diseases and insects, though not very critical. There are limited of suitable areas for production of green bean. The absence of dry season varieties mostly climbers and some bush types is a few weaknesses.

Vegetables are cultivated all over in the five districts of the Northern Province as a commercial subsistence crop and for domestic consumption; Upcountry vegetable cultivation is limited to wet season and very intensive in the dry season thus results in higher market price. Vegetable cultivation mostly has been on soil inherent fertility and a few farmers apply fertilizer along with organic manure. The application of large scale fertilizer for commercial production is to get advantages of marketing. As such, the

production potential in existing cultivation is yet to be improved. Several weaknesses in vegetable cultivation can be identified. The following limitations are identified in vegetable cultivation in the Northern Province.

- Poor eco-friendly adoptable technology for pest and diseases
- Most of the farmers adopt traditional practices in cultivation
- Mostly subsistence and homestead level
- Management takes advantage of market
- Poor post harvest handling and transport causing losses
- Harvesting depends on market

3.3.7 Extent and Production of Fruits

Fruit crops play a major role in supplying vitamin and nutrition to all people in the province. The region is famous for production of banana and mango. Traditional banana cultivation and natural mango and jak fruit tree management yield organic fruits. Banana is mainly produced in Jaffna and Vavuniya districts. Fruit crops are cultivated at homestead level except banana, grape and papaw which are grown commercially in small to medium orchard level. Varieties of mango and jak produce are for used for different purposes. However, closing down of market outlets in land out of the province during war period, has caused drastic reduction in banana production and unconducive market environment had an adverse impact on fruit tree management. Poor management of fruit trees and post harvest losses were the major problems in fruit production.

Table 3.23: Fruit Crop Production and Cultivation in the Northern Province 2009/2010

Fruit Crop	Total Extent	%	Bearing	%	Production	%
Banana	4096	42	2953	43	60371	63
Lime / Lemon	948	10	630	9	5837	6
Orange	332	3	248	4	1395	1
Mango	2171	22	1372	20	10690	11
Guava	419	4	250	4	1259	1
Papaw	524	5	397	6	6638	7
Jak	750	8	600	9	7747	8
Grapes	107	1	99	1	1819	2
Wood-apple	407	4	300	4	200	0
Total	9754	100	6849	100	95956	100

Source: Master Plan for Crop Sector Development, Provincial Department of Agriculture, Northern Province, 2010

The total extent of fruit crop in bearing stage is 6849 ha of which 43% constitutes of banana orchard and 20% constitutes of mango trees and the rest is other fruits. The total extent under fruit trees was 9754 ha in the region. The major fruit crops in the region are banana, grapes, (semi-perennials), mango, and jak, pomegrana (perennials).

However, other fruit crops are cultivated sporadically for household needs. Grape cultivation is prominent in the district of Jaffna. The banana which is cultivated in commercial scale arrives continuously to the market. Other fruits reach the market in seasons. The marketable surplus of fruits moves to Colombo during the peak period of production. During the conflict situation, the fruit sector and its marketing systems had been disrupted and the extent of banana cultivation had declined. Management of perennial fruit crop trees is not seriously considered by growers due to marketing difficulties. Seasonal bearing of perennial fruit trees cause difficulties to growers as they are unable to sell a considerable quantity within a very short period while avoiding damages. However, good management of existing trees will bring a total fruit production of 50,000 mt per annum in the region and it is fairly to meet the regional requirement at present at the rate of 100 kg per capita annual consumption as specified by MRI.

Mango Cultivation: Mango is a traditional local fruit crop already grown in the region and widely used for consumption. Mango is cultivated in homesteads as a backyard industry with one to three trees in a homegarden and in some places up to 10 trees. Cultivators take advantage of natural rainfall for crop growing and fruit harvesting and are indifferent on management improvement in higher production. There is potential to increase local consumption with better varieties and with processed products and to export high quality fruits and their processed products. Post-harvest handling is complicated by many wide- spread backyard growers, making quality products a difficult process. Some varieties are grown targeting the export market. Weaknesses of the Current Production System.

- Mangoes are grown throughout the region with a variety of cultivars all of which do not have export quality.
- There is insufficient production to meet the domestic demand.
- There is a strong in- place demand by the existing processors.
- The region has a variety of fruit crops with different tastes and aroma.
- The best cultivar for export is possible to compete with India
- Majority of plants are available in homesteads with poor management
- The majority of the trees are grown with seedlings of varied types.
- Fruits often have poor shipping and storing qualities.
- The improved grafted varieties are not yet produced in sufficient quantity for farmers.

- Fruits are produced in excess during some seasons of the year and are not available in sufficient quantities during other seasons.
- Existing product is not handled well to assure market quality.
- The potential for processed products is not sufficiently tapped.

Pineapple Cultivation: Pineapple has already been introduced and existing in homestead level in the province. There is potential for increasing its cultivation in land of 8000 ha of coconut plantation. Sri Lanka's extent of cultivation is about 4350 ha and the production is only 30,000 mt which is not sufficient to meet the export demand. The Northern region has high of scope of pineapple cultivation. Present production is only sufficient for domestic consumption and does not fulfill the provincial demand. Inadequate supply of planting materials, difficulty in obtaining planting materials and the present industry being at introductory level are the weaknesses of the current production system.

Lime and Orange: Demand for lime, orange and mandarin is ever increasing both in domestic and the industrial sector. Lime juice is an essential ingredient in the diet of the Northern Province people as well as in the entire Sri Lanka. This is an essential fruit for vitamin 'C' supply. Hence, lime and orange are cultivated in most of the homesteads. But, less management of trees results in poor production. However, the large scale commercial cultivation exists in the Vavuniya district. The variety Tahiti is suitable for promotion of lime fruit production in the region. Under the crop zoning program, sweet orange varieties are being promoted. Every household prefers this crop in the homestead. One of the major weaknesses in the production system is poor tree management and technical knowhow.

Papaw: Papaw is well known as a dessert fruit throughout the area. It has a good source of papain used as meat tenderizers. It is promising as a fresh export crop and has definite but limited potential as a processed fruit. Papaw cultivation is very vulnerable to damage in submerged conditions and therefore, a drainage system is needed during the wet season. Development of papaw cultivation at small orchard level with variety, having red flesh and more shelf life will fetch fairly good income to households. There are hybrid varieties with preferable characters available in the market. The greatest weakness of the current system is the use of low quality varieties or of non-descript seedlings. Poor tree management, lack of adequate processing methods are other weaknesses of the current production system. However, the availability of hybrid varieties shows the potential of this fruit crop in commercial farming.

Avocado: Avocado is a popular family fruit produced throughout Sri Lanka and available in season in local markets and it has good source of vegetable fat. There is great potential for cultivating avocado in the Northern region at homestead level to cater to

domestic needs in the initial stage and to cater to the export market later. Avocado plant has already been introduced in the province.

Grapevine: Grape is cultivated largely in the Jaffna district and sporadically in other districts. As the demand for this fruit is high during season, producers concentrate on intensive methods of technical application. Grapevine cultivation needs higher initial capital cost and cultivations are limited. As this is a seasonal crop, outside market is necessary for expansion of this crop. There are varieties to be cultivated for different purposes such as wine preparation, dried fruit, and fresh fruit. It is a profitable fruit crop and has industrial potential. Poor technical knowhow, high investment and long period of management and limited expansion of the cultivation are some weaknesses.

Guava: Guava can be promoted at homestead and commercial level. There are varieties of good quality guava for fruit production. The Agriculture Department has developed varieties of red flesh, white flesh and seedless. This also can be promoted at homegarden level. One of the major problems is supplying of guava seedlings according to consumer preference.

Melons: Melon is not much cultivated in the region as it has no demand in the region. However, the production will bring the demand from outside varieties. A very large number of varieties and quality are desired. This is also true with watermelon. Limiting Factors: Production techniques for melons, varieties other than watermelon are almost unknown to this region. Varieties of table quality watermelon are inadequate in the country. Seeds of the required varieties are not available in Sri Lanka (including watermelon varieties). There is little knowledge or practice of adequate post-harvest techniques.

CHAPTER FOUR

Agricultural Marketing: Districts Level Situation Analysis

This is a study of agricultural marketing in a war situation area with a specific focus on the present situation of the Northern Province in Sri Lanka. Therefore, the key objective of the chapter is to identify and review major characteristics of existing marketing systems, management and market profiles for key areas of agricultural marketing systems in the district, because agricultural marketing is important for the survival of the entire production system in rural economy. On the one hand, improved marketing system, organization and procedures have the potential for facilitating the intensification of cultivation through commercialization of agriculture. On the other hand, agricultural marketing system is a link between the farm and non-farm sectors. In the context of the Northern Province of Sri Lanka, a supporting arrangement of the development of efficient marketing system would be the promotion of viable farming units which aim at overcoming certain specific weaknesses on individual farmers in marketing systems and places.

4.1 Present Agricultural Marketing in the Districts

Briefly, marketing is the performance of all business activities involved in the flow or distribution of goods and services from the point of production to the hands of ultimate users or consumers. Agriculture includes all operations and institutions involved in moving farm products from producers to farmers. It also includes the flow of farm supplies from producers to farmers. The main task of a marketing system is collection of scattered produce from thousands of small farmers and sending them to other consuming areas through markets especially to urban areas. There is also a need to redistribute goods in the producing areas because producing areas are not essentially consumer areas. With envisaged increase in production, the marketing system becomes more important. For example, providing efficient marketing system for the increased volume of production. Only a satisfactory marketing system can sustain the growth of productivity.

The Northern Province has been directed towards development of agriculture, hence, agriculture will be the most important economic sector in the region. Therefore, agricultural expansion relating to the marketing of agricultural commodities will seriously affect the day-to-day living of the farming communities. The region predicts a more than two, three-fold increase in agricultural production and generation of employment in future years, owing to various development programs and projects introduced by the government of Sri Lanka and international donor agencies, during the

present peace situation. Thus the process of agricultural marketing will be one of the major national issues in the country. Even at present, the districts of Mullaitivu, Mannar, Kilinochchi and Vavuniya are major agricultural surplus districts (especially for paddy, subsidiary food corps, fruits and vegetables), and detailed understanding of the prevailing market structure in these district are crucial to eliminate its present problems, constraints and to formulate new strategies for its improvement. This chapter will discuss the on-going marketing practices in the five districts of the region, i.e. marketing channels, functions and costs etc.

The process of agricultural marketing and the market places or locations in the Northern Province differs from district to district. Except for Jaffna and Vavuniya districts, in other three districts - Mullaitivu, Mannar and Kilinochchi -. Marketing systems and places are totally underdeveloped or not developed in some remote areas. However, in main cities of these districts, there are some small new or reconstructed few market places particularly for selling food items that are brought from Colombo, Dambulla and very few items from locality. It is noted that there are no proper marketing systems for agricultural products in these areas, except for a few informal and ad-hoc marketing arrangements that are established in recent years. In case of Jaffna and Vavuniya districts, there are several agricultural marketing systems in these areas and functioning well, covering the production of all agricultural commodities. These systems are formal, organized and rather old. Some of these are newly recognized. Establishment of a Supermarket chain in Jaffna peninsula, Vavuniya and Kilinochchi is important for the distribution of food items and other consumer durables. Different markets and marketing situation is a prominent feature in the province.

4.1.1 Systems and Characteristics: Agricultural Markets in Jaffna District

Existing Major Market Places and Operational Systems: The process of agricultural marketing in Jaffna is extensively improved, well organized and urbanized after the war situation. The Jaffna district has many forms of markets. These are scattered throughout the area mainly in places such as Chunnakam, Thriunelveli, Matuthanarmadam, Changanai, Kodikamam, Chavakacheri, Nelliyadi, Pointpedro Jakviyangkadu and the city of Jaffna. Before 1950, Chunnakam and Kodikamam markets had functioned two days a week. Changanai and Chavakachcheri markets also had been operating their business activities only three days a week. The agricultural market activities have been occurring at small level hundred years ago in Jaffna. Most of these markets mainly consists of the daily market system, small wayside shops and supermarkets which opened in recently. However, it is important to note that there were no every day Economic Centers in Jaffna or in any other part of the region.

As present, Jaffna farmers in any part of the region could sell their agricultural products in several markets in the peninsula. It is noted that coconuts and fruits were brought from the part of Thenmaradchi and many vegetables and banana were from other parts of dedicated the Valikamam area. Most of these markets are presently functioning every day. Their market activities close around 5 p.m. However, most of the whole salers complete their marketing activities around 12 O' Clock. Pola market system is not functioning anywhere in the Jaffna district. Most of the markets are near the farmer's field area. Farmers are benefited in terms of transporting, packaging, selling and obtaining market situation due to this. Therefore, time spent on transport and cost, wastage/losses remain very low in many agricultural products. Thirunelveli, Matuthanarmadan and Chunnakam are wholesale and retail markets. Many other markets are only retail markets. At present, in the Jaffna district, agricultural marketing has several forms of marketing institutions that are mainly;

1. Daily Market System
2. Collecting from field and selling to wholesale markets
3. Supermarkets
4. Small wayside Shops
5. Private sector institutions - LIBCO etc.

Livestock marketing system is a separate marketing system and joins some private sector supermarket organizations. Libco and Jalco are some private sector institutions that deal with livestock products. Market stakeholders who are currently working on agricultural marketing and distribution network of food commodities in Jaffna are as follows.

- Jaffna producers (Farmers)
- Collectors/Loaders
- Commission Agents
- Wholesale traders and Retailers
- Institutional Agents and Contractors
- Processors
- Consumers

In most of the markets, the broker's activities are at a low level, hence, brokers do not make high level profits in price changes on many commodities. All markets are managed or controlled by the Municipal Councils and Pradeshieya Sabha. However, many traders, farmers and other stakeholders who are engaged in agricultural marketing activities record that there are no other management impacts or interventions by any government ministry or organization in these markets. The Municipal Council and Pradeshieya Sabhas grant permission for individuals and

institutions to operate markets and collect their rental incomes from the traders through the private sector agents. Infrastructure facilities are also provided by the Municipal Council and Pradeshieya Sabhas. This was the weakest section in all parts of marketing systems throughout the region. Other activities (tax collection and market management) are also weak and unable to fulfill all requirements of trading and farming communities, that need to function efficiently for an agricultural marketing systems. This was the result of thirty year protracted war and the crisis situation in the region.

Consumer Preference: Compared to the average Sri Lankan consumer with, there are several distinguished features that can be identified in the Northern consumer. Generally, Sri Lankan consumers (Specially Rural Sinhala) consume rice three times per day, while, the Northern consumer (Rural and Urban Tamils) take one rice meal (only Lunch) per day. Therefore, there are several specific rice varieties available in the markets (Jaffna nadu, parboiled etc). Samba and raw white verities are not popular. Most consumers prefer rice flour. Meantime, eggplant (Brinjal) is the most popular vegetable both among producers and consumers. Eggplant is cooked alone or as a mixed item and caters with any food item. Potatoes and beans are not much popular as in the Southern provinces of the country, but leaf vegetables (Tampala) varieties have a strong demand in vegetables markets. Many local yam varieties including manioc and sweet potatoes are also staple food items in the region. Banana, mangoes and grapes are the mostly produced, marketed, consumed, available and commercialized fruit varieties in the region as well as in the Jaffna district. In addition, Jaffna people also consume a few other kinds of agricultural food commodities, such as coconut, pineapples and some other low country vegetables that come from other parts of the country.

Table 4.1: Major Market Places and Operational Systems in Jaffna District

Major Markets (Name Of the Place)	Time Markets Open and Close	Extent in Acres	Number of Sellers for type of commodities	Major Quantities of commodity that arrival to the market: Estimated	Number of Consumers (Estimated)	Quantity of Wastage per day	Business Discount	Major consuming areas- villages
Thirunelvely (1930)	A.M 5.00 P.M. 5.00	7	Veg. S - 2010 Banana - 15 Fruit - 10 Dambulla (3-7)	Brinjal 1500 kg Comb of Banana 300-500	10000	2-3 Tractor	Veg: 10 kg : 1 kg	Kopay Irupalai Urumplray
Chunnakam (before/9.30)	A.M. 5.00	10	Veg – 300 Banana- 06 Fruits 06 Dambulla- (2-4)	Brinjal 1000 kg Comb of Banana 100-150	5000	1 Tractor	-do-	Thellippalai Chunnakam Uduvil
Matuthanar Madum (1967)	A.M. 5.00 P.M. 5.00	10	Veg – 100 Banana – 06 Fruits - 04 Dambulla (2-4)	Brinjal 1200 kg Comb. of Banana 100-150	2000	1-2 Tractor	-do-	Inuvil Uduvill Urumpiray
Changanai	A.M 5.00 P.M. 5.00	15	Veg – 100 Banana – 06 Fruits - 04 Dambulla Perueel (2)	Brinjal 500 kg Comb of Banana 100	1000	Less	-do-	Sandilippay Vadukoddai Uduvil
Kodikamam	A.M. 5.00 P.M. 5.00	8	Veg- 35 Banana – 03 Fruits – 07	Brinjal 500kg	1000	Less	-do-	Madduvil Charakachcheri
Chavakachcheri	A.M. 5.00 P.M. 5.00	10	Veg - 25 Banana -08 Fruits – 06 Dambulla - 01	Brinjal 500kg	1000	Less	-do-	Charakachcheri Navatkuli
Nalliyady	A.M. 5.00 P.M. 5.00	25	Veg – 38 Banana -03 Fruits - 07	Brinjal 500 kg Comb. of Banana 100	2000	Less	-do-	Atchuvely Karaveddy
(Banana Market)	A.M. 5.00 P.M. 12.30	10	Banana – 18	Comb. of Banana 500	Wholesale	Less	-do-	Kopay

Source: Survey Data , HARTI

Agricultural Markets: Some specific characteristics

- Vegetables, fruits and other field crops (especially red onions) are gathered by collectors and wholesalers from the field/markets and send to other districts.

- Paddy/Rice, fruits and vegetables (especially Up country) are brought by collectors and wholesalers from the field/markets and sent to the Jaffna Markets.

- Institutional Agents buy all agricultural food commodities from the main markets and producers, needed to be supplied to the hospitals, hotels, governmental and non-governmental organizations and Army Camps.

- Supermarkets (Cargill's) purchase some agricultural food commodities from the producers using their institutional agent. Parts of these commodities are sent to their Colombo markets and others are sent to Jaffna Supermarkets.

- Jaffna district is not a large paddy producing area. Paddy/rice producing in Jaffna is used for domestic consumption and not for sale. While most of the paddy stocks are brought from the districts of Kilinochchi, Mullaitivu and Mannar to the Jaffna area, a number of paddy collectors and rice millers operated by MPCS and private rice millers are located in the Jaffna area. The distribution points of rice mainly are the markets of the wholesalers, retailers and supermarkets.

Production of vegetables and fruits in Jaffna are mainly distributed in market places of Dambulla and Colombo. Vegetables such as cabbage, beetroot, leek, lime, onion, onion flower, and green chilies are well-known. Production of some fruits such as Banana, Mango, Grapes are also sent to Dambulla, Colombo, Trincomalee, Kalmunai, Vavuniya, Kilinochchi, and Mullaitivu areas. However, vegetables such as brinjal, long beans, carrot, leeks, potatoes, beans, cabbage, lime and rice varieties: samba, raw red and parboiled are the most popular food items in Jaffna. In addition, orange, apple, pineapple, grapes are most preferred fruits in the markets.

It is understood that the Jaffna agricultural markets have perfect competition and there are lots of sellers and consumers who followed the market rules and regulations. Farmers, traders and consumers can come into the market any time for selling or buying, while the market accessibility is rather improved compared to the market situation in the Mullaitivu and Manner districts. A Number of sellers frequently operate their markets on daily basis. Traders pay their tax to the local government institutions on a rate of Rs: 1000 to Rs. 40.00, for the seller's spaces of 10"x10sq" Rs; 40 per day. There are some of supermarkets which function as private trading companies.

There are some external influential factors or forces that affect the agricultural marketing in Jaffna. Weather conditions, changes of consumer behavior, road network and government policies are a few of them. In terms of weather situation, high level of temperature and unseasonal rain and both monsoons affect crop cultivation (Production situation) and lead to the reduction of its production and the price fluctuation of all commodity prices. Meanwhile, rainfall and temperature highly affect the vegetable and fruit crops during in the monsoons, particularly banana and onion. Change of consumer behavior is another factor. The Jaffna Tamil community's demand for vegetables, milk and many kinds of fruits is high in their festival/ temple season (June-September) every year. There is an excessive demand from Christian people for meat and eggs in the Christmas period. Owing to these two reasons, the market demand and price levels rapidly increase or change throughout the market system. Road network is another important factor for agricultural marketing systems in Jaffna. The main roads and many other rural roads are damaged and closed many times in the last thirty years. Therefore, farmers faced a lot of difficulties to bring their agricultural products to the markets. Traders had also problems due to short of supply. This situation led to a lot of wastage in commodities in the field levels and severely affected the agricultural marketing system. Impact of government policies was another leading factor that affected Jaffna farmers and traders. Free import of chilies, onion and potatoes, badly affected the Jaffna production and marketing systems during the local harvesting season. It may be the extent, production and prices from farm gate to retail levels and rural poor farmers get more disadvantageous of their crops.

4.1.2 Systems and Characteristics: Agricultural Markets in Mannar District

Existing Major Market places and operational systems: Among many others, uneven development of marketing systems is the major weakness in the Province. In areas such as Mannar districts there are no proper marketing systems and its operational activities function in an ad-hoc manner on temporary arrangements. Therefore, Mannar is one of the poor districts in terms of institutional organization, operation and distribution of food commodities in agricultural marketing systems. Currently, the Mannar district has only four main food market places: *Mannar* market and *Pesalai* market (both are located in Mannar town Divisional Secretariat division) and *Nanadan* and *Murungan* market (both are located in *Nanadan* Divisional Secretariat division). However, some new market places are to be constructed and will be opened, soon such as *Admpan* market (Located in Manthai west Divisional Secretariat division), and *Pandiverichan* (Located in Madu Divisional Secretariat division) and *Murungan* market (Located in Nanadan Divisional Secretariat division).

Most of these markets are maintained by local government institutions such as the Town council and Pradesheiya Saba in the Mannar district. Generally, for day-to-day

trading activities, market will be opened every day at 6 am to 8 pm. Local farmers use public transport, motor bikes, bicycles to transport their vegetables and fruits to the markets early morning. Some traders and collectors come from Tampula, Vavuniya and Kilinochchi to these markets in their mini vehicles. They transport vegetables and fruits in the early morning to these markets from outside the district. At the same time, some mobile collectors from Thampula and Vavuniya buy commodities of local farmers in these areas, and conduct the retail sale of vegetables and fruits in the same market place.

Meanwhile, when local farmers are diverted from the main market places a few mobile collectors, conduct wholesale business on vegetables and fruits in the main markets and some of them conduct door-to-door mobile sales in their minivans. It indicates a lack of interest in the vegetable and fruits marketing by Mannar farmers and consumers, due to many reasons and all these marketing activities are done on ad-hoc basis. Every main market has separate places for selling vegetable, fruits, fish, chicken and meat like mutton. At the same time, there is no opportunity to sell beef and pork due to local government rules and regulations. Chicken is sold by one or two sellers in every main market, strictly on permits issued by the local government institutions. This situation has given rise to raring of marketing problem in the livestock production particularly in goats and the poultry industry. Thus, there is lack of interest in the livestock production due the problems of marketing.

Before the period of conflict in the region, Mannar was an important paddy producing district in Sri Lanka. Even now, Mannar produces considerable amount of paddy and the larger proportion of production is sent to Vavuniya and other neighbouring districts due to the shortage of rice mills in Mannar. Thus, currently rice is brought from the other major districts of the Eastern and North- central provinces to Mannar. The district has no rice wholesale market. However, rice wholesale is done by the multi-purpose cooperative shops in Mannar city. More than 60 - 80% of the total paddy production is sent to other districts. The most common marketing channels for the paddy/rice marketing system in Mannar are famers, collectors, millers, commission agents, wholesalers, retailers and consumers.

Farmers, collectors, commission agents, wholesalers, retailers and consumers are major stakeholders in the process of agriculture marketing system in the Mannar district. At the same time, there are a few processors, exporters, institutional buyers are connected to these marketing procedures and most of them are not interested in conducting their agricultural marketing business in Mannar. That is the most well-known feature. This was mainly due to the difficulties in rebuilding the previous system due to, lack of capital, road problems and unavailability of infrastructures facilities. Mannar famers directly sell their vegetables and fruits to Mannar town (main market) and *Nanadan* Market. However, famers in many producing areas lack interest in cultivating crops such

as vegetables and fruits due to lack of market facilities and they assume that there is no adequate consumer base within the area. Thus, many farmers sell their produce to neighboring shops without bringing to the main market places. Larger quantities of vegetables and fruits are brought from other districts to Mannar and many Mannar farmers are more concerned about the paddy cultivation rather than other field crops of vegetables and fruits. Therefore, *Thampula* market collectors play a major role in the *Mannar* markets. In Thampula market, the major marketing channel for the vegetables and fruits is collectors - main markets – shops – consumers. Further, collectors come from Vavuniya, Killinochchi (Mulankavil and Nachikuda) and sell vegetables and fruits to the shops in Mannar main market and households as well. They also conduct wholesale and retail business outside the Mannar main market.

There are no wholesaler trading activities of vegetable and fruits in Mannar markets. There is no direct dispatch of vegetables and fruits to other districts from Mannar. Meanwhile, mobile collectors purchase vegetables and fruits like chilli, brinjal, okra, tomato, pumpkin, bittergourd, banana and wood apple from local farmers for selling in Thampula, Vavuniya, Mulangavil, Nachekuda markets. However, it is not a result of surplus production in vegetables or fruits. This is due to some practical weakness agricultural marketing systems of the Mannar district.

Farmers in the Mannar district do not receive reasonable prices for their vegetables due to the arbitrary nature of marketing activities done by mobile collectors and traders. Mannar famers say that “We should have to sell our products in Thampula market or other largest markets in anywhere in the region” Sometime, vegetables produced in Mannar return to Mannar markets from Thampula or other markets with high prices (adding profit and transport cost). Therefore, consumers in Mannar have to pay a high price for the vegetables and fruits produced in Mannar itself.

The marketing systems and facilities are not properly organized due to less population and low level of production in the district. For example, Mannar has only three main markets and one is under construction. However, all main markets are situated in (Mannar and Nanadan) these two divisional secretariat divisions due to high population density and the fact that highest vegetables production areas are concentrated in these areas. The divisional secretariat division of the Mannar city has two major markets namely; Mannar town and Pesalai markets. Nanadan divisional secretariat division has two markets which are the Nanadan and Murungan (under the construction) markets. But other three different DS divisions do not have main market places due to low population density. However, population growth in Mannar has increased rapidly from 2009. There may be a demand for more markets in each divisional secretariat divisions and these will further develop in near future.

The Mannar city market is the largest market when compared with other three markets of the district. There were 15 to 18 retail sellers conducting business in Mannar town

markets. Three lorries a day reach the Mannar town market with vegetables and fruits from other districts. Pesalai market is the second largest market in Mannar. Nanadan market is located in the highest highland crop production area. This area is also the second highest populated area of Mannar. It has only 6 retail sellers and they do not sell local vegetables as production. Thambula and other districts' large markets collect the vegetables and fruits at low wholesale prices. Per day, 15 lorries with vegetables and fruits arrive in the Nanadan market

4.1.3 Systems and Characteristics: Agricultural Markets in Vavuniya District

Vavuniya is primarily an agricultural district and it produces many agricultural commodities. Paddy/rice, subsidiary food crops such as chilli, red onion, big onion, groundnut, black gram, cowpea, green gram, maize, and vegetables were the main surplus production. The District has only one major market place situated in the city of Vavuniya. The Vavuniya city market was started many years ago nearly 1969, before the ethnic conflict. The district has no other economic center or market place for selling agricultural commodities for farmers. However, this market has many connecting activities with the Dambulla Economic Centre and Colombo wholesale market. Brokers and commission agent activities are very high in the market. Generally, farmers and consumers assume that the traders make higher profits when the prices fluctuate. Management and administration activities are carried out by the Urban Council in Vavuniya. Infrastructure facilities are also provided by the Urban Council.

There are large numbers of participants currently engaged in the distribution network of agricultural commodity marketing systems in Vavuniya. Farmers, commission agents, wholesalers, collectors, retailers, institutional agents, processors and consumers are major stakeholders. Paddy, vegetables, fruits and other field crops are taken by collectors and wholesalers coming from other districts (Dambulla, Colombo, Mannar, Kilinochchi, Jaffna and Mullaitivu). Up country vegetables and fruits are brought by collectors and wholesalers to the Vavuniya market form the other districts. All food commodities are bought by the institutional agent for hospitals, hotels and army camps from the main market. Paddy/ Rice are bought from local producers from Mannar and Mullaitivu to Vavuniya district in their rice mills, MPCS and collectors. They distribute their paddy/rice to the local and other districts through wholesalers, retails and super markets. Similar to this, production of vegetables and fruits in Vavuniya are distributed within as well as out of the district. Farmers within and outside the district could sell their agricultural food commodities in only one market in Vavuniya town. Pola market system is not there while most of the sellers complete their market activities by around 12' o clock. Market activities start early morning at around 3 - 4 a.m. They reach the market any time but most of the sellers and traders reach early morning in daily markets. Their business places are very small. Generally, Vavuniya agricultural markets have perfect competitors and there are lots of sellers and consumers. Market is located a long distance away from the producing areas, hence, the situation is not favorable

during harvesting time as, transport, losses and transaction costs become the issues of thousands of farmers in the district.

Table 4.2: Mode of Transport of Agricultural Commodities in Peninsula

Commodities	Packing methods	Mode of transport
Vegetables	Net bags	Bicycles, Motorcycle, Two wheel Tractors and small Lorry
Fruits	Wooden box, Net bags	Bicycles, Motorcycle, Two wheel Tractors and small Lorry
Milk	Cans	Bicycle, and Small Lorry

There are no proper vehicle facilities for transportation of agricultural commodities in some areas when harvesting begins. Rural roads and other main roads are severely damaged. Therefore, farmers undergo a lot of hardships in bringing their commodities to the markets. These situations result in the wastage and increased marketing cost of their products.

In the Vavuniya market, commodity prices are determined according to the supply and demand situation. Compared to the corresponding period of the last few years, the current price of all local rice varieties have seen a down ward trend due to the growing trend of supplies of paddy/rice owing to the peace situation. Meanwhile, supplies of other agricultural commodities such as onion, vegetables and fruits have been greater than before from major producing areas. Weather conditions, seasonal rainfall in both monsoons are the most influencing factors that impact on marketing of vegetable.

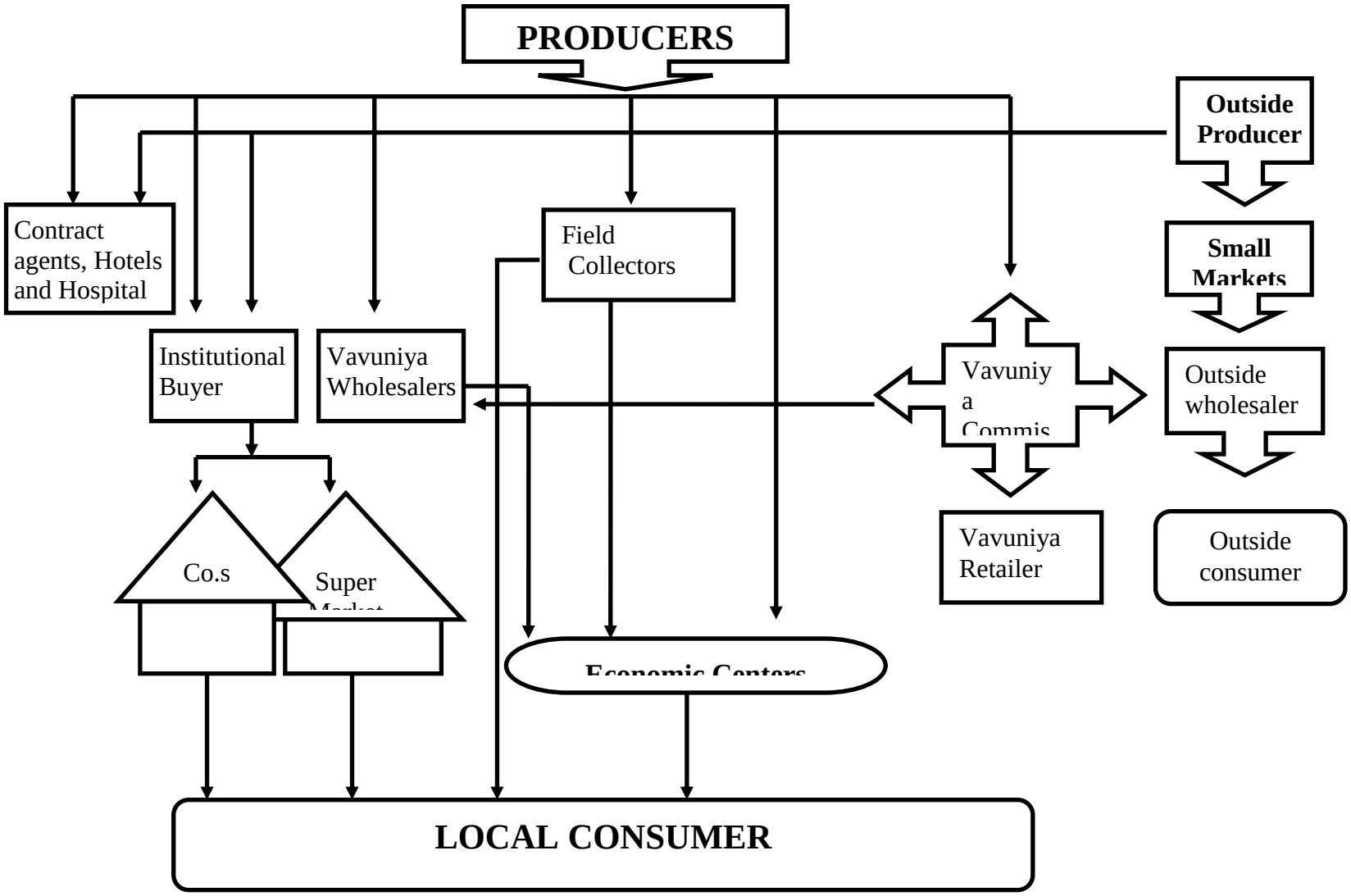


Figure 4.1: Major Market Place and Operational Systems in Vavuniya

Consumer behavior is similar to other parts of the country. Special days of religious and cultural festivals, such as “Thaiponkal”, temple festivals, Charismas, opening ceremonies (like house warming), “Kantasasty” fasting and “Navarathri”, the demand for vegetables, fruits and milk consumption has been considerably higher than other period. The requirement of fresh milk and certain milk based products also increases in all festival seasons. Milk based products, as many of these are by–products of milk will also increase when the milk production increases. Christian people make extra demand for meat and egg during the Christmas period. However, both reasons contribute to higher price fluctuation in the market system.

Lack of quality products, requirement of organized marketing systems and storage facilities, low farm-gate price and profitability, inadequate processing facilities and agro – based industries, lack of active market places, a need for financial capital for marketing and lack of market information are the leading constraints for marketing development. Nearly half the farmers/traders observed by the survey indicated lack of cash (including credit facilities) as one of the main reasons for not investing in marketing. Thus, poor purchasing power of farmers is also a problem for the promotion of both production and marketing systems.

Agro-climatically*, Yala* and *Maha* seasons are the major seasons for paddy cultivation in the district. Most of the paddy lands are cultivated in these two seasons. The major cultivation season, *Maha* which is from late September to February is cultivated inter-monsoon rain and the North – East monsoon which is well distributed all over the Northern and Eastern parts of the island. Paddy is the major agricultural production in the Vavuniya district. It is cultivated in 18,580 acres in Vavuniya (2010). More than 60-70% of the paddy produced in the district reaches the market, which is considered as the marketable surplus.

Table 4.3: Major Paddy Production Areas in Vavuniya District (2010/ 2011 *Maha* season)

Vengala Chettikulam	4639.1
Vavuniya - South	2930.4
Vavuniya - North	3772.4
Vavuniya	9671.9
District Totals	20913 .8

In the Vavuniya district, paddy/rice marketing involves all activities in the flow of the product moving from the producer to the consumer. In this process, a number of operating holders are involved and perform different functions like buying, selling,

transporting, milling, packing etc. The marketing system for paddy and rice comprises two groups namely the private and the state sector. Both groups have operated at three levels in the marketing chain namely primary, wholesale and retail, However, the proportions of paddy/rice traded by both parties have varied from time to time and place to place. There are no proper organized marketing channels for many crops, except for paddy/rice and a few other crops. Other marketing channels change on ad-hoc basis time to time or place to place. Today, the private sector handles more than 95% of paddy/rice buying and selling activities at all levels.

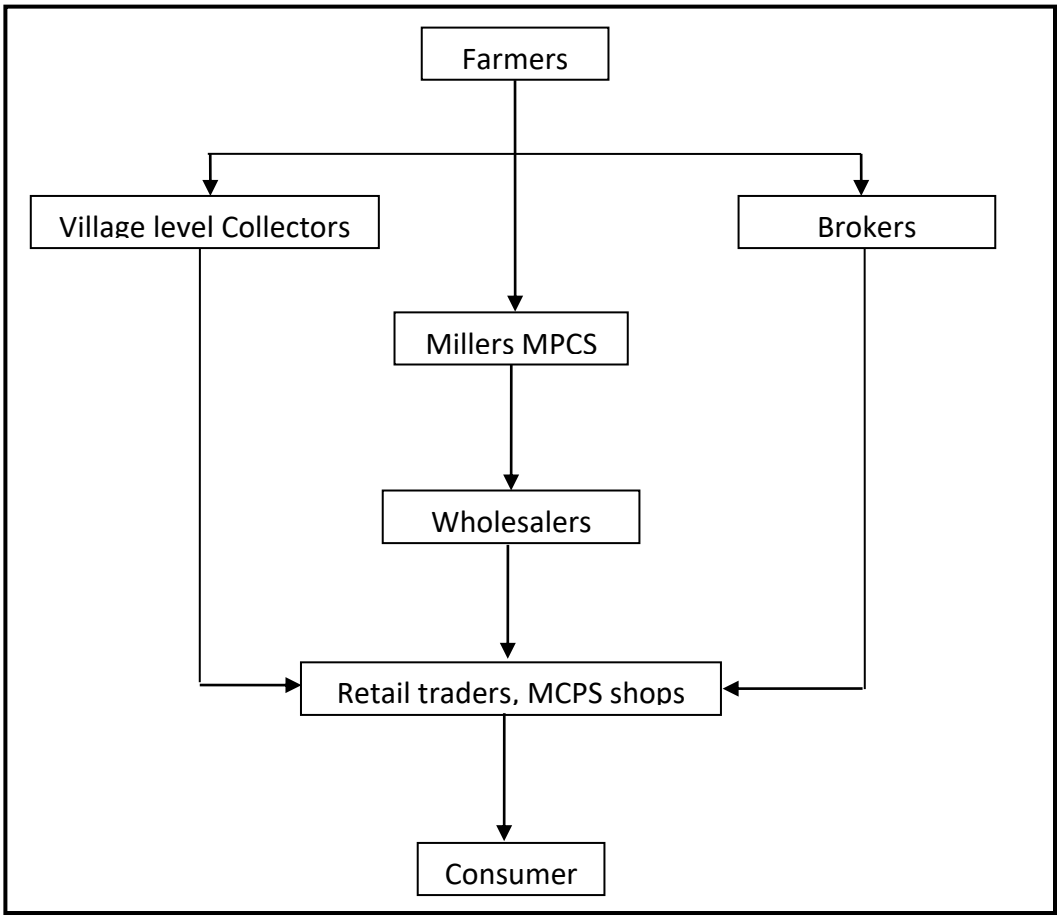


Figure 4.2: Organization of the Paddy/Rice Marketing System in Vavuniya

Vavuniya is not only a key paddy producing district but also a major other field crop producing area. Majority of the rural farming communities of Vavuniya cultivate other field crops for domestic consumption as well as for commercial purposes. The total cultivated extent of other field crop was 4283 acre in Maha season in 2011 at Vavuniya.

Major subsidiary food crops other than paddy were red onion, chilli, black gram, cowpea, maize, ground nut, gingelly and manioc.

Table 4.4: **Subsidiary Crops and Vegetable Production Areas in Vavuniya District**

Major production	Major producing Areas
Red onion	-Pavatkulam, Pampaimadu, Omanthai, Kankarajankulam, Kovitkulam
Chilies	- Pavatkulam, Pampaimadu, Omanthai, Kovitkulam
Up country vegetable	-Madukkanthai, Ulukkulam, Iratperiyakulam, Kankarajankulam
Ground nuts	- Pavatkulam, Pampaimadu, Kankarajankulam
Fruits	- Kovitkulam, Ulukkulam, Madukkanthai

The marketing system of vegetables in Vavuniya was also a significant part of the agricultural marketing system of the district. There are two types of vegetables, local and up country in the market. The role of assembling, sorting, and packing, transporting and selling is carried out by a large number of participants consisting of farmers, collectors, commission agents, wholesalers, processors, institutional buyers and retailers.

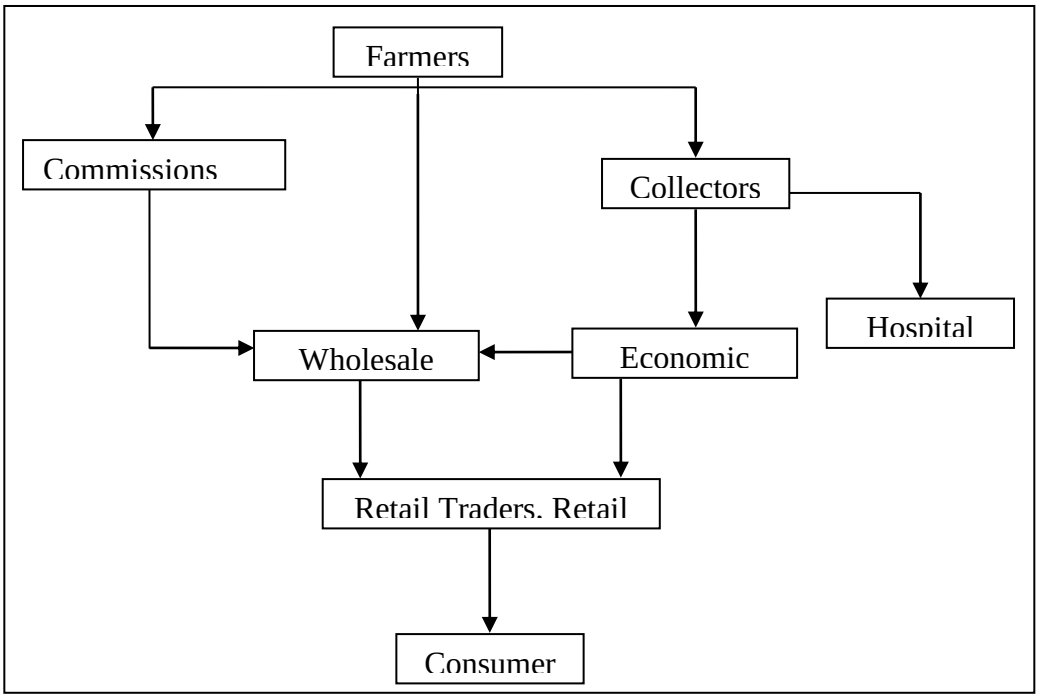


Figure 4.3: Marketing System of Vegetables in Vavuniya

In the district, there are three leading types of markets for selling of agricultural commodities. Wholesale markets, retail market (roadside market, rural markets) and supermarkets are the well-known markets. Recently, supermarkets systems became more popular in city of Vavuniya. System of fruit marketing is also a key aspect of the agricultural marketing arrangement in the district. Commercial cultivation of major fruit varieties of the district were banana, pineapple and papaya. A large number of private stall-holders and pavement vendors sell fruit to consumers at market centers as well as in weekly fairs and roadside stalls.

Milk production is an important secondary source of income of the rural community in the Vavuniya district. The aim of this section is to emphasize the potentials and challenges of the dairy market in the district. This study inquires whether milk based products have a good market opportunity and the challenges in marketing milk and other milk based products. Livestock marketing system is a separate market that collaborates with supermarket system in recently (Cargills Food City). The separate market has Milco Pvt Limited. Marketing of milk in Vavuniya is complex and varied. There are individual farmers who sell their products directly to processors, consumers, hotels, cafeterias, and canteens. Co-operatives are organized primarily for the purpose of collecting and selling milk to either hotels or processors. The formal or processed dairy market consists of small primary dairy co-ops, district- level dairy co-operative unions, and networks of collection points and milk chilling centers operated by co-operated by the main dairy processors.

The main constraints faced by the milk producers are the selling of milk at proper time at fair prices. A secure market needs to be assured. It can be met by dairy farmers cooperatively establishing their own collection system and milk treatment facility in order to convert their perishable primary produce, which requires special and timely attention, into products with improved shelf life for marketing purposes. There are individual farmers who sell direct to processors, consumers, hotels, cafeterias, and canteens. Co-operatives are organized primarily for the purpose of collecting and selling milk to either hotels or processors. The formal, or processed dairy market consists of all primary dairy-co-ops, larger local co-ops, district-level co-ops, dairy co-operative unions, and networks of collection points and milk chilling centers operated by co-ops of the main dairy processors. Most farmers are not members of cooperatives or farmer societies.

The problem of management practices in agricultural marketing in the district was almost similar to problems in many developing districts in the province. Most of the development programs and plans, less emphasis was given to the improvement of knowledge on agricultural marketing and behavior of the farmers in these areas. Having recognized the need for marketing education, income, age and family size of farmers have shown no relationship with the knowledge level of marketing management.

Insufficient infrastructure facilities for agricultural marketing are other important problems in commodity marketing system of the district. Vavuniya has little infrastructure services for the production and marketing of fruits and vegetables as the prevailed facilities had been damaged in the war period. The inadequate number of collection points and transport facilities are key obstacles, for producers. Small landholders have to travel several miles searching collecting points or market places for buying or selling of their products. The development of road network is the most viable solution for many problems of agricultural commodities in the district.

4.1.4 Systems and Characteristics: Agricultural Markets in Kilinochchi District

Kilinochchi is a large market place. There are also a few small market places throughout the district. Periodic markets (Weekly Market) and Economic centers are not available in the district. Broker activities are at a low level in market places so brokers' activities do not affect the price charge significantly. All markets are managed by the local government (Pradeshiea Saba) and Pradeshiea Sabha grants permission to the function of functioning of markets to the private sector on rent. However, there are no proper government interventions in most of these markets as in other parts of the country.

Almost all the farmers in Kilinochchi could sell their agricultural commodities to the Kilinochchi city market. At present, there are some small markets and they function all days. Activities of these markets start at 5 a.m. while most of the sellers complete their market activities by 12 o' clock in the afternoon. Pola market system is not functioning anywhere in the Kilinochchi district. A few markets are located near the farmers' field area. That situation gives many advantages to farmers with regard to saving time, transport cost and causing minimum wastage. The city of Kilinochchi and Mulankavill market work as both wholesale and retail markets.

Farmers in Kilinochchi produce many of agricultural commodities and livestock products. Livestock marketing system is also part of the main marketing system. Most of these products are consumed within the area and small quantities are sent to outside the district. Jaffna, Vauniya, Mannar, Dambulla and Colombo are major outside market places. Products are distributed to many people through the city market. Kilinochchi

farmers first deliver their products to five segment of buyers such as institutional buyers (Hotels and Hospitals), field collectors and Kilinochchi city market. Lager portion of the agricultural commodities are purchased by the collectors and agents and they deliver these products to Kilinochchi city wholesalers. Then wholesalers deliver those products to Kilinochchi retailers. Then consumer purchase from three retailers: city retailers, Cargills food city and outside retail markets within the district. In the meantime, some agricultural products are delivered directly to the wholesalers, retailers and commission agents in Jaffna, Mannar and Colombo. So outsiders consume these products infrequently because these supply systems are not regularized. Participants of the current distribution network of food commodities in Kilinochchi were the farmers, collectors, commission agents, wholesalers, retailers, institutional agent, contractor, processors and consumers in these areas.

Commodity	Packaging Method	Mode of Transport
Vegetables	Net Bag	Bicycle, Motorcycle, Van and small lorry
Leafy Vegetable	Net Bag	Bicycle, Motorcycle, Van and small lorry
Fruit	Net Bag	Bicycle, Motorcycle, Van and small lorry
Milk	Milk can	Bicycle, Motorcycle, Van and small lorry

Table 4.5: Commodity Packaging Method and Mode of Transport in Jaffna Peninsula

Vegetables, fruits and other filed crops (onions) are taken by collectors and wholesalers who come from other districts. On the other hand, paddy /rice, fruits and vegetables are brought from other districts by collectors and wholesalers to the Kilinochchi markets. There are several institutional buyers such as hospitals, hotels and Army Camps. In the meantime, supermarkets (Cargills) purchase some commodities from the producer through their institutional agents. These products are purchased by the own agent and return to Kilinochchi. Paddy/rice are brought from Jaffna, Mullaitivu and Mannar to Kilinochchi district by rice millers and MPCS and private traders. They distribute their paddy/rice to the wholesalers, retailers and supermarkets. Kilinochchi produced paddy/rice is used only for their domestic consumption at present.

Table 4.6: Commodity Sending to Outside and Brought by Outside in Jaffna Peninsula

Commodity Items	Sending to outside areas	Brought by outside districts
Vegetables	Cabbage, Beetroot, Leek, Lime, Onion, Green Chilies and dry Chilies	Brinjal, long beans, carrot, leek, potatoes, beans. cabbage, lime

Fruits	Banana, Mango, Jak	Orange, Grapes, Apple and Pineapple
Paddy/Rice		Samba varieties and Raw Red

Normally, farmers and traders are aware that the Kilinochchi agricultural markets have perfect competitors. Meanwhile, Kilinochchi has two types of market places such as the main market and small markets, so prices are different in each market as they are determined by the main market on the availability of sufficient stocks. Generally, the prices of Kilinochchi production are lower than the prices of food items brought from other districts to the main market and small markets.

However, it is noted that the prices of some food items such as coconut and onion, are low in small market, as there no transport cost is involved and farmers need to suddenly deliver their stocks and sell at whatever the prices they receive. On the other hand, prices of some product are often very high in markets, because some of the farmers do not like to produce large quantities due to the fear of a war situation. Weather changes are leading factor of price changes. Unpredictable rainfall and higher level of temperature are the other contributing factors for price fluctuations. In the last *Maha* season some products, such as paddy, vegetables, and livestock were mostly damaged. That is the reason for high price levels for many products at present.

Hindu festivals are the most influential factor that determines the market demand of food commodities in the Kilinochchi market. The Hindu people of Kilinochchi make more demand for vegetables, milk and many fruits in their festival season (June-September). It is the same with the Christians in December. Transport of agricultural production is the other key problem of the district. Main roads and other roads are damaged and closed due to many reasons, and therefore, farmers undergo severe hardships to bring their agricultural products to the markets. This situation has created lot of wastage in commodities and increase in the marketing costs.

Paddy is the major agricultural crop in the Kilinochchi district. The total production of paddy was 57,008 Mt. in 2011 Maha season. The total extent of paddy land was 25382 ha in the district, before the war period. The number of farmer families in the district was 21,935. The total paddy cultivated extent was 11,460 (ha) under major irrigation. The extent of paddy land under minor irrigation was 11925 (ha) and the extent of paddy land under rain fed irrigation was 2850.ha. At present, most of the cultivated paddy varieties are BW 361, BG 300, BG 406, and Co-10. There are two rice mills in the district. During harvesting season, the production of rice in these rice mills are sent to the retail markets in the city of Kilinochchi. However, most of the farmer communities in

Kilinochchci use paddy production for their own/home consumption, because paddy production is not sufficient for the consumption requirements of the district.

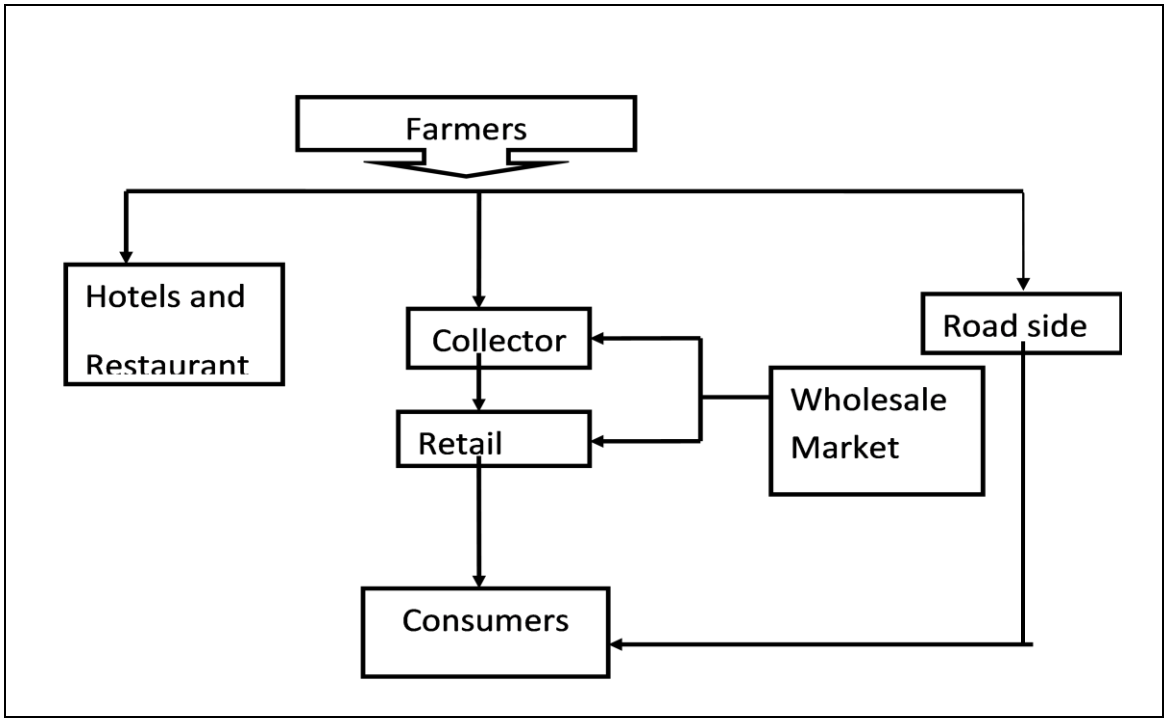


Figure 4.4: Vegetable Marketing System - Kilinochchi Town Market

It was observed that there are higher possibilities and potentials of the development of subsidiary food crop production in the district. However, the present subsidiary food production is very low when compared to other districts of the region. They are cultivated in small land areas in 2010/2011 Maha season as follows.

Table 4.7: Subsidiary Crop Production in the Kilinochchi District

Major Crops	Land Extent (Hectares)	Production (Metric Tons)
Potato	5	75
B Onion	10	100
Red Onion	260	3900
Chili	230	
Green Grain	280	287
Black Gram	280	280
Maize	105	420
Kurakkan	15	15
Cowpea	180	288
Ground Nut	400	1000

These are the major subsidiary food crops cultivated and produced by Kilinochchi farmers. Black gram, ground nut, green gram, gingelly, potatoes chilies are cultivated in small plots. Tobacco is not cultivated in the district. However, it is noted that the cultivation of most of the food crops are for their own consumption and not sufficient to generate a considerable marketable surplus. Some vegetables are arriving from the Dambulla Economic Center.

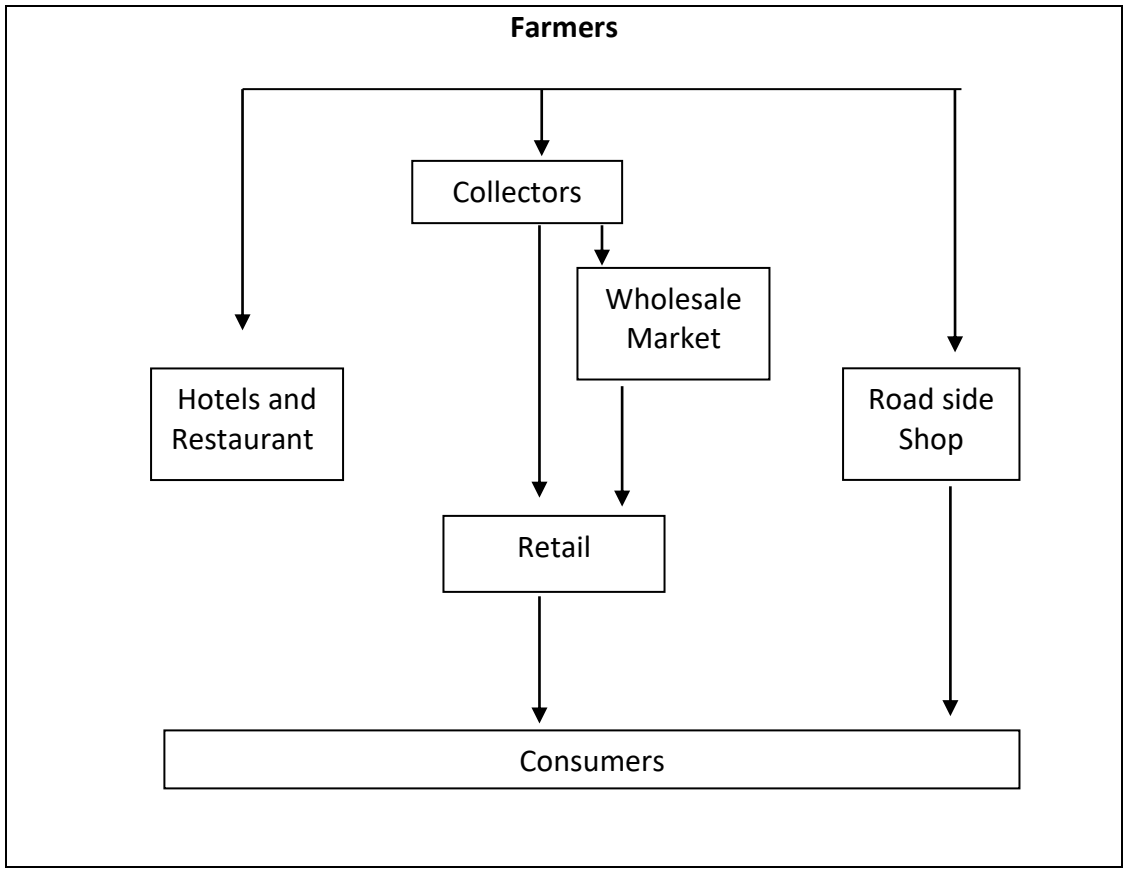


Figure 4.5: Marketing Channels of Vegetables in Kilinochchi District

Vegetable marketing system of the district depicts uneven development. There are no proper organized vegetable marketing systems in the Kilinochchi District. It is a small marketing system implemented on ad-hoc bases. There is only one large vegetable market located in the Kilinochchi town. In addition, there are four very small market places outside the city area. The total vegetable production is not adequate to fulfill the

consumption requirement of the people in the district. Vegetables such as leek, beetroot, radish, cabbage, and ladies fingers are brought from Dambulla Economic Center.

Fruit marketing system is also not well organized. Small fruit markets sell banana, grapes, papaw and mangoes brought from the Jaffna district. Mangoes are produced on small scale, which is called in “Kilinochchi Vila”. The trend of growing banana cultivation in the district is also not significant.

Table 4.8: Extent of Selected Fruit Crops Period of 2007 – 2010

Major Fruit Crops	District Total (Ha.)	
	2007	2010
Banana	524	14
Lime	38	20
Orange	11	03
Mango	247	185
Guava	44	04
Papaw	43	04
Pomegranate	31	12
Jak	108	86

The land extent has considerably declined from year 2007 to 2010 due to the war situation. However, evidence shows that there is a growing trend of fruit cultivation in the district. Thirvnafar and Thirveeijaru are the major fruit cultivating areas.

Livestock production is also a small component of the agricultural marketing system. These districts have four major types of livestock production. Cattle, goats, poultry and broiler chicken are the key products. Most of these are growing at home level for their own needs of consumption. Normally, broiler chicken is available at commercial level and produced at farms. Mutton is not available because many of the animals were lost in the war period.

In the meantime, tobacco is not cultivated in the Kilinochchi district and products are imported from the Jaffna district. However, resolution of the problems of the agricultural marketing is vital for increasing farmers’ income in Kilinochchi. The study identified the following problem areas in agricultural marketing system in kilinochchi.

Problems of Management Practices Technology Problems

- The farmers cannot get actual prices for their production, because most of the vegetable varieties come from other markets.
- Vegetable seeds are sold problem; farmers cannot get seeds needed while seeds are sold at high prices.
- Marketing exercises do not actually function in the district.
- There are no proper maintenance systems between the period of crop cultivation and harvesting.

Technology Problems

- More farmers of the district are below the poverty line and are in low income families. So they cannot use high technology packages.
- They are using old technology so they get low level of income.
- During harvesting time, price level thus go down
- Technical support is not enough for farmers.

Transport problems

- Inadequate vehicle facilities and transporting vegetable and fruit to long distances make huge losses
- Poor roads condition and non storage facilities

Problems of infrastructure facilities

- Water resource problem due to national disaster problems
- Damaged roads
- Storage problem – No adequate storage facilities for paddy
- Processing cultivation not available (fruits, and Vegetables and Paddy) Par Boiling Problem
- Lack of loan facilities for large investment

Market Prices Stabilization/Fluctuation/ Level of Farmer Income

- Market prices are highly fluctuating, due to market uncertainty
- A larger number of farmers are below the poverty line and at low level income gap

4.1.5 Systems and Characteristics: Agricultural Markets in Mullaitivu District

The Mullaitivu district is the most remote district in the Northern Province. The District has five divisional secretariat divisions. However, every district in the province had an organized production and marketing system before the war period. The Mullaitivu district was no exception. During the war, the Mullaitivu district was severely damaged and mostly neglected or ruined and there was no marketing system, due to long term

absence of human settlements. There have been some improvements lately, but there is no proper economic environment for the development of agricultural marketing systems in the district. On the other hand, it is noted that the marketing systems are functioning smoothly. Out of five divisional secretariat divisions in the district, two of Vishvamadu and Puttukuduirippu divisional secretariat divisions resettlement was not completed until the end of 2011. Presently, there are four major market places operating in the district of Mullaitivu. They are Thaniyoru, Muliyavalai, and Silawathurei and City of Mullaitivu markets.

- **Mullaitivu** city market is located adjoining the Mullaitivu bus stand and the government office areas of Mullaitivu city. In this market, there are 16 vegetable sellers, 12 fish sellers, 03 fruit sellers. In addition, 01 beef shop, 02 chicken shops, 02 fancy shops exist in the market. This is the biggest market place in the district.

- **Thaniyoru** market is near Vithiyanathu College near the city area. There are 12 vegetable sellers, 15 fish sellers, 05 fruit sellers, 01 chicken shop, 01 beef shop and 10 textile and other durable item sellers in the Thaniyoru market.

- **Muliyavalai** market has 15 vegetable sellers, 10 fish sellers, 05 multi shop, and the market functions and operational activities are same as Thaniyoru market.

- **Silawathai** is a small market in Mullaitivu. There are 08 vegetable sellers, 05 fish sellers and 01 beef seller. Silavathai market usually opens for a very short period and it is closed in the afternoon. But all other markets functioning at normal times of the day.

Mulliyawalai market was established in 1985. At that time this was the largest market and after the war, the situation has completely changed. Presently, “Thunukai” market is rapidly expanding and emerging. Thunukai market was opened in 1971, and recently it was called “Malavi" market. Presently, there are 05 vegetable sellers, 02 fruit sellers, 01 coconut seller, 04 Multi shops, 01 textile shop, and 01 fancy shop.

Generally, most of the markets start around 8.30 am and close down at 6.00 pm. These markets do not operate with brokers and agents. Most of the producers directly connect with sellers or traders. Then consumers buy directly from the sellers. Farmers sell their vegetables to the main market. Some of the vegetable quantities arrive from outside of the district. For example, Dambulla vegetables come to the Mullaitivu market. In addition, many quantities of vegetables come from Nedunkini that was the place of Vavuniya district.

The majority of the communities in the district are resettled people after the war period. The most part of the region is resettlement areas. In this sense, most of the market places and shops need to be rebuilt. The wholesale markets or shops are not available in the district. This was the main reason for non –establishment of a wholesale market. Most of the farmers at present live in Nedunkeni 22 miles of Mullaitivu city. These markets are organized and operated by Pradeshiya sabhas. The Pradeshiya sabhas provide market and other security services. A tax has to be paid to Pradeshiya sabha by the sellers or traders. The markets do not function properly as the district economy is not self-sufficient or there is no marketable surplus. Normally farmers produce and bring to the market. No bargaining takes place in the market place. They sell their products at any prices. Brokers do not function in the local marketing systems prevailing in Mullaitivu.

Paddy is the major agricultural crop which involves different cultivation activities. The Yala, Maha and middle season are production season. The farmers use major and minor irrigation facilities for cultivation of paddy. The total paddy cultivated areas in Mullaitivu are 16536 ha. Land is most suitable for paddy cultivation and it is technically recommended. Presently, after harvesting, the paddy is brought by farmers in their houses. Then collectors come to farm household and bargain prices. After the transaction the paddy is sent to Colombo or other districts. Before the war situation, paddy marketing was completely different. Paddy collection and distribution is entirely done by private firms. Collectors and wholesalers come from other districts and they transport the paddy in their vehicles. The paddy quantities are normally sent to Colombo and Jaffna. Before the conflict situation, paddy is the major crop in the district. The paddy area of the district was 20290 ha in 1985, while in the year 2008, it was 6671 ha.

There are some subsidiary food crops grown in the district. These are chili, big onion, red onion, green gram, black gram, cowpea, groundnut, maize, gingelly, kurakkan, menari and sweet potato. Vegetable and other food commodities are brought by the farmers to markets. Sometimes the collectors bring them to the market. The farmers use cycle or motorbike for transporting their vegetable products. The vegetables are brought by small or big lorries from Dambulla market or some other market places such as Vavuniya and Jaffna. All vegetables brought to the market are distributed to retail shops. Restaurants and supermarket do not exist in Mullaitivu city or district.

Many vegetables are also cultivated in the district. These are beans, capsicum, tomato, cabbage, carrot, beetroot, long beans, okra, brinjal, snake gourd, bitter gourd, pumpkin and ash plantain. These are for home consumption. Sometime, district vegetable products are not sufficient for consumption of Mullaitivu. Therefore, vegetable from

Dambulla are brought to the market. Normally, the marketing system runs through farmers and sellers. Farmers bring their products to the market. Sometimes, price negotiations occur between farmers and traders. It has not seen the activities of the brokers or agents. Fruit marketing activities are also carried out in the same as the vegetables marketing system. There is no single fruit stall in markets. Most of the fruits come from the house garden and small cultivation areas in the district.

Cattle, buffaloes, poultry and goats are the major livestock in the district. There is regular supply of beef and chicken in markets and other meat products are not available frequently. The livestock market in Mullaitivu is same as other markets. Beef and chicken are the major productions in the district. There is a small buffalo population whose milk used for the milk for producing curd. Curd and chicken are distributed by non-government organizations. Generally, it is observed that the production is used for domestic consumption. It was practical that the vegetable markets are fairly competitive and the market of chicken and beef is a monopoly due to the underdeveloped condition of the district.

The fish market is also competitive. Most of the fishermen bring in their fish stocks to the market and sell to traders. The traders send the purchased stocks out of the district. There may be some monopoly characteristics in the fish marketing system. Cooler vehicles are used to transport the fish stocks. In this regard there is a monopoly. The coolers come every day to the seaside and operate in a rotation system. In the district, most of the vegetable and fish markets are characteristic of competitive markets. Both inland and sea fish are available at the market. Most of the sea fish is sent to the Colombo wholesale fish market. However, insufficient cold storage facilities are a serious problem for the development of this sector and that may affect the producers as well consumers. Although, some traders/producers send fish to the Colombo market, there are storage facilities for fish in Mullaitivu. The retail prices of fish are generally higher, compared to other areas prices of most of the good varieties of fish are around Rs.400.00/kg in the concerned period.

It is important to note that authorities do not pay adequate attention to rebuild a suitable market operating system in the Mullaitivu district. The Mullaitivu district is one of the major agricultural production areas with a large number of major and minor irrigation facilities in the province. Agriculture is largely dependent on major irrigation tanks. There are 18 major tanks. But these are not adequate to provide water facilities to the entire district. The number of minor tanks is 105.

There are no proper food storage facilities. Farmers and traders reported that there is a serious problem of rats. During the harvesting season, most of the paddy crops are

destroyed by rats and they assumed nearly 10% of the paddy cultivation is destroyed by rats. If the government can provide storage facilities that will be a great help for the many rural poor farmers. Construction of new market places and new buildings are pre conditions of the development of agricultural marketing system which collapsed during the war. However, most of the market activities in the district operate without buildings.

Low farmgate prices for their agricultural production are the key problems for many farmers. Generally, traders and sellers offer low prices for the farm production. Farmers get very low prices in the market. They do not get a substantial earning from the agricultural production. The price level highly fluctuates. Sometimes, farmers can not cover their cost of production. In some cases, vegetable prices had come down to a single digit. The demand situation is also very low in Mullaitivu. That is one of the important reasons for reducing the price level, because larger portion of the communities of the region are re-settlers and are below the poverty line. The farmers do not truly gain from their production. Therefore, the authorities should have to give priority to solving these problems and take action to reduce agricultural poverty in farm families. Most of the paddy lands are under the larger irrigation tanks. They should be well maintained. The minor tanks will need to be repaired by the farmer organizations. Usually, *Yala* season is a season with water scarcity. Major and minor tanks must be repaired. Presently, there are 80 minor tanks not used for paddy cultivation and that has affected the production of paddy.

Loans are needed by most of the farmers. Sometimes, due to higher risk situation in agriculture, they lose their expectations. Lack of capital for investment in production and the marketing sector is the other huge problem. Climatic condition also affects production. The farmers do not receive regular incomes. Sometimes they lose their assets. Organizations need, help to avoid their risk situation.

Agricultural extension services are extremely poor and still there are no proper organizational setups for dissemination of extension services. Farmers have many management issues with regard to crops and pests. Instructions and support services are required from the government and non government organizations.

Land size of the areas is fairly large. Most of the farmers have a few acres of field. But they have no machinery such as tractors and other high cost equipment. The cost of tractors is very high and famers are unable to use these facilities. Seeds are distributed by the agricultural centers. They are not enough for the farmers' requirements in the district and the system is not functioning smoothly.

There are no agricultural research centers in the Mullaitivu district. Soil testing, identification of suitable crop varieties and other technical assistance are not available for rural communities. If these assistances are provided by the authorities to the farmers, it will contribute to agricultural production and productivity improvement in the district.

Transport is another limitation for the development of agricultural marketing system. All of the main roads are affected by the war and the rain. Rural farm roads have red dust which creates environmental problems as well as transport problems. Further, the time for transportation to other areas takes long.

Buildings were mostly affected during the war period. All market places in the district were destroyed and presently they function in other places or temporary tents. These places are too small and not adequately spacious. There are very small, simple huts in markets and on rainy days people face highly difficult situations. Urgent programs are needed to repair or rebuild the market buildings.

Electricity facilities are not available in many market places. Rice mills function with the use of electricity. These may affect the production of rice and operating of rice marketing system in these areas and the government needs to take action immediately. When compared to other districts in the province, Mullaitivu is the most remote and the least developed district. Some basic needs such as food, housing, health and other infrastructure facilities to the communities are lacking. Mainly road facilities are urgent needs. However, the construction of new and old road facilities will be highly advantageous for the communities.

Bus is the common transport facility that is often used by the farmers to bring their agricultural products to the markets. It is a very hard and complicated situation for the farmers. However, bus owners are not cooperative to farmers and avoid transporting commodities. This will be one of reasons for the prevailing low producer price, in the markets. On the other hand, farmers who arrive late receive low price level at the markets.

Urgent needs to be focused in Mullaitivu District

- Major and minor tanks should be repaired as soon as possible.
- Marketing building and marketing facilities should be provided to the farmers
- During harvesting time, surplus vegetables should be sent to other district.
- Banks and other financial institutes should offer the loans to farmers
- Agrarian centers should be re-established and serve farmers

- Wastage during harvesting time should be reduced.
- Introducing crop insurance plan for farmers.
- Large paddy stores should be established in Mullaitivu
- Different varieties of paddy seeds should be distributed in the district.
- Mullaitivu has a large and deep sea area thus, efficient fish marketing systems should be organized.

4.2 Analysis of Marketable Surplus in the Northern Province

4.2.1 Marketable Surplus – Paddy Sector

Paddy is the regional staple crop for food, especially red rice. The Northern region has the potential of 100000 ha of paddy low lands; however, it could not have been fully utilized for cultivation during the past years due to the unfavourable socio economic climate and political situation in the region. Paddy is cultivated under both rain-fed and irrigated conditions. Both conditions consist nearly 50 /50 paddy land.

Despite the mass displacement in the region and complete damage of 8016 ha of paddy cultivation by floods in the year 2011, the total production of paddy of the cultivated extent of 92,767 ha was estimated at 3,09,302 mt. The paddy production in 2011 was comparatively higher than that of the previous years. The partial damaged extent due to floods in Mannar, Killinochchi and Mullaitivu districts was 13,869 ha, in Maha season in 2010/11. The average yield per hectare was maintained as at 4.5 - 5 mt/ha.

Table 4.9: Paddy Sector Performance – 2011 Yala Season (2011 June – Second Quarter Report)

Targeted	17,387 ha.
Cultivated Area (The Cultivation Progress up to end of June)	2011 is 15,279 ha. 89% of the target.
Expected Production	65,520 mt. of paddy.
Per capita consumption of paddy	140 kg.
Consumption usage	84,000 mt. (Up to 6 month)
Marketable Deficit	18,480mt.

Source: Crop Forecast – Second quarter Report 2011, Provincial Department of Agriculture in Northern Province

Targeted Areas	85,080 ha.
Cultivated Area	77,488 ha. (91% of the target)
Expected Production	293,731 mt. of paddy
Extent 100% Flood Damaged	8,016 ha. (9.5 % of the cultivated extent)
Extent partial Damaged	13,896 ha. (18 % of the cultivated extent)
Production Loss	45,242 mt. (15 % of the expected production)
Extent Damaged (Pest and disease)	1,165 ha.(1.5 % of the cultivated extent)
Production loss	4,707 mt. (1.6 % of the expected production)
Expected production (After Damage)	243,782 mt.
Per Capita Consumption of Paddy	140kg.
Consumption usage	84,000 mt. (Up to 6 Months)
Marketable Surplus	159, 782 mt.

Table 4.10: Paddy Sector Performance – 2011 *Maha* Season (2011 January – First Quarter Report)

Source: Crop Forecast –First quarter Report 2011, Provincial Department of Agriculture, Northern Province

The amount of marketable surplus and deficit of the paddy sector are shown in the above two tables. The statistics indicated that the paddy surplus is only available in the *Maha* season, while in the *Yala* season there is a deficit. In the year 2011, there were 159, 782 mt. of marketable surplus in *Maha* season while and 18,480 mt. of paddy deficits in *Yala* season. Total paddy production in the region was about 0.159 million mt. Average price of a kilo of paddy based on the prevailed weekly district markets, was Rs. 22 – 30.00 per kilo and the total value estimated was around as Rs.4 billion excluding damage. However, official sources said the total production was 95 percent of the provincial consumption requirement in the year 2011.

4.2.2 Marketable Surplus – Subsidiary Food Crops: Onion and Chili

Production of Subsidiary food crops in the region is mainly supplementary to rice for carbohydrate and nutrition requirement. About 50,000 ha of highland is available for subsidiary food production in the region. Some of the crops are cultivated extensively in specific areas of the region while scattered in other areas. Due to the unrest situation, the extent and the production were scattered and varied in the last few decades. However, with the restoration of peace an increase in production of cultivated land of most of the subsidiary food crops has been witnessed.

Major condiment cash crops cultivated in the region were chilli and red onion especially in the districts of Jaffna, Killinochchi and Vavuniya. During 1980s, above 7000 ha of onion and 5000 ha of chilli were cultivated in the region.

However, the cultivation, as it involves high costs, has gradually reduced by restrictions in transporting and marketing outside the production area. The total extent cultivated in the year 2011 was 2643 ha and production of dry chilli and red onion was 1943 mt. and 23832 mt. respectively in 2010/11 *Maha* season. This was purely due to an increase of cultivated extent of Mannar and Killinochchi districts. However, the Jaffna district had increased its extent by 100 ha than the previous year.

4.2.3 Marketable Surplus – Subsidiary Food Crops: Pulses

Pulses are the major crops that contribute to the vegetable protein intake of the society. Of the major leguminous crop, Green gram, Black gram and Cowpea are the major crops cultivated in the region. During 1980s, these crops were cultivated above 8000 ha. These are cultivated as mono and mix crop system. Prominent areas of Black gram cultivation during *Maha* season were the Vavuniya and Mullaitivu districts. It was cultivated in other districts.

Table 4.11: Marketable Surplus – Subsidiary Food Crops: Onion and Chili (2011 January- First Quarter Report – 2010/11 *Maha* Season)

Source: Crop Forecast –First quarter Report 2011, Provincial Department of Agriculture, Northern Province

Targeted	3,520 ha
Cultivated Area	2,644 ha.75% of the target
Expected Production	782 mt of dry Chilli & 43,157 mt. Red Onion
Per capita Consumption	Chili 2 kg. & Red Onion 2 Kg.
Consumption Usage	Chili 1,200 mt, Onion 12,000 mt. (Up to 6 Months)
Marketable Deficit	Chilli 418 mt.
Marketable Surplus	Onion 31,157 mt.

Table 4.12: Marketable Surplus – Subsidiary Food Crops: Onion and Chili (2011 June – Second Quarter Report. 2011 *Yala* Season)

Source: Crop Forecast – Second quarter Report 2011, Provincial Department of Agriculture, Northern Province

Overall pulse cultivation comparatively increased in the year 2011. The total extent of pulse cultivation was 11,945 ha and the estimated production was about 12,240 mt. in

Targeted	3,582 ha.
Cultivated Area	2,643ha, 74% of the target.
Expected Production	1,943 mt. of Dry Chilli & 23,832 mt. Red Onions.
Extent 100% Flood Damaged	Chilli 406 ha, Red onion 152 ha.
Production loss	775 mt. Dry Chilli, 1,392 mt. Red onions.
Per capita Consumption	Chili 2 kg. and Onion 20 kg.
Consumption Usage	Chili 1,200 mt, and Onion 12,000 mt. (Up to 6 Month)
Marketable Surplus	Chilli 10 mt,
Marketable Surplus	Onion 10,608 mt.

the 2011. The extent and volume of production increased the outcome of OFC expansion program under the strengthening of the seed industry program under NECORD along with the black gram cultivation programme in Mullaitivu and Vavuniya districts with assistance of UNDP.

Table 4.13: Marketable Surplus – Subsidiary Food Crops: Green gram, Black gram, Cowpea - (2011 January - First Quarter Report. 2010/11 *Maha* Season)

Targeted	12,083 ha.
Cultivated Area	11,319 ha. 94% of the target
Expected Production	11,452 mt .
Extent 100% Flood Damaged	10,088 ha.
Production loss	9,971mt. 87% of the expected production
The Per capita availability	31 Kg
Consumption Usage	18,600 mt. (Up to 6 Month)
Marketable Deficit	17,119 mt.

Source: Crop Forecast –First quarter Report 2011, Provincial Department of Agriculture, Northern Province

Table 4.14: Marketable Surplus – Subsidiary Food Crops: Green gram, Black gram, Cowpea (2011 June – Second Quarter Report. 2011 *Yala* Season)

Targeted	1,080 ha.
Cultivated Area	626 ha. 58% of the target
Expected Production	788 mt.
The Per capita availability	31 Kg. (Per capita Consumption)
Consumption Usage	18,600 mt. (Up to 6 Month)
Marketable Deficit	17,812 mt.

Source: Crop Forecast – Second quarter Report 2011, Provincial Department of Agriculture, Northern Province

4.2.4 Marketable Surplus - Vegetable Production

Table 4.15: Vegetable Production (2011 January -2010/11 *Maha* Season)

Targeted	3,568 ha.
Cultivated Area	2,350 ha. 65% of the target.
Production forecast	38,439 mt.
Extent 100% Flood Damaged	707 ha.
Production loss	10,497 mt. 27% of the expected production
Per capita Consumption	72 kg.
Consumption Usage	43,200 mt. (Up to 6 Month)

Marketable Deficit	15,258 mt.

Source: Crop Forecast –First quarter Report 2011, Provincial Department of Agriculture, Northern Province

Table 4.16: Vegetable Production (2011 June - *Yala* Season)

Source: Crop Forecast – Second quarter Report 2011, Provincial Department of Agriculture, Northern Province

4.2.5 Marketable Surplus - Fruit Production

Table 4.17: Fruit Production (2011 January - 2010/11 *Maha* Season)

Targeted	1,910 ha.
Cultivated Area	764 ha. (40% of the Target)
Existing Extent	5,595 ha.
Production Estimated	44,740 mt.
Extent 100 % flood damaged	67.3 ha
Production Loss	460 mt.
Per Capita Consumption	80 kg.
Consumption usage	48,000 mt.
Marketable Deficit	3,720 mt.

Source: Crop Forecast – Second quarter Report 2011, Provincial Department of Agriculture, Northern Province

Targeted	4,345 ha.
Cultivated Area	2,567 ha. 59% of the target.
Production Forecast	41,072 mt.
Per capita Consumption	72 Kg.
Consumption Usage	43,200 mt. (Up to 6 Month)
Marketable Deficit	21,128 mt.

Table 4.18: Fruit Production (2011 June - Yala Season)

Targeted	760 ha.
Cultivated area	459 ha. (59% of the Target)
Bearing Extent	4,844 ha.

Production Estimated	50,377 mt.
Per Capita Consumption	80 kg.
Consumption usage	48, 000 mt.
Marketable Surplus	2,377 mt.

Source: Crop Forecast – Second quarter Report 2011, Provincial Department of Agriculture, Northern Province

CHAPTER FIVE

Northern Province Agricultural Marketing: Analysis of System Approaches

In the broader framework of modern agricultural marketing, there are five major approaches to the analysis of marketing systems which may be identified as follows.

- Functional Approach that analyses the function of exchange, physical and facilitating activities in the marketing system.
- Institutional Approach which considers the nature and character of various intermediaries and organizations of the marketing machinery.
- Behavior Approach on the analytical view of multiple behavior of the process of marketing and predicting changes in marketing system.
- Commodity Approach is the commodity wise application of the above instrumental methods.
- System approach is a combination of all the above analytical instruments that apply to the marketing system.

The main task of a marketing system is collection of scattered produce from thousands of small farms and sends them to other consuming areas, especially to the urban areas. There is also a need to redistribute goods in the rural areas because they (producing areas) are also consumer areas. With the prediction of increase in production, the marketing system has become more important, to provide a smooth marketing system for the increased volume of production. Only a satisfactory marketing system can sustain the growth of productivity. All these approaches are merely ways of breaking down complex marketing system and problems into its parts so that it can be better understood. Using this broader framework, this chapter discusses the existing situation of the agricultural marketing systems in the Northern region, emphasizing various issues and institution of agricultural marketing with special reference to remote rural areas. Some of the basic issues such as basic characteristics of marketing, marketing efficiency and methods of marketing are also discussed.

While analyzing agricultural marketing systems theoretically, the concepts of market structure, conduct, and performance are the most important analytical instruments in any agricultural marketing analysis. The market structure is defined as a characteristic of

the market, which determines the relations between sellers, among sellers, between buyers, among buyers and between sellers and buyers. In other words, it means those characteristics of the market influence the nature of competition and pricing. Market conduct on the other hand is the behavior pattern that a firm shows in the industry and largely influenced by the structure. Such behavior pattern includes pricing policy of output and input, quality of the products and the amount of services it will provide to buyers. Market performance is the indicator on how well the markets serve the interest of the farmers, traders and consumers in general. Such indicator of performance included efficiency, progressiveness, employment and the like at the national level. At the micro or firm level, performance could be measured in terms of how well it meets the needs of the consumers, the adequacy of services performed, quality of the products and extent of losses in the performance of marketing functions.

Commonly, competitive market structure is characterized by a situation where there are many buyers and sellers that no one is big enough to influence the price of the product in the Northern region. In addition, there is free mobility of resources so that it would move to where it would yield the greatest marginal returns. There is freedom of entry and exit of the participants in the market with no barriers. Finally, there is perfect information about what is going on in the economy in the country. It implies that sellers know what the consumers want over space, time and in what form. On the other hand, consumers are fully informed on what, when and where to buy the products.

Based on the above theoretical conditions, the chapter reviews and analyses the agricultural marketing situation of the province in terms of their market structure, conduct and performance of the paddy, subsidiary food crops, vegetables and fruit sector. The following table shows that the crops such as paddy and subsidiary food crops performance have increased in extent and production in the year 2010 than in the early years of 2000.

Table 5.1: Extent and Production of Major Agricultural Products in the Northern Province

Crop	2009		2010	
	Extent (ha)	Production (Mt)	Extent (ha)	Production (Mt)
Paddy	26,904	81,953	35,167	128,417
Chilli	869	1,276	945	1,601
Red Onion	2,029	26,863	3,219	46,901
Green gram	582	599	859	919
Black gram	2,560	2,691	3,314	3,255
Cowpea	529	583	1,035	1,162

Groundnut	870	1,469	922	1,639

Source: Administration Report 2010, Department of Agriculture, Northern Province

5.1 Paddy/Rice Marketing System

Paddy is the principal crop that has been cultivated over the centuries in the Northern Province. It is the major agricultural activity in the entire Province which can easily account for over 10 per cent of cultivated areas in the Island. *Maha* is the major cultivation seasons almost all the lands in the province are cultivated, but in *Yala* season a considerable extent is left out mainly due to lack of water resources. Under the new irrigation development plans (Reconstructions of damaged and old irrigation schemes) in the Northern region, with better and assured irrigation facilities, special attention has been paid to increase the extent of paddy cultivation. The present development trends in the paddy sector are highlighted by the Provincial Department of Agriculture; the Northern Province as follows.

"Paddy is a regional staple food crop with red rice being consumed prominently. The Northern region has nearly 100,000 ha of paddy lands, however full utilization of paddy land needs favorable condition in terms of weather, market demand and socio economic environment in the region. Paddy is cultivated in rain-fed condition in *Maha* and in irrigated condition in *Yala*. In the year 2010, the total production of paddy obtained from the cultivated extent of 35,167 ha of which the planned extent of 47,520 ha was 128,417 mt. The average yield per hectare was maintained at 3.5 – 6 mt/ha. The total production was 82 percent of the provincial consumption requirement."

"Abandoned paddy land cultivation started with the wap-magul ceremony at Maravanpulavu, Jaffna in September- 2009 and continued in other districts and achieved up to 31,679 ac of cultivation by December 2010, 180,000 ac abandoned paddy land were found in five districts, out of which 23,803 ac and 7876 ac were cultivated in *Maha* 2009/2010 and *Yala* 2010 respectively. The total production was 50,686 mt."

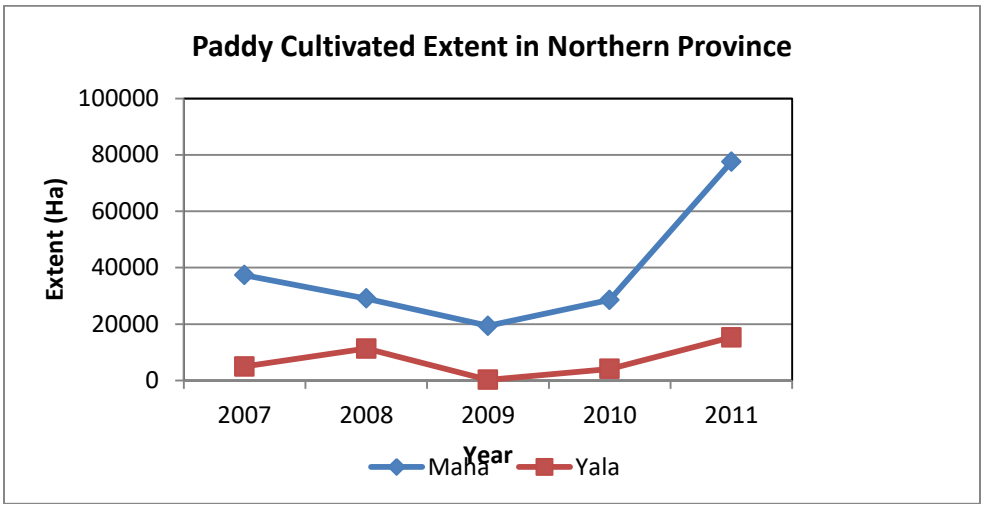


Figure 5.1: Paddy Cultivated Extent in Northern Province

"High yielding varieties - At 353, At 362, At 307, Bg 406, Bg 358, Bg 300, Bg 360, and Bw 351 were cultivated in all districts replacing old and low yielding varieties and substantial extent of local varieties of Moddai karuppan and Morunkan were cultivated in Jaffna. Total paddy production in the region was about 0.128 million mt. Annual average price of a kilo of paddy based on the prevailed biweekly district market price was Rs. 25-30 per kilo and the total value in rupees was estimated at Rs. 3.2 billion excluding damage" (Administration Report 2010, Department of Agriculture; the Northern Province page 11 - 12).

Marketing of Paddy: The operational activities of the paddy marketing system were completely handled by the private sectors. The intervention of Paddy Marketing Board (PMB) and co-operatives comprise the government sector and it is insignificant. This investigation revealed that more than 95% of the paddy sold by the farmers is channeled through private traders. The main reasons for them to prefer the private sector are easy transactions, higher price, purchasing at the field levels, credit facilities and less strict conditions. Other reason is there were no proper purchasing programs for paddy in Northern region until the introduction of recent development programs. Private traders consist of several groups and collectors, local intermediaries, stock holders and millers. Out of them, millers are the prominent group in the industry. According to the available date from the Northern Provincial Council in the year 2006, it was observed that there are 144 rice millers operating in the region, and out of these 6 rice mills were in Jaffna, 31 in Mullaithivu, 47 in Kilinochchi and 60 rice mills in Vavuniya.

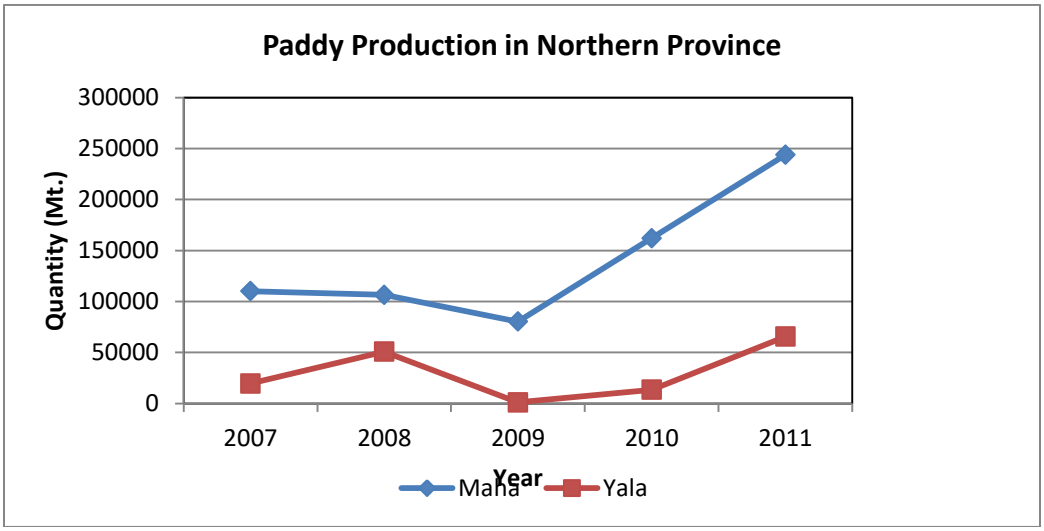


Figure 5.2: Paddy production in the Northern Province

There are no records on the number of rice mills in the Mannar district. Most of these mills were completely destroyed or partly damaged. Milers were scattered in the production area but are mainly concentrated in the urban areas. They purchase paddy either at field level or at their collecting points. Millers go in their hired lorries, four or two wheel tractors to the village level farmers with ready transport and cash with the intention of finalizing the transaction on the same day. Generally, farmers and collectors are informed in advance by the traders of visits and to keep the stocks ready to accelerate the purchasing process.

The medium of transport varies according to the size of the stock and the conditions of rural roads in remote areas. Collectors go round the village and ultimately sell their collections to the millers. Most of the mills are old machines, because most of them produce raw rice. Few millers are engaged in the production of parboiled rice. There is no new technology application. Their milling capacity seems to be insufficient to absorb the total production of paddy in the harvesting period in the next few years. The production is mostly during the *Maha* season and millers in these districts are not capable of buying the entire production in these seasons, because of poor storage facilities of both parties; traders and farmers.

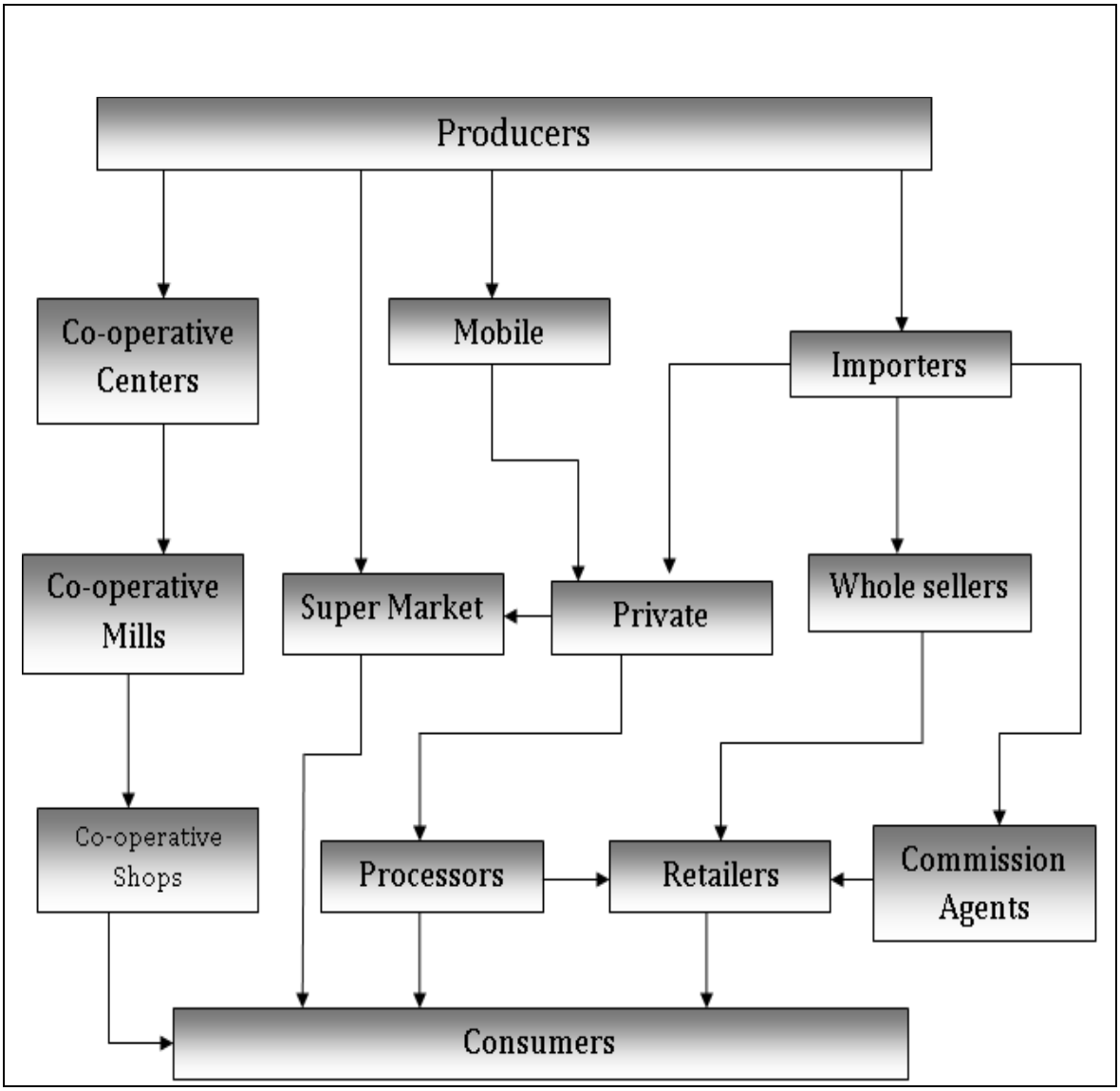


Figure 5.3: Marketing Channels of Paddy/Rice

As a result, the prices of paddy have dropped drastically because a very few millers from the surrounding districts also enter into purchasing paddy. That is also not enough to solve the problems in the harvesting period in the Province. During the harvesting period, especially in *Maha* season, about 5-10 buyers (millers) from the surrounding districts such as Anuradhapura, Polonnaruwa, Puttlam and Kurunegala come to the area to purchase paddy.

Marketing Functions: Generally, in the marketing process in addition to the buying and selling, an array of other supporting activities including physical handling, cleaning, grading, sorting, packing, transaction and storage are involved. These functions are mainly performed by various marketing intermediaries, but some of them necessarily have to be carried out by the farmers themselves since there is no compulsory system to adopt and maintain standards of the produce sold in these areas, due to the long absence of these marketing activities during the conflict time. It is an urgent need to re-establish these functions for improving the paddy marketing systems, while providing appropriate human and financial resources to the traders and farmers.

Cleaning: At the farm level some form of cleaning of paddy, i.e. removal of spoilt and chaff are done by the farmers. Since buyers (millers or collectors) are generally concerned about the cleanliness and dryness of paddy, producers have to clean and dry the produce before offering for sale. Experience shows that most of the buyers are satisfied with the cleanliness of paddy supplied by farmers. Cleanliness is the most important factor for the level of prices. The private sector traders are very strict in regard to the specified moisture content, impurities, chaff and insect attack or damage. This may be one important reason for their preference for the private sector.

Grading: Grading at the farm level is adopted mainly according to the variety of paddy i.e. mainly (red variety) BG 34/8 (white variety). The red variety fetches a higher price. Normally the price difference is about one or two rupees per/kg during peak production season. Due to rigid practices on grading, farmers do not like to sell their produce to the PMB. At the wholesale level, (By millers) rice is graded according to the variety, as well as broken or unbroken appearance.

Packing: For packing of paddy, farmers use gunnies or “poly sack” bags. Usually 2 ½ - 3 bushels (50-65kgs) of paddy are packed in a bag. A “poly sack” bag may cost the farmer RS.10 -20 and a gunny bag higher. Generally, bags are supplied by the buyers (millers or collectors) themselves. When paddy is sold through the co-ops, farmers have to supply gunny bags at their own cost. This may be one of the reasons why farmers are reluctant to sell to state agencies. When a farmer sells about 50-60 bushels of paddy, the expenditure on gunny is quite considerable. However, packing material another problem to farmers, because of its scarcity and high cost.

Transport: Paddy is transported from the field to the selling point mainly by two or four wheel tractors. In a two wheel tractor about 15 gunny bags of paddy and in four- wheel tractor over 60 bags can be loaded. Few millers have their own four wheel tractors and some other millers have lorries to transport paddy. However, the medium of transport

depends on the conditions of the road and the quantity to be transported. The transport cost for 150 kg of paddy is Rs.5 - 10.00 per mile. As millers and the collectors go to the farm gate to purchase paddy when farmers inform them, they supply the transport facilities. If farmers bring paddy to collecting points using their own or hired transport, transport cost is reimbursed to the farmer by miller/ collector.

Storage: The storage capacity of paddy at farm level is negligible or not at all. More than 95 percent of farmers sell their produce immediately after harvesting. This is because they have to pay loans obtained for cultivation. The traditional storage systems are out dated as most of the farmers live in very small temporary houses and far away from where the paddy harvesting places. However, Still some (a very few) farmers store their paddy in traditional gunny bags or sometimes in specially made large wooden boxes for their (family) future consumption and emergency. Paddy is mostly stored by millers. The storage capacity of most mills is limited to about 5 metric tons, and only 4 - 5 millers have storage facilities with 100 - 150 metric tons of paddy. Millers reported that their storage facilities are not adequate to purchase the entire excess production during the peak seasons. Storing of rice takes place with the millers but it is not common among the millers in the Northern region. Millers start disposing rice immediately after processing. According to them, it is more profitable to dispose of it immediately rather than storing expecting a higher price. Before the conflict period, PMB had enough storage facilities in the province, especially in districts of Mannar, Mullaitivu, Kilinochchi and Vavuniya. All these stores were completely destroyed. Under the present context, it is assumed that in the near future the paddy production in these districts will increase rapidly; while improving immediately needed storages facilities.

Processing: The processing function is done by millers. The millers in the area have reported that the number of paddy millers has not increased from 1980. The capacity of utilization is around 75% and some mills are operated only for a few months in a year. The reason is the unavailability of adequate storage facilities. The quality of rice produced by the old mills is also not unsatisfactory. Therefore, the quality may not be an issue, when considering other factors like higher prices.

5.2 Marketing of Subsidiary Food Crop Production

Next to paddy, the cultivation of subsidiary food crops, such as green gram, cowpea, red onions, black gram, maize, kurakkan, gingelly, ground nuts soya bean and chillies, has been given considerable attention by the Northern farming communities. The crops are mainly cultivated in highlands during *Maha* season and on lowlands during *Yala* when water is not adequate for paddy cultivation. At present, the subsidiary food crops are grown mainly during *Maha* in highlands under rain fed conditions. Gingelly is

traditionally a *Yala* crop grown in highlands while kurakkan is cultivated in *Maha* only for mainly farmers' own needs. Cowpea, green gram, chillies, and ground nuts are also grown in both of *Maha* and *Yala* seasons. A traditional base for most subsidiary food crops in highland has been turned in to a growing resource base for commercial crop production, because of the new development activities under various development programs and projects introduced by the government and non-governmental organizations. Old lands were given to new resettlers for cultivation of subsidiary food crops and some other lands were absorbed for improving infrastructure facilities like constructing of roads. The farmers in the region generally prefer groundnuts because of its high profit. However, in the province, the recommendation has been cowpea, green gram, chillies, and soya bean as crops for *Yala*, under irrigation conditions. For the year 2007/2008 *Maha* season, it was planned to cultivate 1454 ha of cowpea, 6258 ha of black gram, 1392 ha of green gram and 2220 ha of chili and estimated production of these were 969, 4620, 848, and 1708 metric tons respectively. This shows the possibility of achieving a favorable surplus production on subsidiary crops in the *Maha* season in the Northern Province. Production of subsidiary food crops in the region is mainly supplementary to rice for carbohydrate and protein other nutritional requirement. About 50,000 ha of highland are available for subsidiary food crop production in the region. High economic market value crops are cultivated extensively in specific areas in the region while other crops are sporadically cultivated for local consumption. Major condiments cultivated in the region are Chilli and Red onion. During 1980s this crop cultivation extent had gone up to 7000 ha and 5000 ha of onion and chilli respectively.

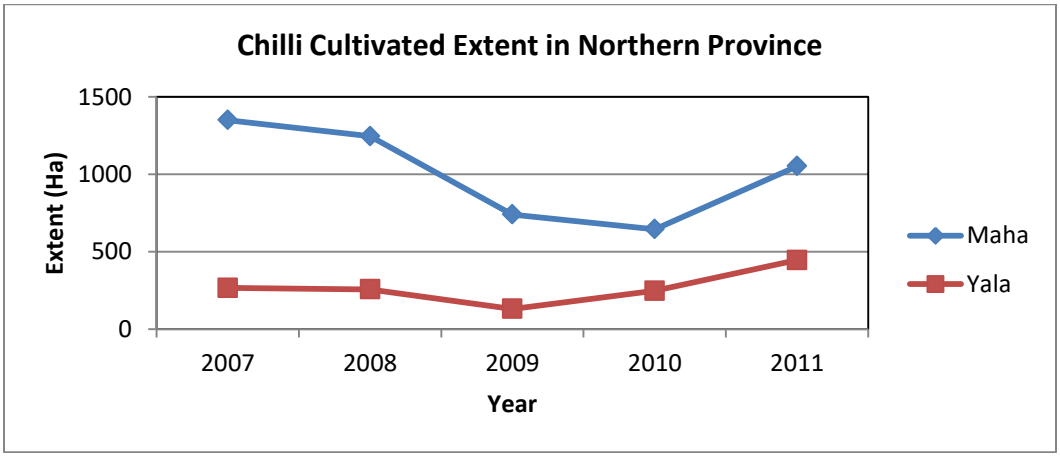


Figure 5.4: Chilli Cultivated Extent in the Northern Province

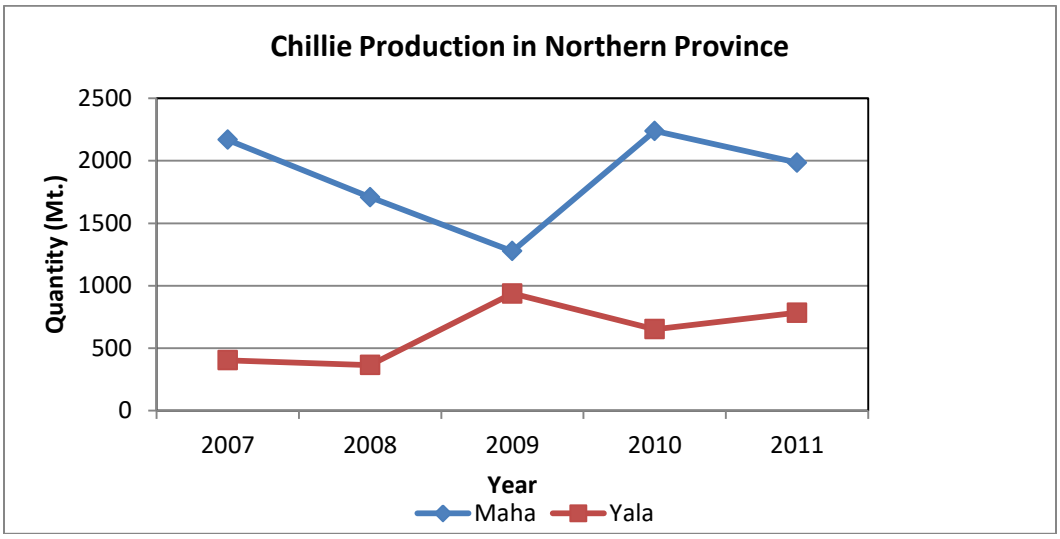


Figure 5.5: Chillie Production in the Northern Province

Chilli: The crop is the most prominent area in the Northern farming system. The total extent cultivated in the year 2010 was 945 ha and production of dry chilli was 1601 mt. The average yield was 1.7 mt/ha. Popular varieties of MI-1, MI-2, KA-2, and MI hot were grown. Annual average dry chilli price according to bi-weekly market price in the districts was Rs. 185.00 per kilo and the total value as per production was estimated at Rs. 0.296 billion in the region. The total production was 66 percent of provincial dry chilli consumption requirement. (Administration Report 2010, Department of Agriculture; Northern Province)

Red Onion: The most popular as well as profitable crop of the region. Jaffna red onion is a well-known commodity throughout the island. The total extent cultivated under red onion was 3,219 ha and the production was 46,900 mt. Average production was estimated at 14.57 mt/ha. Both extent and production were increased. The extent increased by 1189 ha and production by volume of 20,000 mt than the previous year. Sinnan, Vallarai, Vethalam and ARS-1 selection varieties were grown. Annual average onion price according to bi-weekly market price in the district was Rs 99.00 per kilo and the total value as per production was estimated as Rs. 4.64 billion. The total production was 195 percent of the province consumption requirement (Administration Report 2010, Department of Agriculture; the Northern Province).

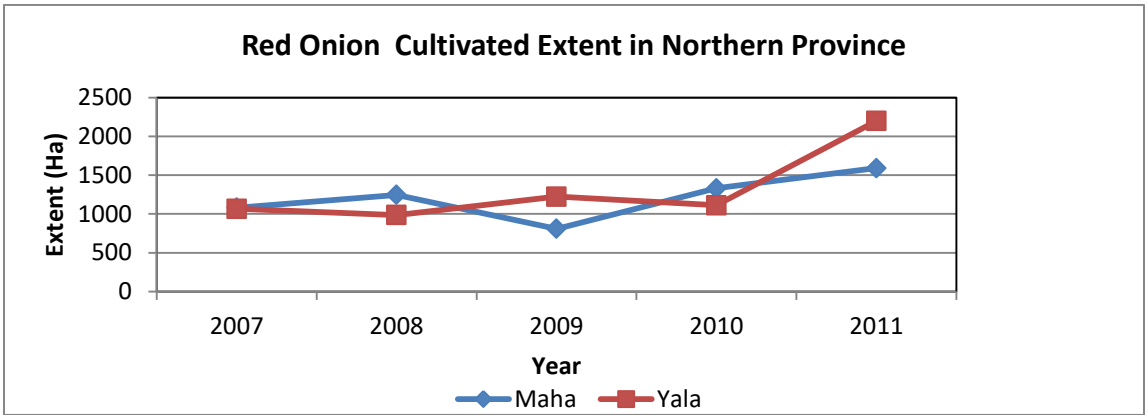


Figure 5.6: Red Onion Cultivated Extent in the Northern Province

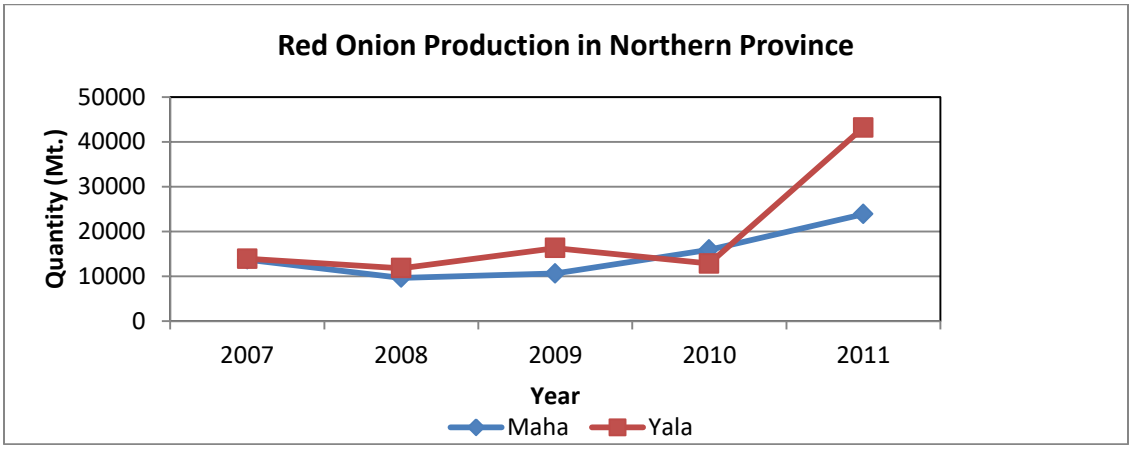


Figure 5.7: Red Onion Production in the Northern Province

Big Onion: Big onion was cultivated in 92.2 ha and its production was nearly 1,343 mt which was lower than the previous year by 278 mt. Rampur red and Nasic red varieties were cultivated. The total big onion production in the Northern Province was about 1,343 mt. Annual average onion price according to bi weekly market price in the district was Rs 87 kilo and the total value in rupees was estimated as Rs 0.116 billion (Source: Administration Report 2010, Department of Agriculture; the Northern Province).

Pulses Production: Pulses are the major leguminous crops that supply vegetable protein to consumers. Of the major crops, Green gram, Black gram and Cowpea are cultivated in the Northern region. During 1980s, these crops were cultivated together in over 8,000 ha. Prominent major areas of Black gram cultivation in maha season were the Vavuniya and Mullaitivu districts and it was periodically cultivated in other districts. The total extent of pulse cultivation was 5,208 ha and the production was about 5,336 mt. The extent and volume of production were increased by 1,537 ha and 1,463mt respectively in 2010. The varieties grown in the Province were Green gram -MI-6, Ari, Harsha and Black gram -MI-1 and Cowpea - Bombay, Dawala and Varuni.

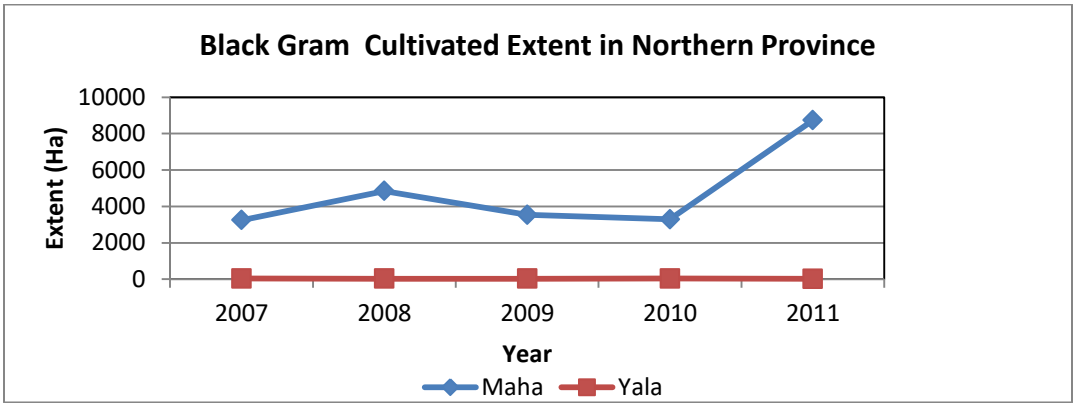


Figure 5.8: Black Gram Cultivated Extent in the Northern Province

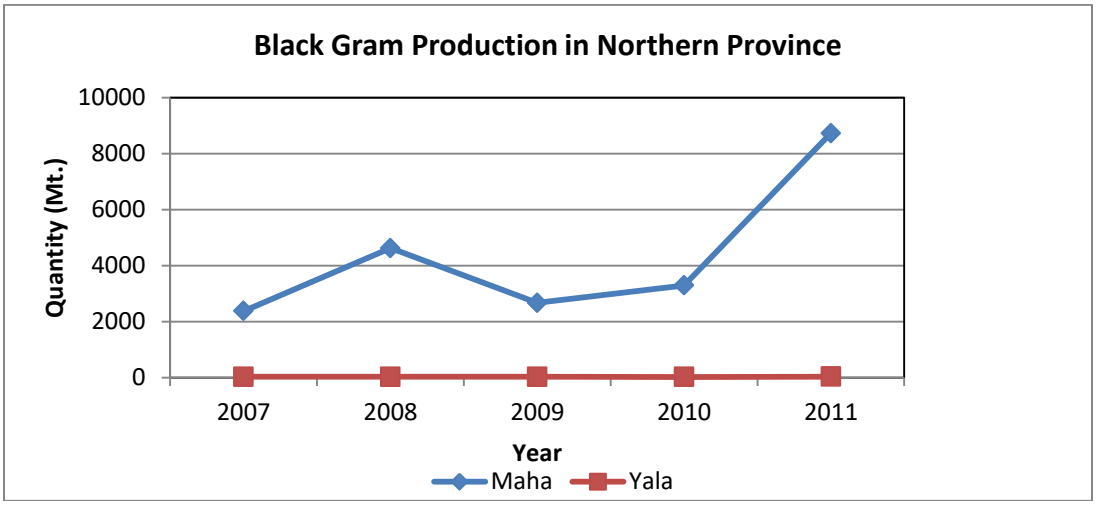


Figure 5.9: Black Gram Production in the Northern Province

Annual average prices of black gram, Green gram and Cowpea according to biweekly market price in the districts were Rs 214.00, 204.00, and 148.00 per kilo respectively and the total value for all was estimated at Rs. 1.056 billion. The production was not sufficient for the total requirement of the population in the Province. This sufficed to meet only 14 percent of provincial consumption requirement (Source: Administration Report 2010, Department of Agriculture; the Northern Province).

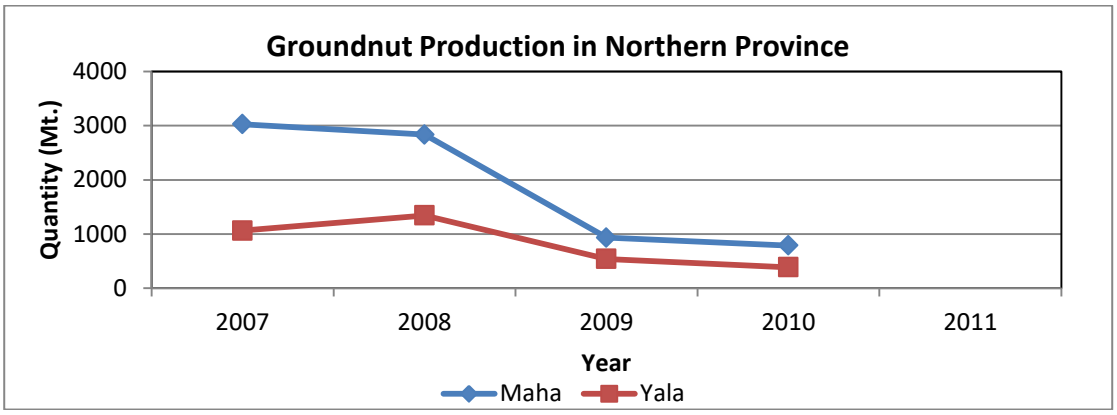


Figure 5.10: Groundnut Production in the Northern Province

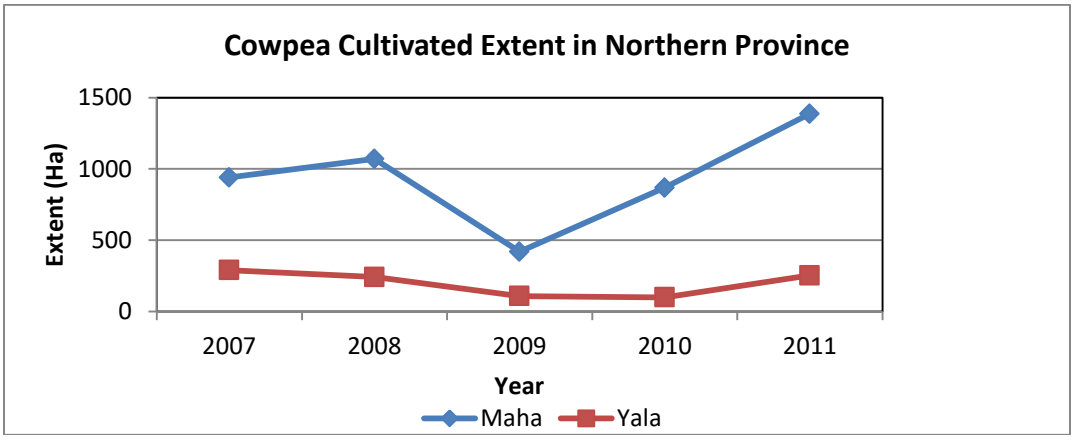


Figure: 5.11. Cowpea Cultivated Extent in the Northern Province

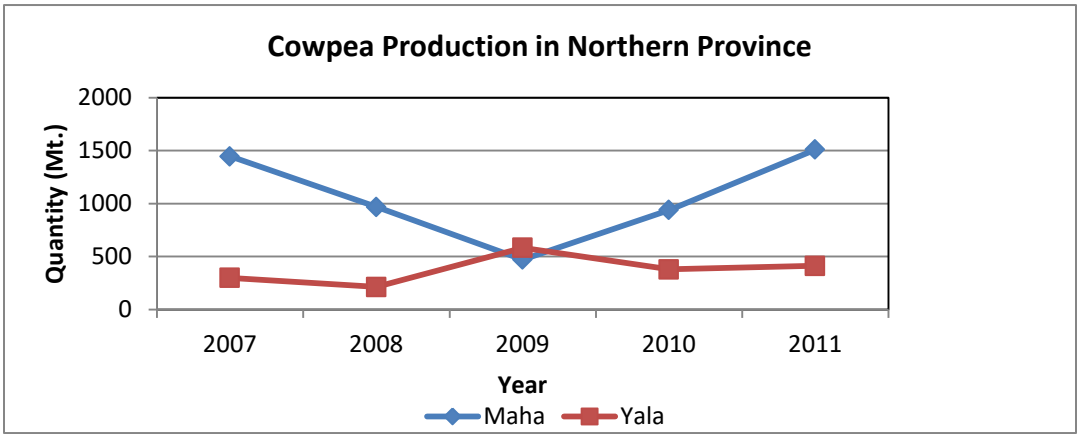


Figure 5.12: Cowpea Production in the Northern Province

Oil Crops Production: Traditionally as major oil crops groundnut and sesame are cultivated in the region. Mullaitivu was an important district for groundnut and Jaffna for sesame cultivation. Irrigated cultivation of groundnut has been promoted with introduction of high yielding varieties for food consumption. In 2010, the total extent of oil crop cultivation was 1,485 ha and the production was about 2,108 mt which was an increase of 90 ha and 308 mt than the previous year. The total groundnut cultivated extent was 922 ha and production was 1,639 mt. Varieties grown were Indi, Tikiri, Tissa, and Walawa in Groundnut and Uma, MI-3 in sesame. The total groundnut and sesame production were 1639 mt and 470 mt respectively. Annual average prices of groundnut and sesame according to the biweekly market price in the districts were Rs 136.00 and 129.00 per kilo respectively and the total value was estimated at Rs. 0.8292 billion.

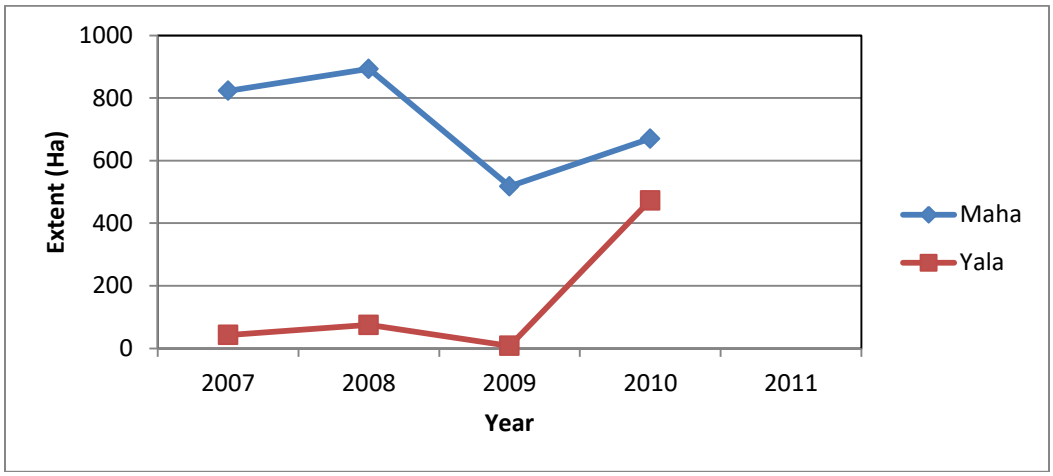


Figure: 5.13: Gingelly Cultivated Extent in the Northern Province

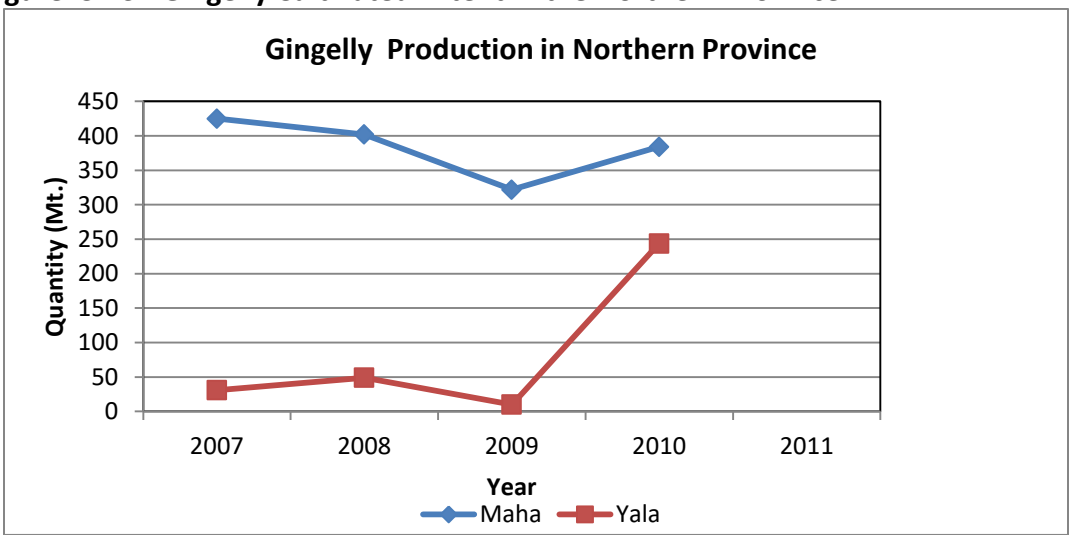


Figure 5.14: Gingelly Production in the Northern Province

Cereal Production (coarse grain): Cereals are cultivated for special food purposes. However, maize is promoted for pro-vender industry. Major cereal crops in the region are Kurakkan and Maize. The total extent of maize cultivation was 478 ha and its production was 4,749 mt. The total extent of Kurakkan cultivation was 165 ha and its production was 296 mt which was lesser than the previous year. The maize varieties grown were Ruvan, Paciffic and "Sampath" and the kurakkan varieties were "Ravi" and "Rawana". According to the average price of Rs. 89.00 per kilo of maize in the districts, the total value of maize produce was estimated at Rs. 0.422 billion. According to the

average price of kurakkan, which was Rs.77.00 per kilo in the district market, the total value of kurakkan products was estimated at Rs.0.0228 billion.

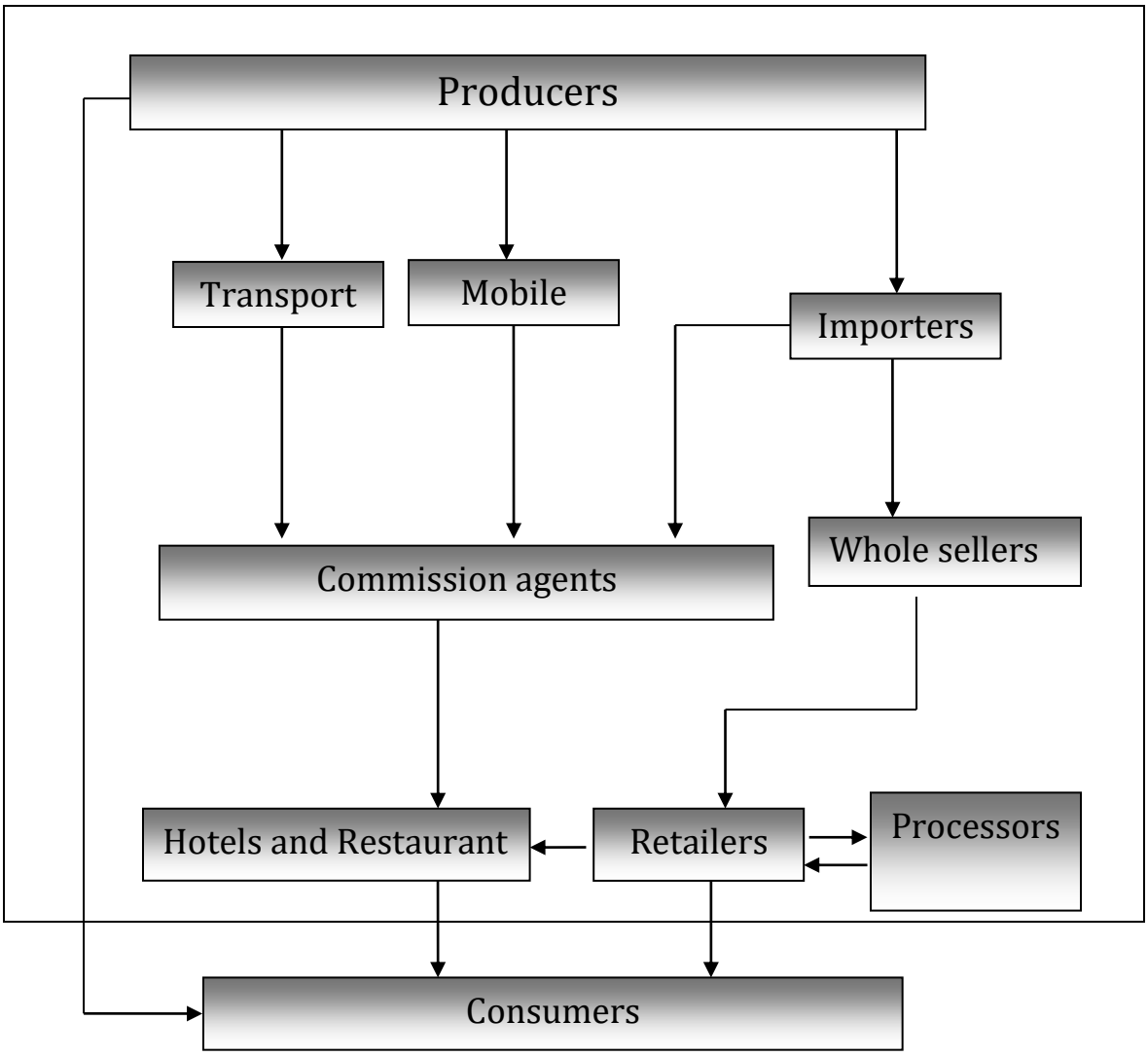


Figure 5.15: Marketing Channels of Other Field Crops

Yam and Tuber Crops Production: Most of yam and tuber crops are called "poor man's crop". They are cultivated as backyard crops at homestead level for food security and the surplus is marketed. But in recent years, these crops were cultivated in commercial level. Cassava, Elephant foot yam, Diascorea and sweet potato were popular root crops in the region. Cultivation of Cassava due to its chip production in cottage industry has increased. The Potato is cultivated traditionally as a high value cash crop in Jaffna and was introduced in other districts. In 2010, the total yam cultivation was 271 ha and the production was 15,163 mt. The extent of root crops decreased by 586 ha and 1,657 mt than previous year.

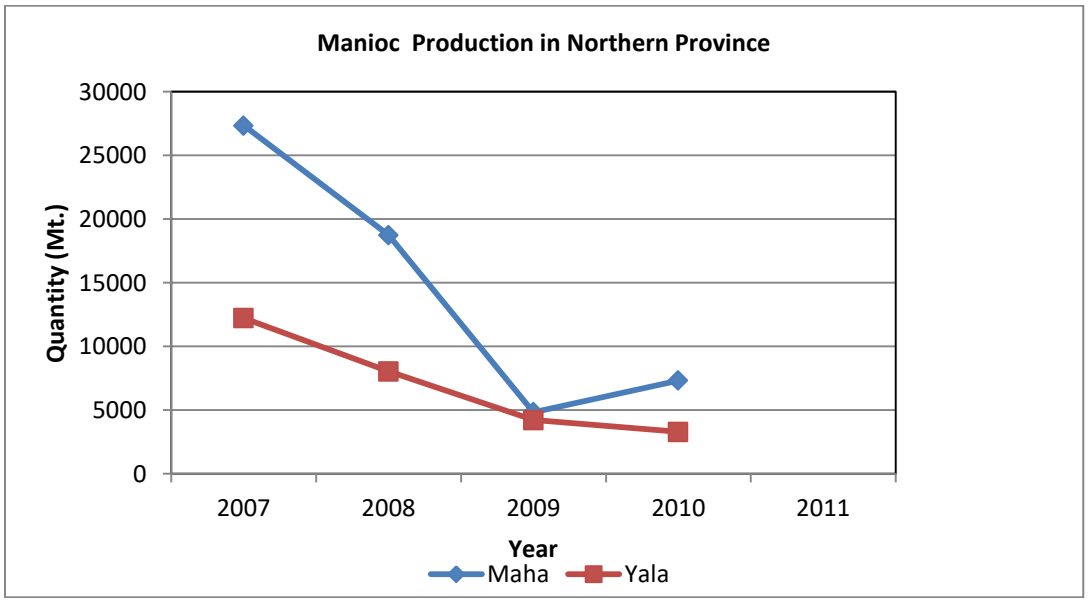


Figure 5.16: Manioc Production in the Northern Province

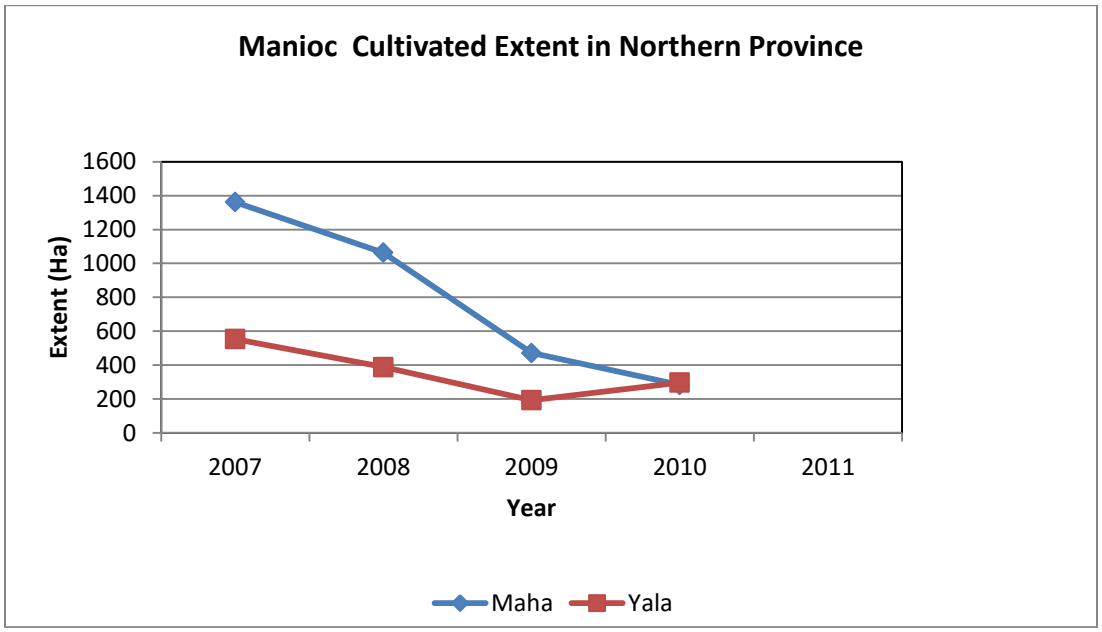


Figure 5.17: Manioc Cultivated Extent in the Northern Province

Table 5.2: Market Prices for Agricultural Products
(Retail Prices of Rice and Subsidiary Food, Rs/kg) 2011 June

Vegetables	Jaffna	Kilinochi	Mullaitivu	Vavuniya	Mannar
	Rice Varieties				
Samba	75	80	70	65	110
Red Nadu	80	60	60	58	60
	Condiments				
Dry chilli	280	230	280	280	280
Red onion	120	140	145	160	160
	Pulses				
Green gram	195	240	220	180	200

Black gram	230	210	180	170	260
Cowpea	200	160	150	150	200
	Fruits				
Kathaly	40	60	50	40	60
Etharai	50	60	50	80	70
Kappal	120	120	140	60	100

Source: Crop forecast , Department of Agriculture, Northern Province

However, in the case of dried chilies, the seasonal retail prices and average farmgate prices in the some major producing areas of the country, in the past few years it has revealed that they were comparatively low during both seasons due to the higher prices of green chilies and ample stocks of dried chilies which were imported at lower prices. However, there are possibilities to produce the country's requirement of chili within the region, if the flow from outside may stop and better prices for local produce come to the Northern region. The private sector plays a dominant role in the marketing of subsidiary food crops too. The collector is the major buyer at the farm level. Of the collectors, about 10-15 collectors in a district were found prominent. They purchase produce at farmgate level at specific collecting points and some marketing centers. Farmers bring their produce both in small quantities as well as in full cart loads for sale. It was observed that specific collecting points and marketing centers are the most popular sales-outlets among the farmers for selling their produce, especially Cowpea, green gram, maize, gingelly and groundnut.

As mentioned earlier, the main crops falling into the category of subsidiary food crops cultivated in the region are green gram, cowpea, gingelly, black gram and groundnut. Generally, more than 90 percent of farmers sell their marketable surplus immediately after the harvest mainly because of their financial difficulties and lack of storage facilities. The major factors that appear to have adverse effects on marketing at the farm gate are problems in transportation, storage, grading, packing and weighing. This situation is common for all produce except differences in size, shape, variety and color and also quality difference caused by pest damage and bad weather. However, at the farm level, grading as a function of marketing is hardly adopted. The primary buyer does grading to a certain extent. Most subsidiary food crops are classified into two grades, grade I and grade II, by considering the size and color and the quantity of damaged grains. No scientific basis or machine operated system is adopted for grading. For packing, gunny bags are used. The popular size of the gunnies is capacity of 50/kg. But the weight depends on the variety. Normally, crops like green gram, cowpea, and black gram of around 50kgs can be packed in bags, while 20 kg of dried chillies and 60 kgs of ground nuts can be packed in a gunny.

There is no processing done when crops are prepared for sale. Only separation of grains from the cobs and winnowing for cleaning are done. Farmers use bullock cart, bicycle, motor bicycle and two wheeled tractor to transport their produce to the collecting centers and village markets. Collectors come to the producing areas to buy the produce and take away in two-wheel tractors. Transport cost for a distance of one mile varies from Rs. 5.00 to Rs.10.00 per gunny bag. The transport cost to send one gunny bag from Jaffna to Dambulla is about 100 - 150 and there are several major transport agents operating in the transport of subsidiary food crops. Normally they do transportation 3 - 4 times a week, depending on weather conditions. Normally, lorries (5 tons each) are allocated regularly for this transportation, and sometimes lorries coming from Colombo or other areas are also used. But more lorries are not available with transport agents. However, during the peak production season, number of trips to Dambulla/Colombo occurs. Farmers and collectors have to bring their produce to a particular collecting point or urban centers.

Storing is another problematic area with regard to marketing of subsidiary food crops throughout the province. The most popular method of storing of subsidiary food crops is to put into gunny bags and stack them on the floor or in open air (in a room). More than 90% of the farmers, collectors and traders had used the latter. Since the damage due to attacks from insects is significant and a few controlling measures are adopted by farmers. Farmers and traders mix ash, with selected types of leaves on the grams or spray some chemicals like Malathion. Sometimes, Cooperatives and Agrarian Services Centers are the leading agencies of purchasing subsidiary food crops under various price schemes. But the discouraging fact is that, other agencies including private traders do not have sufficient storage facilities to store their purchase. Therefore, they try to dispose of their purchase at the earliest opportunity. On certain occasions, when they do not get to sell early, they have to keep the stocks for 3 or 4 days or sometimes for a couple of weeks in small rooms available with them, which are not sufficient for the purpose.

5.3 Vegetables Marketing System

Although special attention has been paid to vegetable and fruit cultivation in the Northern Province, vegetables and fruits can be very important potential crops in the future because, even at present, a considerable quantity of vegetables and fruits are grown in the region both in irrigated and rain fed conditions. The popular varieties grown are pumpkin, snake gourd, tomatoes, brinjal, long beans, okra, potatoes, mango, banana and grapes. The economic value of vegetable production in the province is analyzed by the annual report of the Provincial Department of Agriculture, the Northern Province is as follows.

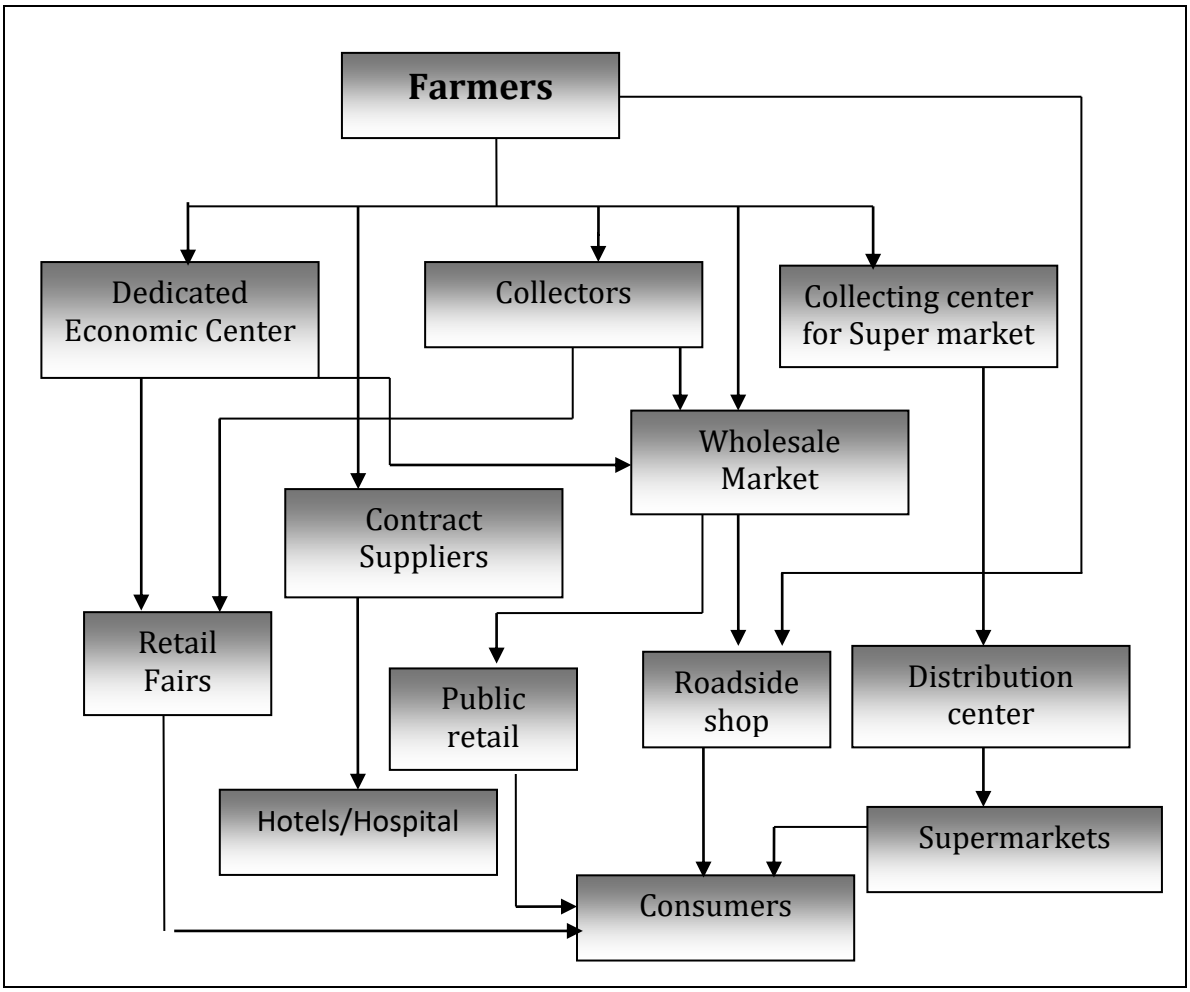


Figure 5.18: Marketing Chanel of Vegetables and Fruits

"The low and upcountry vegetables were cultivated. The extent of 4,356 ha was brought under vegetable cultivation of which 743 ha covers upcountry vegetables such as cabbage, carrot, beetroot etc. The total production of vegetables was 79,621 mt. As low country vegetable cultivation fetches a daily income to farmers, these vegetables were cultivated in an extent of 3,613 ha. This year production was higher than the previous year's by 2,441 mt. The total vegetable production in 2010 was about 79,621 mt in which 27,800 mt was lost due to post harvest losses. The annual average vegetable price according to biweekly market price in the districts was Rs.80.00 per kilo. Total value was estimated as Rs.0.022 billion. This was 60 percent of province's consumption requirement" (Source: Administration Report 2010, Department of Agriculture; the Northern Province, P. 16)

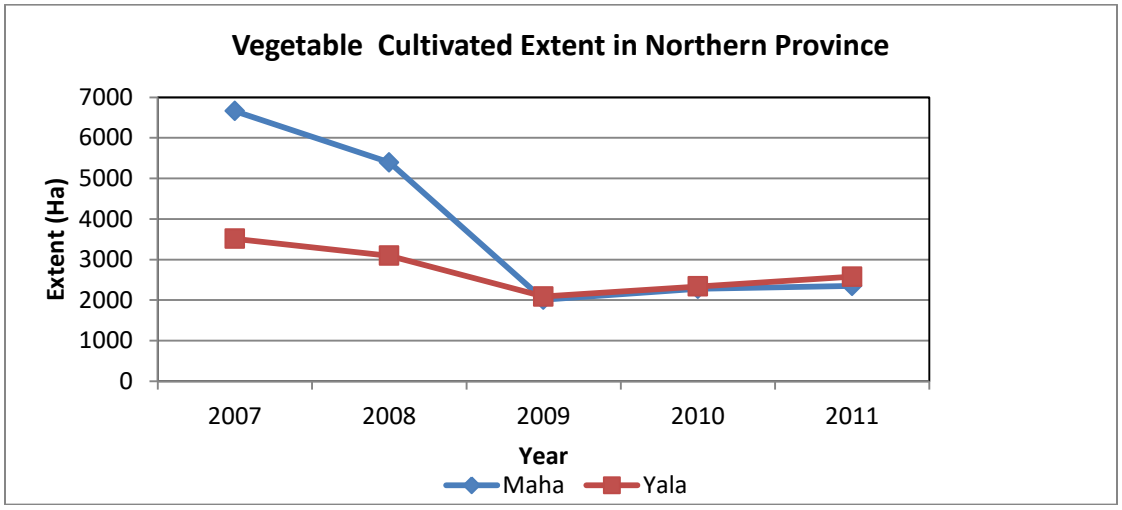


Figure 5.19: Vegetable Cultivated Extent in the Northern Province

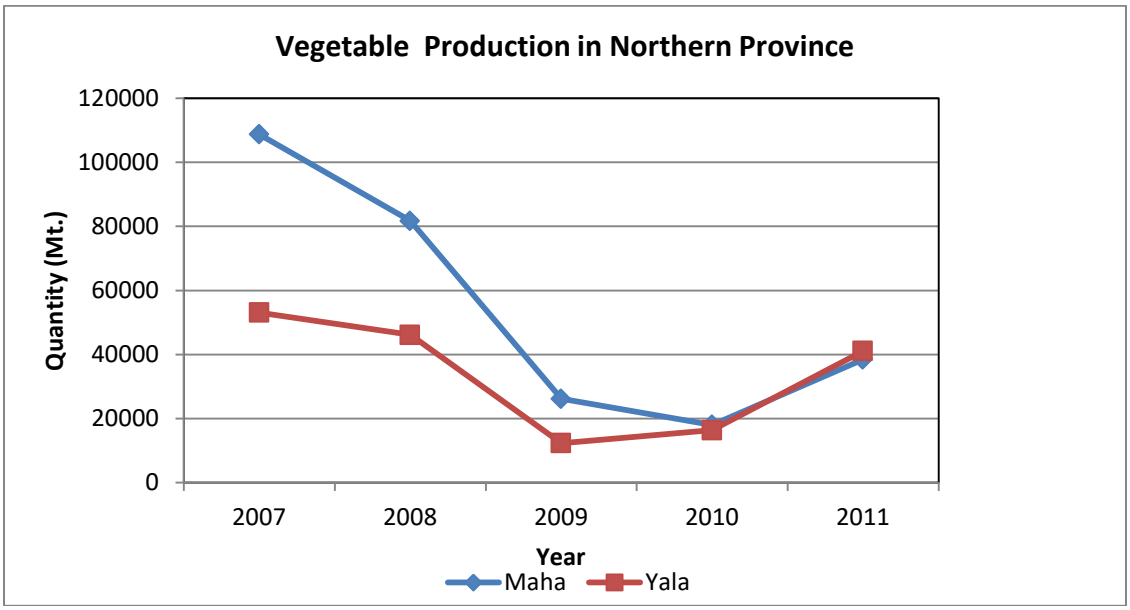


Figure 5.20: Vegetable Production in the Northern Province

Urban centers are the major marketing outlets for vegetable farmers in the Province. They bring their vegetables to the marketing centers early in the morning or evening of the previous day. Generally, the harvesting time of the day is the evening of the previous day. There are a few marketing centers operating in the whole trading activities. However, the Vavuniya market is the most active producer market in the province that exchange subsidiary food crops and other agricultural products to other parts of the region as well as the country. Traders from surrounding areas such as Mullaitivu, Kilinochchi, Jaffna and Mannar come to the Vavuniya market to purchase food crops. Generally, transactions take place from early morning 4 am, up to around 11 am. Normally, 50 – 60 traders come to the Vavuniya market and this number increases to 100 – 150 during the peak production season. During these seasons, stocks of chillies, red onions and some vegetables are sent to the Dambulla and Pettah markets due to of their excess supply and also buyers from Dambulla, Anuradhpura, Kurunegala and Tricomalee purchase directly from the farmers or through village level collectors.

It is observed that in some areas or even in some markets there are monopolies mainly due to shortage of traders or presence of a very few traders due to low volume of production. Since competition between buyers and sellers is vital in the market to orderly arrange marketing, it is worth to take necessary action in order to create high

competition. In this context, people willing to undertake marketing of these produce need to be encouraged by giving better infrastructure facilities, credit, transport services and other possible incentives. There is ample evidence that the present agricultural marketing systems are incapable of performing exchange functions efficiently due to the fact that the existing systems do not have enough incentives to perform such functions in the market to a certain extent. The other reason is that the agricultural surplus in the province will increase tremendously in the near future in the present peace context. In addition, the intervention of the government organizations is needed to a certain extent for selling agricultural products because their absence creates a monopoly situation in the market. Buyers are more powerful than sellers at the farm level. Therefore, government intervention is needed.

As in other crops, several marketing functions, like assembling, grading, sorting, packing, weighing and transporting are involved in vegetable marketing too. At the farm level, usually a very little or no cleaning is done. However, a degree of sorting is done to remove spoilt and damaged ones only in the case of tomatoes, snake gourd and brinjals. As a general practice, producers are not concerned with grading. Therefore, traders always pay a flat rate on weight. However, vegetables like tomatoes are graded subsequently according to the variety and size. Most probably the real producer or the farmer is deprived of a higher price while a middleman makes profit. The packing method adopted at the farm level by farmers depends on the variety. Gunnies are used for packing all vegetables other than tomato, snake gourd and pumpkin. Wooden boxes are used for tomatoes and snake gourd is wrapped in Cadjans. No packing is used for pumpkins. Producers try to minimize the cost of transport by packing the maximum possible weight in one gunny or box. Usually about 35-40 kg of brinjals, and 60 kg of green chillis, in a gunny bag, and about 15-20 kg of snake gourd in a bundle are packed. As producers have to supply packing material at their cost, they try to minimize their packing/ transport cost at the risk of downgrading the quality of the product. Normally, a polisack costs Rs.10 - 15 and gunny bag Rs.20 - 30 while a cadjan costs about 5 rupees. One cadjan can be used for packing about 5 bundles of snake gourd. Though the packing methods adopted by the producers are technically ineffective and unscientific, there are no economic incentives for them to explore the possibility of better methods and technology.

Table 5.3: Market Prices For Agricultural Products
(Retails Prices of Vegetables, Rs/kg) 2011 June

Vegetables	Jaffna	Kilinochchi	Mullaitivu	Vavuniya	Mannar
Brinjal	50	40	25	40	60
Okra	80	60	30	50	80

Bitter gourd	100	80	100	140	160
Snake gourd	40	60	80	50	80
Long beans	160	60	40	60	80
pumpkin	60	60	80	60	60
Butternut	40	60	30	80	70
Tomato	40	80	60	60	80
Carrot	80	120	120	120	160
Beetroot	80	80	120	160	160
Cabbage	60	80	60	90	100
Capsicum	80	120	50	160	140
Leafy Veg.	20	20	15	25	30

Source: Crop forecast , Department of Agriculture, Northern Province

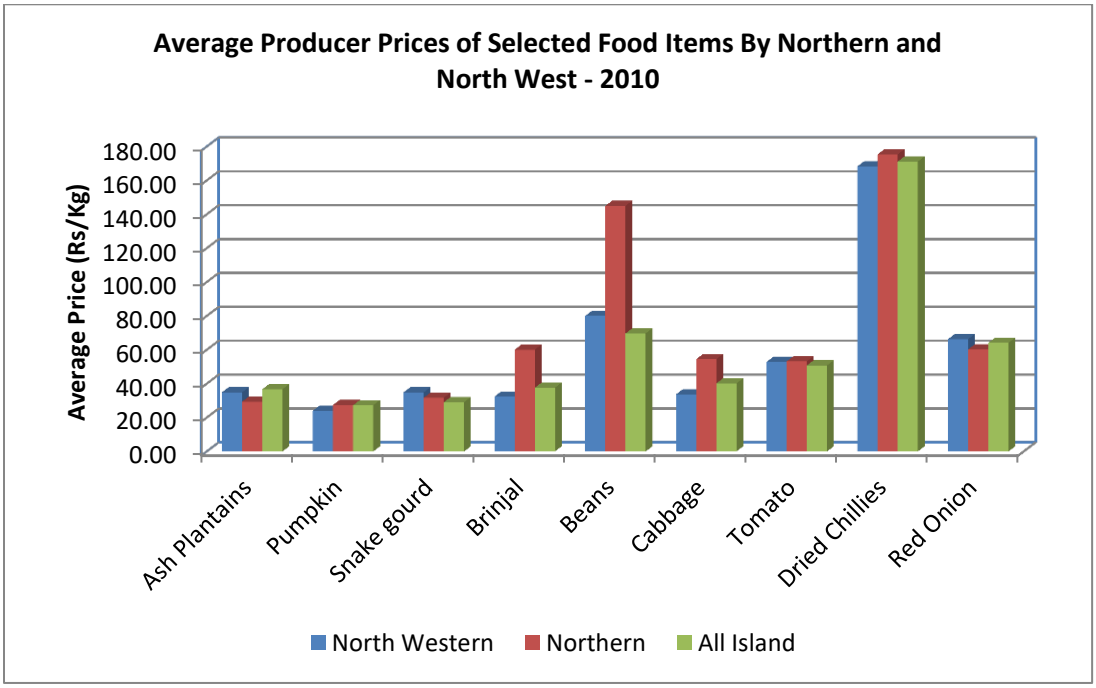
There is no uniform system for weighting and measuring of vegetables. Prices are determined as per wooden box for tomatoes, per sack for brinjals, per bundle for snake gourd, per bulk for pumpkin and per kg, cucumber and some vegetables such as chilies. Producers use the bicycle, motor bicycle or two-wheel tractor to transport the produce from their farms to market centers. Two wheel tractors are the most popular among collectors. Some traders use their own or hired lorries to transport from producer villages to the markets. Transport changes are based on (1) piece-rate (per gunny/box/bundle) (2) a fixed rate for truck load to a particular destination. When a farmer brings vegetables to markets, he has to bear the transport cost. Prices of vegetables are the most important factor on the systems of vegetable marketing. Usually, during the off- season a particular vegetable fetches high prices, while in the glut season, low prices are obtained.

Table 5.4: Average Producer Prices of Selected Food Items by the Northern and North West - 2010

Items	North Western (Rs/Kg)	Northern (Rs/Kg)	All Island (Rs/Kg)	% Change	
				North Western	Northern
Ash Plantains	34.89	29.35	36.71	-4.96	-20.05
Pumpkin	23.99	27.42	27.30	-12.12	0.44
Snake gourd	34.89	31.69	29.11	19.86	8.86
Brinjal	32.34	60.02	37.60	-13.99	59.63
Beans	80.00	145.00	69.67	14.83	108.12
Cabbage	33.64	54.44	40.13	-16.17	35.66
Tomato	52.90	53.23	50.84	4.05	4.70

Dried Chillies	168.28	175.31	171.10	-1.65	2.46
Red Onion	66.29	60.28	64.11	3.40	-5.97
Big Onion		60.29	58.21		3.57

Sources: Central Bank of Sri Lanka 2010



Sources: Central Bank of Sri Lanka 2010

Figure: 5.21: Average Producer Prices of Selected Food Items by the Northern and North West Province In Sri Lanka- 2010

5.4 Fruit Marketing System

Horticulture is an "umbrella" term that covers a great array of food and amenity plants of fruits and vegetables. The region is a tropical horticultural paradise and blessed with an agro-climate suitable for a wide range of tropical, and subtropical fruits.

Banana: The extent of banana cultivation was 1430 ha of which 715 ha of the banana orchard had been in bearing stage at the end of 2010. This year, 176 ha were newly planted. The production of banana was estimated at about 37,145 mt in 2010. Annual average price of a kilo of banana is Rs 85.00. Accordingly, the total value of banana production was estimated as Rs. 3.157 billion.

Mango: Mango trees cover an extent of 1881 ha of which 1435 ha mango trees have been in bearing stage. Mango plants were planted in an extent of 95 ha in this year. About 20825 mt of production was estimated in 2010 and the total value was about Rs. 0.499 billion.

Papaw: Papaw cultivation was promoted with hybrid variety of Red Lady, Ratna and Chinta in Vavuniya and Jaffna district. The extent of papaw cultivation was 403 ha. This year 60 ha were newly planted with Hybrid variety. The production of papaw was estimated to about 11109 mt. The annual average price of a kilo of papaw is Rs. 56. Accordingly, the total value of papaw production was estimated as Rs.0.622 billion.

Pomegranate: The present existing extent was 200 ha with 855 mt of production.

Pineapple: Pineapple cultivation has been initiated in Vavuniya and about 10 ac of cultivation exists in the region. Dry zone pineapple production has a different taste when compared to intermediate wet zone production.

Grape vine: Grape cultivation was promoted in the Jaffna district. The extent of grape cultivation was 70 ha. This year 5.5 ha were newly planted. The production of grape was estimated at about 2600 mt. The annual average price of a kilo of grape is Rs. 300 Accordingly, the total value of grape production was estimated as Rs.0.780 billion.

The regional fruits receive a higher preference among consumers due to their unique flavors and taste. Production systems in the region are traditional, timed to take advantage of the rhythm of the monsoons and the demands in the local market with low tree management. Pest management methods in fruits and vegetables are dangerously out of hand due to absence of dynamic marketing. Estimated losses in post-harvest handling channels are at approximately 40 percent. Nearly 6,050 ha of land are under fruits crops of different stage in the North. Fruit crops are cultivated in homestead level except banana, grape and papaw which are grown commercially in small to medium orchard level. The total extent of fruit crop in the bearing stage is 4,407 ha of which 16% constitutes banana orchards and the 32 % constitutes mango trees and the rest of other fruits. The total extent under fruit trees was 6050 ha in the region. Poor management of fruit trees and post harvest losses were the major problems in fruit production. There are a number of demonstrations conducted in fruit crops productivity and quality improvement.

5.5 Livestock Product Marketing

Traditional livestock farms in the area mainly produce curd. The production of curd has declined during the last decade or so. Further, no attention has been paid for the development of livestock sector in the last thirty years. However, buffalo/ cattle farmers have managed to maintain curd making tradition of the area by organizing themselves in a small way.

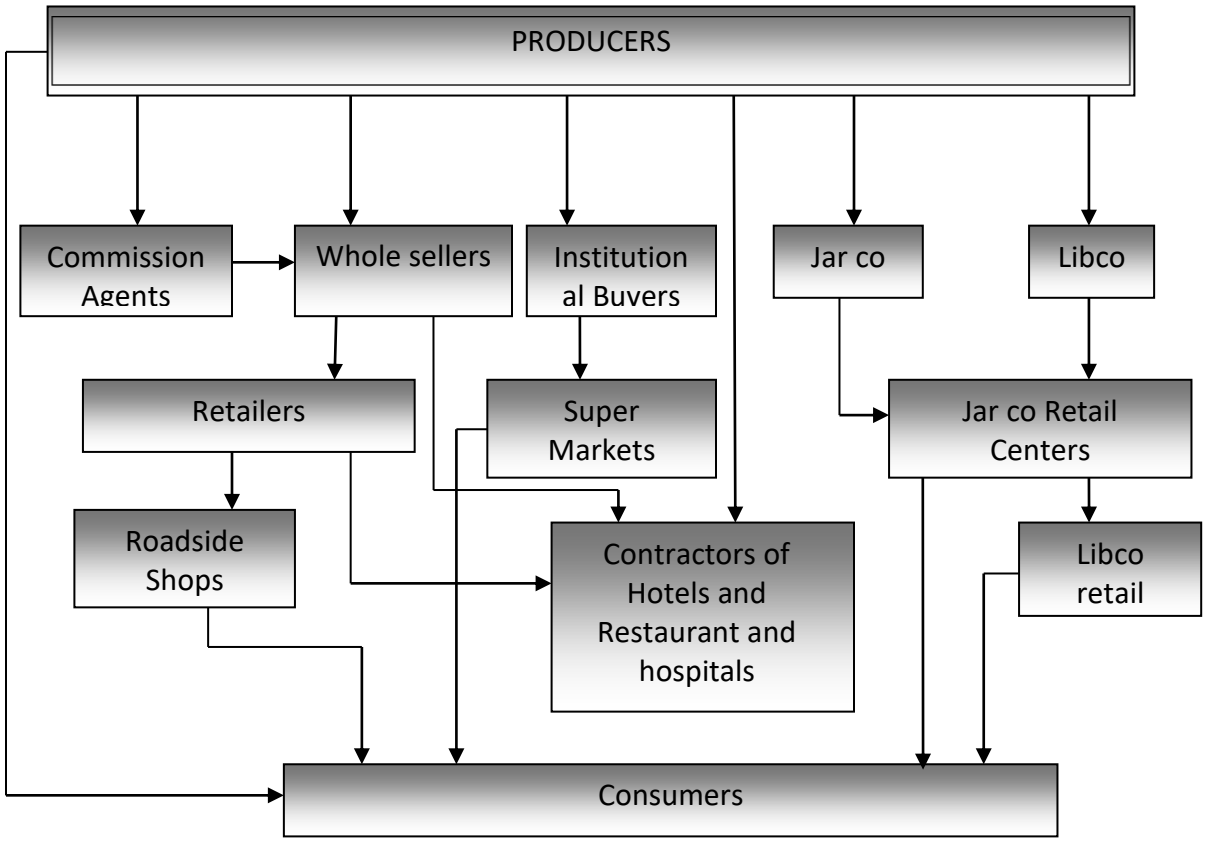


Figure 5.22: Marketing Channel of Livestock Products

CHAPTER SIX

Agricultural Marketing Problems and the Development of Agribusiness and Agro-Enterprises

The marketing system of the Northern Province is largely unorganized and less productive. Recently, little attempt has been made to organize and improve the marketing system in the region after ending of the war. Some efforts were made by the government to organize some of the marketing functions from last two years, but nothing substantial has really been achieved, because there are various kinds of problems and constraints in agricultural marketing in the province. Generally, the process of agricultural marketing is time consuming and requires considerable investments in terms of effort in evolving appropriate strategies to tackle these problems. Therefore, this chapter investigates the marketing problems that affect their expansion performance of services provided by various government and private sector institutions. The chapter also examines the problems of agribusiness and agro-enterprises development in the Northern Province. The chapter is divided in to two sections of agricultural marketing problems and agro-enterprises development in the Northern region.

Agribusiness is a term that describes the corporate method of farming. The term includes not only the farm itself but also the entire chain of agriculture-related business including seed supply, food processing, machinery, etc. Agribusiness marks the rise of modern techno-farming. Farms are expensive to operate; costs include machinery, fertilizer, pesticides, fuel, and seeds. Agro-enterprise development also covers the entire range of activities concerning supply of inputs, production, processing, transporting, and marketing of agriculture related produce. Concerning the above two broader process of agricultural development, this section tries to identify the opportunities for developing agribusiness activities and realistic policy directions to ensure the effective sustainable development of agribusiness existing in the Northern region.

6.1 Agricultural Marketing: Problems and Constraints in Northern Province

The prolonged war and crisis situation in the region and policy changes had damaged marketing systems, market places, infrastructure and its safety network. Therefore, most small farmers do not possess suitable marketing means, and this is the main obstacle for an increased production. Many of the farmers feel that they face a high risk of not being able to sell their produce at fair prices in the markets. The traditional and

new farmers need an assurance with regard to the marketing system. It is possible to terminate, and we shall return to this point, that one of the main ways of improving the farmer's productivity, it does not consist merely in improving the inputs and the production methods. It is important to secure a reliable market, a suitable price, and a system by way of which the farmer can market his produce, and at the same time receive the highest possible share of the price paid by the consumer for that produce.

When the farmer markets his produce, he faces many problems. Overcoming them will help us in restoring his self-confidence, and will help him to develop. The first sets of restrictions are due to physical conditions. The primary condition is the general infrastructure, which includes insufficient means of transportation, bad road conditions and undeveloped market places in the entire Province. Another factor is the absence of agreed standards and qualities. There are no agreed standard rates and measures, and in most places the scales used are biased, thus to disadvantageous of the farmer. The next factor is the means of storage. Insufficient storage space and damaged facilities result in losses. Lack of storage facilities prevents the farmer from keeping his produce until the season when the price increases, causing loss of income. Post-harvest handling does not exist, or is in very bad condition. Transport methods are outdated, and packing and containers are unsuitable. The points of unloading, loading and supply are unsuitable. The supply inputs are unsatisfactory to the farmer. These are not provided in the quantities requested, neither when they are needed, nor are they of the kinds and qualities required. The constraints of agricultural marketing, which hamper the traditional farmer, also include components which are more specifically related to marketing.

Commercial efficiency is hardly paid any attention, particularly by the government and semi-government institutions, and sometimes also cooperative societies set up by the government. The farmer has a very thin bargaining power, and this fact is exploited by the private traders. The traditional farmer has no financial strength. Further, constraints he face are related to the marketing prices and the pricing policies. In many cases, the price paid to the farmer leaves him no profit at all. The input prices are too high in relation to the marketing prices. The price fluctuations are excessive, and this is in addition to high and unjustified marketing levies as well as import and export taxes. The system of payment and the manner of payment to the farmer is also significant - usually the farmer receives payment too late, a too low price, not in cash, and occasionally only part of the due sum.

This factor is bound up with the next factor, which is credit. Credit to farmers is very less. When it does exist, it is insufficient. When it is granted, the interest is too high. Marketing information is an important factor, which in most cases is not at the

farmer's disposal. Information concerning prices, markets and other data is faulty and deficient. Information concerning supply and demand in markets at various places is very large, which prevents the farmer from rationally regulating the supply of his produce.

The government agricultural and trading policy affects the farmer significantly. Many political regimes have a general policy of food imports, or received food products through foreign aid, which reach the country at prices far below the prices required by the farmer for his products. Unrealistic exchange rate policy results in unprofitable exports, and gives rise to cheap imports which compete with the local products. Many governments do not carry a real agrarian reform policy, which could help the farmers. The small farmer finds himself in a vicious circle. Many private companies and marketing organizations have no economic interest in providing marketing services to a far ranging and non-uniform farmer population, scattered in remote and hard to reach places. Without such services, the small farmers will not take the risk of moving up production beyond their domestic consumption.

Marketing process in the region offers vast untapped market potentialities and it should be recognized that it is not very easy to operate this market because of several other problems. Most of the problems are highly complex. Some of the important ones are briefly discussed below.

A. Small-Scale Production: Many of the farmers in the Northern region are small and do not produce for commercial production. Small-cultivated area of a large number of unorganized individual farmers fragmented and often scattered in different locations in the five districts, cannot make much income. As a result, volume of production is limited and small farmers could not sell them individually in distant markets with profit due to high cost of marketing. Without receiving a good return for the produce, no farmer is influenced to increase production and the quality. Furthermore, due to insufficient marketable surplus, farmers lose the bargaining power when they encounter local traders.

B. Poor Management and Cultivation Practices: Crops and livestock products are vulnerable to a wide range of pests and diseases. Under these conditions, proper management practices are necessary to obtain good yield and better quality of the produce. If the produce is to attract the best price in the market, it has to meet quality standards and to be granted prior to being offered for sale. Quality is a function of both production and post-harvest handling practices. Agricultural products are easily perishable. The rate at which it loses its a quality depends upon the variety of the

product and manner in which the products are handled from the production point until it reaches the consumer.

C. Seasonality of Production and Demand: Due to the prevailing physical and climatic conditions, crops are planted and harvested at more or less the same time during the year showing different seasonal quantity and price variation. Many farmers do not commonly understand planning of production to avoid market glut. There are risks involved in off-season planting but could be minimized with the availability of off-season varieties and the improved management practices. During the New Year and other religious festivals seasons, demand for most products is high. Sometime, the supplies of many agricultural commodities are limited during these months. Planning of production and support facilities such as storage should be provided during these months to avoid abnormal price fluctuation.

D. Immediate Need for Cash: Due to the subsistence nature of many farmers, they have to sell their produce immediately after harvest when the price is low to settle the loans which are normally payable after harvest time. In fact, many of the farmers have to sell their products and buy them later at a much higher price. With the development of farmers' organization such as cooperatives and other public sector organizations or efficient private sector companies, farmers can be protected in advance until the product is sold by the cooperatives.

Production forms are an integral part of the marketing process, and Northern farming communities are no exception. The conditions under which agricultural products are produced, varieties planted, management practices used, pre- and post-harvest handling practices have an impact on the quality and quantity of the produce and hence, its marketability. Many traditional farmers are unaware of the importance that production factors have on their ability to market their products effectively. If the farmers in the Northern region wish to compete in the market, attention should be paid to those reasons.

E. Problems of Infrastructure Development: Strong and adequate infrastructure is at the core of agricultural marketing in any country. Market infrastructure is important not only for the performance of various marketing functions and expansion of the size of the market but also for transfer of appropriate price signals leading to improved market efficiency. High investment and entrepreneurial skills are required for creation and management of agricultural marketing infrastructure. The situation of control by the state has to be improved to facilitate greater participation of the private sector, particularly to produce massive investment required for the development of marketing infrastructure and supporting services. However, it is well known that there is no strong

and adequate market infrastructure facilities in the Northern region due to the prolonged war and crisis situation in the last thirty years. Most of the market places, buildings, road and all other required facilities for agricultural marketing were destroyed. Except a few places of Jaffna and Vavuniya districts, all other production areas in Mannar, Mullaitivu and Kilinochchi districts, have no proper infrastructure facilities to sell agricultural produce. At present, new temporary market places and marketing systems in these districts are operating, without adequate and proper infrastructure facilities. Therefore, huge investment is required for the development of marketing, storage and cold storage and other infrastructure in the region.

F. Problems of Transport and Communication: The condition of transport and communication fairly developed after the war situation in connection with the agricultural marketing in the Northern region. However, lack of adequate and satisfactory means of transportation between the area of production and the market centres, delays the movement of farm products, making primary marketing costly in most remote areas in the region. It also leads to an increased number of small dealers and intermediaries. Transportation is heavily dependent on motorways. Transporting agricultural products is therefore, considerably dependent upon general transport system driven by the private sector. Thus farm product are cost extremely time-consuming. It is also greatly responsible for deterioration of perishable commodities such as vegetables, fruits, eggs, poultry and fish throughout the region. Meanwhile, devastation of the Northern railwayline is one of the major causes for the problem of agricultural product transportation in the province at present. Road network and transport system are not sufficiently developed. However, recently, the situation has substantially improved compared to the condition prevailed during the war time, due to the new road development programs initiated by the government and financed by the international donor agencies.

G. Variety of Intermediaries (Multiplicity): Owing to the absence of proper marketing systems in the province, there is a long chain of middlemen between the producers and consumers, taking a share of the consumer's expenditure. The middlemen mainly perform the functions of assembling, processing and distribution. Other marketing services performed by them are limited. A few categories of market functionaries between the producers and ultimate consumers have been identified by this study. At times market functionaries undertake more than one function. Producers generally sell their commodities to primary market functionaries; Jaffna farmers sell their produce to small urban centers, such as Tinnaweli, Kodikamam, Chunakam etc. They sometime sell directly to other markets of Dambulla or Colombo or final consumers in other district markets.

H. Poor Retention Capacity of Small Farmers: The average farmers cannot hold their produce long after reaping the harvest, the time when the prices are at their lowest. The family require him to dispose of his marketable surplus produce soon after the harvest. The relatively large farmers, whose productions characterize only a small fraction of the total production, wait for better prices. More than 80-90 percent of the small farmers in the region are displaced or unsettled farmers. They do not have adequate capacities for storing of agricultural products in terms of space as well as financially. In addition, credit services are also not adequately available, if it was so, the farmers could have obtained credit and met the vital domestic requirements.

I. Lack of Grading and Standardization: Grading of the produce serves an important function in marketing not only to communicate the quality among traders and producers and consumers but also to provide a basis for price differentiation. It also minimizes losses and costs by discriminating the product on the basis of quality, thus, catering to different types of buyers. Many areas have established a grading system but very seldom do farmers understand the system. What is needed is a set of minimum quality standards which should be established against which improved handling practices can be applied to meet domestic and international market requirements effectively.

J. Lack of Post-Harvest Facilities: Many of the agricultural produce are bulky and highly perishable and therefore, should be moved from the farm gate to the market immediately at a minimum cost. However, due to poor road condition in some remote areas, producers have to use other means of transport which are less efficient, causing delays and deterioration of the produce. In many instances, produce is not harvested due to lack of markets. For example, in certain Northern areas of Mannar and Mullaitivu, the field is about 60-80 kilometers away from the cities of Vavuniya, Jaffna and others. Some farmers point out that low country vegetables and some others are used lack of market. Tomatoes, brinjals and mangoes, which are highly perishable, are not harvested. There is no village level processor or collector for these produce. Lack of suitable packaging materials is a major constraint since the use of gunny bags or packing as bulk cause a lot of damage and loss during transport. Innovative packaging such as the use of plastic crates and other various types of new packaging materials are not possible due to high cost.

K. Poor/Lack of Packaging of the Products: Packaging serves two main purposes: help protect the produce from damage during storage and transport and to provide a standardized quality of produce to facilitate transactions. Many of the products are sold unpacked and some in unstandardized packages. This situation leads the seller to a disadvantaged position with the resultant lowering of the price. The risk of being

damaged through spoilage is also high and while its market value is low. In most of the fruits, traders use bamboo baskets, wooden crates, and sacks or any package available to pack vegetables. Very often, produce is compressed into bags or baskets or carried in oversized containers causing serious damage and losses. In Jaffna for example, traders used 60 - 70 kg sacks to transport cabbage, from Dambulla to Jaffna market, that are too heavy to handle and caused damages due to improper handling.

L. Overlapping marketing channels: In some areas, marketing activities provide major source of employment for several number of people. Thus, it is not surprising to find a few number of people performing sometimes overlapping marketing functions, which do not add value to the products. For example, products are procured by village traders, local collectors, assembled and transported by local wholesalers to other wholesalers in the wholesale market, then to retailers who in turn sell to the final consumers. Each participant in the distribution chain will incur a cost, losses and wastage and should be recovered with a reasonable margin of profit. These factors explain the high marketing margins.

M. Lack of Knowledge on Marketing: Many farmers have very little knowledge and experiences on competitive markets and marketing. Therefore they are unaware of the needs and requirements of such markets and the mechanisms that play in determining price. This is evidenced by the lack of appreciation of the quality, size, appearance and packaging which play a major role in determining the price in the market and the lack of understanding of the vulnerability of supply and demand situations, lack of understanding of the costs and risks involved in marketing of the produce.

N. Lack of Market Information (Accurate and Timely): Producers in remote areas are generally not aware of the existing price of the produce in the other outside markets. Most common sources of price information are the buyers who come to buy from the producing areas. In the absence of correct knowledge about the actual market price situation, producers are vulnerable to certain degree of “exploitation” by the traders. However, even if producers are aware of the market price but have no market power to bargain, farmers have no option, but to agree to the prices dictated by the buyers, which in many instances are far below the expected price. Therefore, strengthening the bargaining power of the farmers through formation of farmer groups and associations is an action in the right direction.

O: Poor Institutions and Institutional Support Services: Many developing countries like Sri Lanka are not significantly familiar with the importance of marketing and the role it plays in promoting economic development. As a result, many programs have been instituted ranging from the provisions of infrastructures such as roads, storage facilities

for private trade, creation of effective organization to market the produce either in competition or a substitute with the private traders, which sometimes resulted in monopolistic conditions. However, most of these programs had a varying degree of success because of the stereotypical assumption that marketing is unorganized, exploitative and unproductive and so efforts were directed towards combating the monopolistic situations of the private traders. Efficient marketing requires the provision of support services to enable producers obtain a better price and reduce marketing losses. Among these services are provision of marketing extension and information, marketing credit, research and appropriate policies to facilitate marketing operations.

P. Poor market extension support service: Agricultural extension workers in the region provide production technologies; but there are no marketing extension services in the Province. There are no adequate extension officers in the region to fulfill the all farmers' requirements in the region. Many of the agricultural extension workers are production technologists with very limited or no training and experience in agricultural marketing. Marketing extension workers could provide assistance in expanding market outlets, improved post-harvest and marketing practices, assistance on marketing credit and promotion of group or cooperative marketing. Marketing services are provided by various institutions and organizations. It provided marketing advisory services such as recommendation on crops to grow based on market demand, time of marketing and type of outlets, packaging, grading, market information service, group marketing and arrangements for marketing loans, etc.

Q. Lack of appropriate policy support: Most government planners have ignored appropriate policies favorable to the development of marketing and commercialization of agriculture. The need of formation of an appropriate policy framework for the development of agricultural marketing is an essential condition. Pricing policies have made non-agricultural activities more remunerative than agriculture and have not only discouraged farmers but also have transferred agriculture resources for non-agriculture uses. In this sense, agricultural marketing systems in the Province have to play an imperative role, as it will bring a viable solution to socio-economic and political struggles faced by hundreds of underprivileged poor small farmers in the Northern Province.

6.2 Agribusiness and Agro-Enterprises in the Northern Province

There is a huge potential and capacity for the domestic food and agricultural market which can be used as a base to create a strong local food production and processing industry to supply the national needs both in terms of quantity and quality in Sri Lanka. In addition to the substantial potential in import substitution and meeting additional demand arising from the rising population will be met by expanding outlets. Considering

these objectives, the Northern Province is no exception. Research and development efforts, promotional and incentive policies will be geared towards the long term development of a viable food production and related agro processing industry. Food policy emphasizing both quality and nutritional aspects should also be formulated and implemented to complement the above efforts. Another approach to agro-industrial development will be to establish industrial zones, provide credit lines to enable farmers to re- establish their operation and to promote private sector initiatives in establishing new industries. Linking of agricultural production and its level structure and composition with the future growth of the manufacturing sector, in particular, agro-based and related downstream industries provide opportunities for further creation of value-added and processing agriculture products which have strong potential for import substitution and exports.

Agriculture and Agro- based industrial enterprise should be a platform for industrial development. Initially agriculture related enterprise support activities should be the base for micro- level agro-based production enterprise development and eventually be supportive to major export market enterprise. In this regard, the agricultural and industrial sectors need to expand in a balanced fashion supportive of one another. Efforts of converting agricultural produces into higher value- added industrial products, particularly for export market will be enhanced through micro scale enterprises. Major development objectives of the agro-based enterprise are:

- ✓ To promote technology knowhow in value addition of crop produces.
- ✓ To facilitate value added product preparation in homestead level.
- ✓ To promote consumption pattern of crop produces.
- ✓ To preserve crop produces at home without degradation.
- ✓ To promote economic utilization of crop produces.
- ✓ To reduce loss of nutrition of crop produces.

To develop and promote agribusiness and agro- based industries in the Northern Province of Sri Lanka, specific development strategies, plans and certain investment incentives will have to be considered. Emphasis should also be given to the identification of new economically viable projects, their potentialities and possibilities, supply of adequate and competitively priced raw materials. Further, intensification of agricultural downstream processing technology, activities and the involvement of rural labor force in agro- based industries are also important. There are many agriculture crop management related activities which provide considerable income to the people. Farm workers and disadvantaged people and even youngsters can undertake economic activities which help improve their economic status. Some of the activities not only support income generation but support eco-friendly technology adoption by the crop

producers. Until recently, less priority has been given to this sector by various administrative regimes in their development policies, programs and projects in the Northern Province. However, there were considerable evidence on development of agribusiness and agro- based industries in the region that is described in the following table.

The table shows the agro enterprises in the Province in 2006. Unfortunately, the situation has drastically changed with disastrous consequences during the conflict period. At that period, the number of agribusiness and agro-enterprises in Jaffna district were 243 which was the highest in the Province. The lowest development indicated in the Mannar district was 52 units of agro-industries. Rice flour production, gingelly oil extraction and rice mills were prominent agro industries in the Province.

Table 6.1: Agro Enterprises in the Province - 2006

Type	**Jaffna**	**Mullaithivu**	**Mannar**	**Kilinochchi**	**Vavuniya**
Rice flour production	102	58	11	60	18
Rice mills	6	31	-	47	60
Jam, Juice production	12	2	-	1	2
Gingerly oil extractor	64	12	-	14	15
Papadam making	5	4	-	3	4
Curd Chilly	9	-	-	-	-
Mixture, Pagoda making	28	9	18	15	6
Oil extraction mill	11	14		10	
Processing industries	6	4	23	-	13
Provincial total	243	134	52	150	118

Source: Provincial Council of the Northern Province

The task and nature of agribusiness and agro-enterprises activities can be categorized into three sectors of agro based industries.

- Value addition related agribusiness and agro-enterprises activities.
- Estate crop sector development related agribusiness and agro-enterprises
- Fertilizer and agro-chemical related agribusiness and enterprises activities.

6.2.1 Value addition related agribusiness and agro-enterprises activities

Value Addition Related Activities: Value Addition is one of the development approaches of the expansion of agro industries. Crop products can be made value

added for better marketing and easy consumption. This can be explored in marketing promotion and increase of income producers. Facilitation of agro-based enterprise development through providing value addition training to potential youth and household women is one of the solutions. Extension of value addition technology among farmers, youth and families headed by woman will pave way for cottage level enterprise development. Under this category, following agribusiness and enterprises were identified by this study.

1. Floriculture Development:

Home beautification becomes an essential phenomenon for healthy and pleasing environment. The Department of Agriculture has developed several types of flowers for cut flower and house ornamental plants. Floriculture has become an enterprise which raises high profit for producers in the country. Bouquet flower production is gaining market in the region. Encouraging widows and disadvantaged groups to involve in production of cut flowers and ornamental plants in homestead level with training on technology can be facilitated by the Department of Agriculture. Small scale flower production and garland preparation provide a considerable income to families. This sector will address the problem of scattered vulnerability to improve their livelihood. Potentials and possibilities in developing this industry are high in the province.

2. Development of Apiculture for Production of Bees Honey:

Bees Honey is ever demanded by the people as a medicine and a food ingredient. People obtain honey from bee colonies naturally developed in the jungle. However, production of honey is very much attractive under palm or coconut plantation and other intensive plantation of fruit crops. The honey production can be developed in the region at homestead level. People who are interested will be trained and supplied with beehives and other equipment. This enables vulnerable groups to engage in honey production too. Supply of bee boxes is facilitated by liasing with manufacturer. Throughout the Province, development capacity of this industry is massive.

3. Mushroom Cultivation:

Mushroom is a very nutritious food and has high demand in the hotel industry. There are several types of mushrooms. Some have medicinal properties and some have adverse health implications. However, edible mushrooms have been identified and cultivated in the country. This crop is rich in protein and other elements preferable for dietary intake for health. The Department conducts promotional programs for

cultivation of mushroom by producing and supplying mushroom seeds. This program enhances the livelihood of vulnerable, widows and demoralized economically backward people in the rural and urban areas. Cottage level mushroom cultivation in rural areas with market buy back system boosts rural people's economy. Mushroom can be sold afresh as well as dried.

6.2.2 Estate crop sector development related agribusiness and agro-enterprises

1. Cashew Development:

Sri Lanka is one of the cashew producing and exporting countries. Cashew cultivation is prominent in the Mannar district. Development of cashew plantation in the region is possible. Prior to the conflict, the Cashew Corporation had its own farm in the district and provided extension and other technical assistance to cashew cultivators. This was neglected for more than 20 - 30 years due to the war situation. The Sri Lanka Cashew Corporation had its cashew plantation farms at Kondakachchi in an extent of about 15,000 acres. Its office building complex including residential quarters of the officers and workers was completely destroyed. A large number of cashew plants were damaged due to lack of maintenance and led to decline in productivity. It is estimated that nearly 100,000 kgs of cashew nuts were obtained from Kondakachchi cashew plantation farm. Another 30,000kgs cashew were collected from cultivators in Mannar Island and Kilinochchi. There is a definite potential for expanding the cultivation of cashew in the whole Province since there is a growing demand for cashew worldwide.

Sri Lanka's share in the world market is about 0.2%. Therefore, the chances of earning an enhanced income by primary cashew producers of the region are high. Rehabilitation and development of cashew cultivation should be aimed at expansion of acreage under cashew plantation along with the development of cashew processing units to create more employment. The present rate of subsidy payment of Rs. 9,500 per acre for new planting program by the government should be extended for the rehabilitation of cashew plantations. The strategy should promote private investors to undertake cashew plantation by providing state land under long term lease. As cashew is a perennial crop which can survive under dry condition, utilizing the existing forest land for cashew cultivation will not have any negative impact on environment. Further, small holders should be encouraged to plant cashew as an inter-crop in their

homesteads. The Cashew Corporation should have its own nursery in Mannar to supply planting material to the needy farmers in time at the beginning of rainy season.

2. Sugarcane cultivation and development:

Sugarcane can be cultivated in uneconomic paddy lands in all the districts. Previously, there was a sugar cane factory at Akkarayan area in the Kilinochchi district where sugar cane was cultivated in nearly 500 ha under irrigation and sugar produced was for district needs. Sugarcane cultivation can be restarted with the study of economic and management feasibility to support supplementary sugar supply and employment generation in the region. As an agro-based industry, development possibilities of the sugarcane are enormous and vital to the region.

3. Coconut development:

Coconut is an essential ingredient in food preparation and uses of coconut oil in the region are plenty. Hence, Northern region has developed coconut plantation in the entire region sporadically. It was estimated that nearly 8000 ha were available in the region. About 40 percent of plantations exist at present. As per requirement is 120 nuts per head, annually 76 million nuts are required for the region. Restoration and rehabilitation of coconut plantation was neglected obviated. Quick rehabilitation of the damaged plantation, supply of high quality seedling like TR-65 and dwarf varieties are required. The Coconut Development Board should be reactivated with strengthening of staff and production units and be able to supply required amount of seedlings for renewal of plantation.

4. Agro-forestry:

Most perennial plants of economic value were damaged due to prolonged war and shortage of timber wood is a constraint to speedy development of resettlement program. Agro-forestry program is considered necessary to improve the natural vegetation in homesteads and maintain a micro-climate for healthy environment and supply fuel wood to household. This will minimize the demand for fossil fuel in the future. Social forest, farm forest and community forest are a strategy for addressing deforestation. Supply of perennial tree crop with economic value to needy household on subsidy basis is supported.

5. Bamboo forest plantation development:

Bamboo is a wonderful gift of nature. Its flexibility has prompted many uses while promoting traditional and cultural values in many countries. Bamboo is referred to as

“timber for poor man” is now being discovered as nature’s “green gold”. It is mostly soft wood and is only matched in annual yield by the fastest growing soft woods such as Eucalyptus. Therefore, bamboos are competitive or better than wood alternatives in terms of annual yield, showing its potential for the future. Bamboo is the most versatile renewable and ecofriendly resource and it has industrial potential too. China, Indonesia, Malaysia are among the countries that use bamboo paper pulp production- an oldest industrial use. In the Northern region, there is ample potential to grow this woody crop in river banks, tank reserved lands and other areas prone to erosion, a use among the great many that the bamboo can offer for economic and environmental sustenance. Bamboo will be the most promising for reforesting degraded land where trees may not survive.

6. Aquaculture Development:

About 11 major and 50 medium and over 500 minor tanks are functional at present. Major and medium reservoirs are perennial tanks and the minor tanks are considered seasonal. This situation paves the way for cultivation of seasonal and perennial freshwater fish. Despite freshwater fishing has been carried out continuous production is affected by lack of supply in fingerlings. This has to be strengthened with steady supply of fingerlings program. There are varieties of fish found in the aqua-research, which grow rapidly and produce more weight within a short period of time. This option will be explored.

6.2.3 Fertilizer and Agro-chemical related Agribusiness and Enterprises Activities

Fertilizer Related Activities: Use of bio-mass as fertilizer was a traditional practice before introduction of artificial fertilizer. Crop production improvement technology development and subsequent adoption of technology gradually replaced traditional practices in crop cultivation. This consequently increased production whilst harming the environment. Considering the ill-effects of conventional crop cultivation practices using resource demand technology, the trend is reversed to the traditional practice in modernized form under sustainable agriculture concept. This resulted in an encouragement within the farming community in preparation and application of bio-related product. These are in the form of bio-fertilizer, bio-fuel, and bio-pesticide in farming practices. This trend covers enterprise initiative on bio – product preparation.

1. Bio-fertilizer/Carbonic fertilizer:

Production use of bio-fertilizer should be encouraged and establishment of bio-fertilizer production units is to be implemented. Use of bio-fertilizer is an essential practice for sustainable agriculture development in view of maintaining productivity of natural resources. Solid waste management, the biggest menace for environment is supported by bio –fertilizer production. Composting technological knowhow is very simple and can be produced locally. Compost making as a profitable venture is ideal for vulnerable and under privileged group trained for making compost. A bag of compost can be sold at a reasonable price to home gardeners and the compost can be applied directly to the soil. This enterprise can be promoted as commercial production. For homestead level production, compost bins are available for supply.

2. Agrochemical Related Activities -Bio-pesticide Production:

Many crop plants have chemical compounds having harmful effects for pest. Some of such chemical compound in plant has aggressive/repulsive effect to most of the pests. The technology has now developed to make use of chemicals in the plants as pest repellant in managing pest population in crop production areas. Technology on utilization of such chemical as spray on the plant is simple and can be handled by any villager. However, instant preparation is necessary before spraying as bio-pesticide as it cannot be stored for more than 3 days. The “Kohomba” tree has chemical properties to be used as pesticide. Preparation of chemical compound as liquid spray for sale is an effective income generation activity. Application of this type of bio-pesticide is not costly despite the necessity of repeated spray and is ecofriendly. Promotion of preparing bio-pesticide by using advanced technology will lead to chemical free crop production in future. Farmers and farm workers will be trained in the technological knowhow of preparing bio- chemical and facilities will be provided for such preparation. Bio product will be prepared on demand and need of the bio-chemical amount and type of chemical as the product should be applied soon after preparation. Farmers can reach an agreement with producer beforehand.

6.3 Key Problems in Agribusiness and Enterprise Activities

The main constraints to agribusiness development were prioritized. The key problem inhibiting the growth of the sector is that “the agribusiness sector has not realized its potentialities and possibilities.” The underlying basic causes for the problem are;

- Lack of an effective enabling environment
- Low sector profitability and returns.

The above restrictions are not complete and there are a multitude of problems which stakeholders have extended as priority issues to be addressed, most of which appear in the development literatures of the agribusiness and enterprises and some research studies. The key problems and constraints to the growth of the sector may be summarized in terms of requiring the following essential development priorities;

- The security of tenure and availability of lands,
- Crop diversification, and the market in land, manifested through the implementation of land legislation;
- The absence of adequate seed legislation and restrictive quarantine regulations;
- Price intervention and food subsidies;
- Policies that act as disincentives to the private sector such as the lack of investment incentives
- Poor rural infrastructure; rural farm roads, water and power supply
- The poor profitability of the sector is also partially a result of the lack of an effective and encouraging enabling environment discouraging investment.
- Low profitability stems from a number of causes including,
- High cost of production compared to competitors, which is a factor of poor yields, low prices, high credit, labor costs, lack of economies of scale and non-optimum land use
- Lack of access to new technology and appropriate planting material, lack of skills and knowledge, and poor extension services.
- Credit availability and affordability for production and value addition
- Marketing efficiency support, e.g. dissemination of market information, contract strengthening
- Value chain integration support measures, e.g. farmers group formation, out grower systems and infrastructure
- Institutional rationalization.

CHAPTER SEVEN

Conclusions and Recommendations

This chapter presents conclusions and recommendations for the study on assessments of agricultural marketing systems in the Northern Province of Sri Lanka. This idea and some expressions are drawn considerably from the materials of the preceding chapters and also from the experiences of the researcher in the field and all stakeholders directly or indirectly involved with agricultural commodity marketing activities in the region (farmers, traders, government and non government officials and others). A large number of issues relevant to development of agricultural marketing have been chosen and briefly dealt with in the conclusion. Various issues have been presented in the form of descriptions. The list of issues dealt with is very likely to be neither comprehensive nor presented in detail Additional considerations may still be added.

7.1 Findings

Economic, social and political issues in the Northern Province in Sri Lanka are the most conventional and controversial subjects in the present development scenario in both local and global context. Within the broader framework of these global and local political, economic and social scenarios, many academic research studies mainly suggest that the "power devolution" is the ultimate remedy to the socio-economic evils in the region. This study, however, concludes that the power devolution will meet only political aspirations of people interested in politics in the Northern region. But it will not bring concrete solutions to economic struggles faced by hundreds and thousands of underprivileged poor farm producers in the province who have suffered more than thirty years due to the war situation. An upgrading of livelihood activities of these people and agricultural marketing should become one of the sustainable solutions for poor farmers who desperately look for a better life.

The prolonged war and crisis situation in the region and policy changes had damaged agricultural marketing systems and infrastructure in the rural economy and their active set of trade connections. Closing down of paddy and subsidiary crop marketing systems, including the Paddy Marketing Board (PMB) is one example for the policy changes of various administrative regimes of the government that rigorously affected the larger paddy producing areas of Mullaitivu, Mannar, Vavuniya and Kilinochchi districts that were important for most of paddy farmers and other stakeholders in the region. Therefore, extended war and crisis situation and policy adjustments of governments were the two major underlying reasons for the failure of economic prosperity of the

small holder farming sector in the Northern Province. In other way, macro-economic policy changes and their impacts severely affected the small holder farming communities. As a result, the agricultural marketing situation was characterized by inefficiency, ineffectiveness, unproductivity and above all, progress was stalled in the Northern Province. Failure of these marketing situations to operate has led to widespread poverty, landlessness, inequitable distribution of income, and destruction of the environment and affected the economic performance in the region.

Therefore, to rebuild the Northern rural economy, a complete re-governing of marketing system is needed in the region. In view of the emerging trend of local and global market, plans have to be formulated for the rural sector that is not prepared for global changes, in ways that it contributes to the resilience of rural economy. Based on the above macro level information and broader structure of this study, following identified findings are listed as follows.

1. Northern region has a total area of nearly 8850 sq km which is only 12% of the land area of the country, while its population estimated at around one million in 2011 constitutes 9% of the total population of the country. There are about 150,000 farmer families in the region. In Sri Lanka, agriculture takes 30 % of the labor force. But in the Northern Province nearly 45% of the labor force directly depends on agriculture for their livelihood. The region is a paddy surplus area which supplies rice to other regions, too. The region has a land area of 8, 85,000 hectares of which over 50% of the land area is occupied by perennial, annual and seasonal crops. Forest and range lands cover nearly 27,000 hectares of the land area. The per capita land holding is 1 ha against the national average of 1.5 ha.

2. Agriculture sector is still dominating the rural economy of the Northern Province. The Sector includes crop sector, livestock and inland fisheries sectors which were well developed in the region before the conflict started in 1980. Since then the provincial economic development along with crop production sector has deteriorated. The region, over the last two decades, has been engulfed in war complexities resulting in the disruption of people's normal economic and social life. Excessive damage to public and private assets, displacement of farmers and fishermen, loss of family income, decline in investments, and savings, disruption of supporting services and security limitations have led to a substantial reduction in crop production and marketing activities, fisheries and livestock production. The results had been a heavy loss of output and productivity, increased unemployment, poverty and social unrest.

3. The region, before the conflict, was a major supplier of rice, dry chili, and red onion and grain legumes to the Southern part of the country. However, agriculture sector at present can be well characterized as unorganized, unregulated, having no markets and not development oriented and highly arbitrary. This kind of production feature is common in the region under conflict and crisis management. Some parts of the province still operate in a state of "closed economy" with marginal contacts with the rest of the country. Most of the agricultural production is limited to local consumption of the region. The food crop sector development has not received a sufficient encouragement for agriculture production resulting in a downsizing of commercial sector to small holding rural sector. The foremost problem is therefore to transform the present subsistence level closed economy to the commercialized surplus producing one. However, there were a large amount of untapped potential in the key agricultural crops of the area; such as paddy, red onion, chilli, potato, vegetables, tobacco, banana, grapes and livestock products and that could create better market linkages, and better utilization of farming capacities.

4. Rural-regional-national market network, farmers' participation in the marketing systems and their development activities have been abandoned. There is no supply / value chain approach and integration. Market value chain and supply chain was neglected or ruined. In the real situation in the province, there are many smaller producers with only few buyers (oligopolistic) or many buyers with only few producers (oligopolistic) as in the case of many agricultural products dominated by private traders. The former situation resulted in a buyer's market where the buyers could influence the price of the seller. In the seller markets, sellers could set the selling price way above the cost of production and obtain an exceptional profit. Under this situation where competition lacks control could exercise sufficient market power and could set its buying and selling price way above the cost of production resulting in a market failure. This type of market structure is common in agriculture of many developing countries in Asia where there are few buyers who are highly organized control the output market and the input market is controlled by few distributors. In that sense, one of the major challenges in terms of agricultural development in the Northern Province is "reconstruction of the suitable agricultural production and marketing systems." For restoration of the agricultural production and marketing systems, policy makers should give their first and high priority for the development of agricultural production and marketing systems as well as to overcome the obstacles faced by the market forces in the province.

5. The crop sector consists of three different categories of farmers namely commercial scale producers (10%), average scale producers (60%) and subsistence level producers (30%). Diverse crops are cultivated for market demand in the region.

Major crops in the region are the paddy as staple cereal crop and maize and kurrakkan as cereal coarse grain, green gram, black gram and cowpea as usual crops for vegetable protein consumption, Chili and red onion as condiment crops, ground nut and Sesame as oil crops, Cassava and other yams are root crops, potato as cash tuber crop and banana, mango, jak, lime and grape as major horticultural crops with varieties of low country and up country vegetable cultivation. Extended war and the crisis situation and policy changes had caused damaged to market systems, their infrastructure and its safety network. Less intervention and free imports of commodities severely affected the production and marketing systems. However, during the last three years, there were the marketable surpluses in many crops. Total production of paddy was 82% of the provincial consumption requirement, while, dry chili were 66%, pulses only 14%, vegetables 60% and production of red onion was 195%. Banana, grapes, mangoes and vegetables such as beetroot, carrots, cabbages and brinjal are more popular commercial crops. The crop diversity is the prominent characteristic in Jaffna, while the mono crop culture is a leading factor in other districts.

6. Farmers have their own marketing and production system and most of the marketing activities have been based on ad-hoc arrangements. Uneven development of the process of agricultural marketing systems is a prime characteristic. There are no proper marketing systems and operation activities in Kilinochchi, Mullaitivu and Mannar. The marketing systems in Jaffna and Vavuniya are mostly neglected or ruined, due to the war. Some improvements have been seen recently, while there is no proper political and economic environment for the development of agricultural marketing systems in the region. Land accessibility is the most essential policy issue for development of agricultural surplus production and markets. There is no social institutionalization for collective decision in coping with production and market challenges and dynamics.

7. The study identified a large number of weaknesses as in current production system of paddy/rice sector in the province. They can be summarized as follows.
    - Irrational land use patterns in the region.
    - No effective water management as most of the irrigation infrastructure of both downstream and up streams are either in a damaged or dilapidated condition.
    - Prevalence of scattered cultivation due to poor socio economic condition.
    - Shortage of labor: formal and informal foreign remittances received by Jaffna labor might be creating a disincentive to supplying more labor hours.
    - No competitive production and organized marketing systems.
    - Unavailability of efficient marketing network system

- Low popularity of rice based products
- Inadequate storage facilities and application of poor processing and milling technology
- Poor input accessibility and affordability
- Poor and ineffective supply of quality seeds as and when needed
- Lack of technological knowhow in the rural society.

8. The study also identified weaknesses in the production and marketing system in other food crop sector in the region. These are mainly due to
   - Inadequate availability of new high yielding varieties
   - Inadequate knowledge on new technologies at village level
   - Low productivity due to rain-fed cultivation.
   - Irrational land use and crop management
   - High incidence of pests and diseases
   - Lack of technology adoption
   - Inadequate availability of quality seeds and required varieties
   - Lack of regularized local and institutional seed production and input supply mechanism at village level
   - Lack of farmer group activities
   - lack of private investment in processing and agro – based industries
   - No promotional activities implemented by the policy regulation.
   - No regulatory market arrangement for raw and value added products.

7. 2 Conclusion

Agricultural marketing should be a sustainable solution for poor farmers who are aspiring for a better life in the Northern Province. The protracted war, crisis situation in the region and policy changes by various government regimes had damaged market systems, their infrastructure and their safety network. Closing down of the Paddy Marketing Board and free import of food commodities severely affected the production and marketing systems. As a result, rural-regional- national market network and farmer's participation in the marketing systems and their development activities were abandoned. Market value chain and supply chain was neglected or ruined. Farmers have their own marketing and production systems. There is no supply / value chain approach and integration.

After decades of war and conflict, now the Northern Province has entered a new path of economic growth and development owing to the huge investment by the government and international donors. Traditionally the Province, particularly the Jaffna peninsula was considered the agricultural paradise of the country and agriculture was the main economic activity of the people. By tradition, paddy/rice, red onion, green chili,

potatoes, pluses, tobacco, dairy products, palmyra products and eggs were the major agricultural products. Recently, banana, grapes, mangoes and vegetables such as beetroot, carats, cabbages and brinjals developed into more popular and commercial crops. Crop diversity is a prominent character in the Jaffna peninsula, while the mono crop culture is a leading factor in some other districts of Mullaitivu, Mannar, and Kilinochchi. Marketable surpluses are available with many crops. Except for the production of red onion, banana, grapes, other agricultural products do not meet the consumption requirement of the province. The total production of paddy was 82 percent of the consumption requirement of the province, while, dry chili were 66 percent, pulses only 14 percent, and vegetables 60 percent. The total production of red onion was 195 percent of province consumption requirement. There is large untapped, unmarketed potential in the key agricultural crops of the area (paddy, red onion, chili, groundnut, cowpea, banana, grapes, mango and tobacco) and livestock produce – could create better market linkages, better utilization of agricultural/farming capacity and skills. Therefore, need urgent measures to address this.

Uneven development of the process of agricultural marketing systems is a prime characteristic in the province. There are no proper marketing systems and operation activities in Kilinochchi, Mullaitivu and Mannar districts, and most of the marketing activities are based on ad-hoc arrangements. However, marketing systems in Jaffna and Vavuniya are mostly neglected or ruined, due to the war. Some improvements have been witnessed recently, while there is no proper political and economic climate for the development of agricultural marketing systems in the region. Land rights are the most essential policy issue for development of agricultural surplus production and markets.

No social institutionalization for making collective decisions in coping with production and market challenges and dynamics. Therefore, a complete re-governing of market system in the region in view of emerging trend of global market has to be planned for small farming sector not prepared for global changes and ways that contribute to the resilience of rural economy. Therefore, organization of new institutionalized marketing systems are urgent requirements of the region, as most of the existing marketing systems were not properly organized for distributing food commodities just after the war in 2009. However, there were some growing trends of trade relations with the Dambulla and Colombo wholesale market in the last two years. The study also emphasized that there are “extremely poor infrastructure facilities and unavailability of basic marketing facilities” such as traders, collecting centers and transport facilities of road and vehicles. This was the leading factor for the underdevelopment of the process of agricultural marketing systems in the province. In the meantime, most of the present development plans and programs in the region were given higher priority and more concerned about the basic infrastructure development of roads, houses, health services,

education etc. Attention is on providing some basic inputs and promoting agricultural production rather than promoting agricultural marketing systems. Thus, it is needed to regularize resource mobilization for the improvement of marketing facilities and to promote market-led crop production in all districts. The study also observed that the private sector investment for marketing was limited, due to the reasons of higher level of risk and lack of infrastructure facilities. Therefore, development authorities and planners should focus special attention to promote public and private market participation and investments throughout the region.

The study, further observed that when the farming communities in the Northern Province with similar community in the other part of the country are compared, most of the Northern farmers in terms of farming and marketing systems and their attitude and expectation etc, are still traditional and are not sufficiently recent changes of commercial agricultural business process prevailing in the Southern part of the country. This was mainly due to updated on the war and crisis situation in the region. Therefore, awareness programs and marketing skill development plans are needed to operate agri-business more efficiently in the province and make arrangements to develop self reliance in production and marketing system in remote areas which are severely affected by war, specially Mullaitivu, Mannar, and Kilinochchi districts.

The study further explored that most of the farmers, key persons, traders and many government and non-governmental officials have had strong experiences on cooperative societies. Before the war and crisis situation in the region, in the 60s and 70s there were several cooperative societies functioned successfully with agricultural production on paddy/rice, vegetables, (Red Onion and Dried Chilies) milk, tobacco and fisheries products. At that time, in case of paddy/rice marketing in the Mullaitivu, Kilinochchi and Mannar districts, the cooperative societies played a vital role with the Paddy Marketing Board under the closed and controlled economic strategy. After 1980s' the systems were destroyed completely. Some of the paddy mills, stores and other infrastructure facilities were damaged and used for several other purposes. However, it was very important to note that the Northern farmers are still positive of the development of cooperative marketing activities. Presently, a few cooperative societies are functioning based on red onion, fisheries, milk and palmyra products. Some of these cooperative societies mainly distributed food items and other consumer durables rather than conducting activities of agricultural marketing. In that sense, facilitating formation of cooperative societies and empowering cooperative governance in production and marketing are important solutions for economic struggles faced by hundreds and thousands of underprivileged poor farm producers in the province.

However, within the framework of present political and economic scenario, the study concluded that power devolution (locally and internationally recommended) will meet only political aspirations of people interested in politics in the Northern region, but it will not bring a lasting solution to economic struggles faced by hundreds and thousands of underprivileged farm producers in the province. The pressing and necessary requirement is to ensure fair market access to all strata of the farming community and re-formulating of new market systems and institutions.

7.3 Recommendations

The study seeks to promote agricultural growth and maximize benefits from agricultural and food products in the face of the challenges arising from economic liberalization and globalization. The main objective of an efficient agricultural marketing system should be to ensure that a greater share of the ultimate price of the agricultural produce goes to the farmers. In the context of the increase in the production of agricultural commodities and the fast changing economic scenario, issues relating to the development of agricultural marketing have assumed great significance. Some of these issues are development of infrastructure for agricultural marketing, establishing sound linkages between production and marketing, development of market intelligence for the benefit of farmers and consumers, promotion of direct marketing, application of Information Technology in marketing and encouraging public, private and cooperative sectors to make investments for the development of agricultural marketing. In order to strengthening and promoting the efficient system of agricultural marketing arrangements in the Northern region, the following recommendations are made.

1. High Priority in planning process: Presently, agricultural marketing in the planning process was not given priority in the Northern region. Therefore, the study recommends that utmost priority be given to the needs of agricultural marketing in the planning process. The investment requirement for strengthening agricultural marketing infrastructure has to be very high, because almost all the infrastructure were completely damaged in many parts of the region, especially market buildings, roads and collecting centers. Most of these would need to come from private sector, and the role of provincial government is also vital. This may require a conducive and favorable environment consisting of;

(a) Making complementary investment by the central and provincial government

(b) Subsidizing a few activities to enable private sector initiatives to attain viability

(c) Active role by the central government in some initiatives

(d) Reducing the regulatory control and simplifying the procedures and

(e) Ensuring adequate financial flow to agricultural marketing activities.

2. Urgent Need for Infrastructure Development: Market infrastructure is important not only for the performance of various marketing functions and expansion of the size of the market but also for transfer of appropriate price signals leading to improved marketing efficiency. This is the most deficient aspect of the agricultural marketing system in the Northern Province. High investment with entrepreneurial skills and knowledge of marketing extension services are required to create and manage these infrastructure. Therefore, private investment in the market infrastructure development may be encouraged by modifying various procedures a package of incentives. Nevertheless, for providing infrastructure in remote and difficult areas such as Mullaitivu, Kilinochchi and Mannar districts, the public sector would need to continue to play an important role. Development of infrastructure within urban market centers (spot markets) and others places is a huge task. Meanwhile, building up essential infrastructure and creating a business friendly environment – electricity, telecom, financial services, roads and transport are the other basic requirements.

3. Implementation of Rural Periodic Market System: Rural periodic market (called Pola Markets) is the first contact point for producers – sellers for selling his agricultural produce and buying other goods needed by him. Before the war period, there were a number of organized rural pola markets in the province. All of these previous marketing systems have collapsed. There is an urgent need to develop these rural periodic markets in a phased structure with necessary infrastructure facilities to have a strong base level link in the marketing chain. The investment requirement for developing these primary rural market places is comparatively low and the local government has to play a vital role in this regard.

4. Establishment of Economic Centers: There is a critical need for developing specialized market places for fruits and vegetables. It has been evaluated that there are at least 5 -10 such places in the province where fruit and vegetable markets should be grown and developed. The investment requirement for fruit and vegetable markets in the region is rather high. There are ample possibilities and potential for the formation of new “Economic Center for especially Red onion and Grapes” in the Province. On the other hand, there are some flexibilities to convert the prevailing market places, as economic centers of the region, especially in the Jaffna peninsula. The projection of production and marketed surplus of various farm products especially vegetables and fruits, have shown an increasing trend. Even at the existing marketed surplus-output

ratios, the quantities which the marketing system will require to handle in future are quite large and considerable.

5. Introduction of Marketing Extension Services: In the Northern Province, agricultural production extension services exist at village and farm level but marketing extension work designed to benefit farmers and other market functionaries do not exist. Due to no emphasis on marketing extension, technology transfer in the field of agricultural marketing has been lethargic. The marketing extension service to assist small and marginal farmers in solving problems faced by farmers in marketing their produce is a sine-qua-non in the liberalized trade environment. A massive program of marketing extension should be launched at the district level. In each district of the Northern region, the extension messages should include;

(a) Advice
(b) e on product planning
(c) Market information
(d) Secure markets
(e) Alternative marketing channels
(f) Improved marketing practices including grading and packing and
(f) Advantages of group marketing.

6. Improvement of Packaging System: There is a need to create facilities for cleaning, grading and packaging not only in markets but also in villages from where produce is brought to the market for sale. There is a need to promote new packaging methods after grading so that chances of adulteration may not be there. Besides, there is a strong need to educate the farmers on proper packaging and grading before they bring the produce to the market. Scientific packaging should be encouraged at farmer level through various incentives.

7. Urgent Need of Storage: Storage infrastructure is necessary for carrying the agricultural produce from production to consuming periods. The Northern region needs much more storage facility than what is available now. This is especially more important for remote areas in districts of Mannar and Mullaitivu. The private sector needs to be encouraged to enter the storage and warehousing and make investment of this magnitude.

8. Development of Agro-based Industry: Considering the rising demand for value added and processed products, there is a need for enhancing the capacity of agro-processing sector. For attracting private initiative and investment in food processing, and agro-based industries, several schemes of assistance need to be formulated. There

is a strong need to popularize different agro-products by creating awareness about these schemes. At present, value addition is estimated at very low level or no value addition in the Province. There is a need to increase value addition and quality control and standardization will be extremely important in this attempt. The Central government should encourage a network of food analysis laboratories in the country. This will also be necessary to face competition from imported agro –based industrial products.

9. Credit for Investments: Poor credit flows have had an adverse effect on the development of agricultural marketing systems in the Province. The credit flow to agricultural marketing is very insufficient. The banking environment, lending policies and programs for financing is not favorable for the increased capital needs of agricultural marketing. Therefore, the government needs to design a full-fledged agricultural marketing credit policy considering the requirement of increased production, market innovations, technologies and socio-economic changes of hundreds and thousands of underprivileged poor small farm producers in the province.

10. Need for People Participation with Public, Private Partnership: A number of recommendations are identified and elaborated for implementation for the short, medium and long term. Implementation of these recommendations for crop production development is in the hands of thousands of underprivileged small farm producers in the province. Full benefits of the recommendations cannot be achieved without the support of other public and private organizations. Activities of a number of public and private organizations support agriculture development but coordination among the institutions in implementing the development program in a way that people get maximum benefit is still needed. Social auditing in activity performance and implementation of recommendations is a necessary tool for coordination and accountability. Social mobilization towards empowerment and social capital improvement towards capturing development options are instrumental for full potential resource utilization. Public, private and people participation is vital for growth. A structural rearrangement for effective rural development which should definitely be based on agriculture development is also needed.

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Annexure 1: Rainy Period and Rainfall (mm) in the Northern Province -2009-2010

Number of Rainy Days

District	2009				2010								Total
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	
Jaffna		7	22	19	3		1	8	7	2	6	5	80
Mannar													0
Mullaitivu													0
Killinochchi	6							3	7	1	3	4.0	24
Vavuniya	1	7	16	18	4		6	5				1	58
NP total	**7**	**14**	**38**	**37**	**7**	**0**	**7**	**16**	**14**	**3**	**9**	**10**	**162**

Monthly Rainfall (mm)

District	2009				2010								Total
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	
Jaffna		52.1	371.6	401.7	47.1	0	0.1	66.6	94.5	29.7	5.1	127.5	1196
Mannar													0
Mullaitivu													0
Killinochchi	63.1							84.7	157.0	7.6	51	119.2	482.3
Vavuniya	8.0	238.0	315.4	342.5	97.1	0.0	115.5	129.0				9	1254.5
NP total	**71.1**	**290.1**	**687.0**	**744.2**	**144.2**	**0.0**	**115.6**	**280.3**	**251.5**	**37.3**	**55.8**	**255.7**	**2932.8**

Sources: Administration Report 2010, Department of Provincial Agriculture, Northern Province.

Annexure 2: Achievement of Production Program - Paddy *Maha* 2009/2010

		Mullaitivu	Mannar	Vavuniya	Kilinochchi	Jaffna	Total
Target Extent (ha)	Major	869	12290	3872.00	1011		**18042.00**
	Minor	291	1704	8273.00			**10268.00**
	Rainfed		680	2259		10311.00	**13250.00**
	Total	**1160**	**14674**	**14404**	**1011**	**10311.00**	**41560.00**
Gross Extent Sown(Ha)	Major	869	10003	1522.00	1011		**13405.00**
	Minor	291	684	4444.00			**5418.50**
	Rainfed		15	1693		10531.00	**12239.00**
	Total	**1160**	**10702**	**7659.00**	**1011**	**10531.00**	**31062.50**
Gross Extent Harvested	Major	826	8302	1522.00	1001		**11650.93**
	Minor	274	430.6	3333.00			**4037.15**
	Rainfed		15	1387.00		**8846.0**	**10248.04**
	Total	**1099**	**8748.10**	**6242.00**	**1000.89**	**8846.0**	**25936.12**
Extent Damaged	Major						**0.00**
	Minor						**0**
	Rainfed					235	**235.00**
	Total	**0**	**0**	**0.00**	**0**	**235**	**235.00**
Net Extent Harvested	Major	809	7970.39	1156.72	911		**10846.96**
	Minor	265	656.16	2499.75			**3421**
	Rainfed		14.25	1318		8611.00	**9943.25**
	Total	**1074**	**8640.80**	**4974.47**	**911**	**8611.00**	**24211.45**
Average Yield(bu)	Major	69	118.0	96.0	69		
	Minor	69	98.0	94.0			
	Rainfed		69.0	89.0		69	
Average Yield(Mt)	Major	3.5	6	4.9	3.5		
	Minor	3.5	5.0	4.8			
	Rainfed		3.5	4.5		3.5	
Production .Bu (Excluding Losses)	Major	55824	940506.1	111045.1	62845.9	0.0	**1170220.8**
	Minor	18308	64303.7	234976.5	0.0	0.0	**317588.2**
	Rainfed		983.3	117302.0	0.0	594159.0	**712444.3**
	Total	**74132**	**1005793.0**	**463323.6**	**62846**	**594159.0**	**2200253.2**
Production. Mt (Excluding losses)	Major	2832	47822.3	5667.9	3187.8	0.0	**59509.7**
	Minor	929	3280.8	11873.8	0.0	0.0	**16083.3**
	Rainfed		49.9	5931.0	0.0	30138.5	**36119.4**
	Total	**3760**	**51153.0**	**23472.7**	**3188**	**30138.5**	**111712.4**

Sources: Administration Report 2010, Department of Provincial Agriculture, Northern Province

Annexure 3: Achievement of Production Programme - Paddy *Yala* 2010

		Mullaitivu	Mannar	Vavuniya	Kilinochchi	Jaffna	Total
Target Extent (ha)	Major	1062.0	600.0	1672.0	1445.0		4779.0
	Minor			1158.0	23.0		1181.0
	Agro well						
	Total	**1062.0**	**600.0**	**2830.0**	**1468.0**	0.0	**5960.0**
Gross Extent Sown (Ha)	Major	1060.0	600.0	483.2	1445.0		3588.2
	Minor	60.0		434.0	23.0		517.0
	RainFed						
	Total	**1120.0**	**600.0**	**917.2**	**1468.0**	0.0	**4105.2**
Gross Extent Harvested	Major	1038.8	582.0	468.7	1430.6		3520.1
	Minor	58.8		421.0	23.0		502.8
	RainFed						
	Total	**1097.6**	**582.0**	**889.7**	**1453.6**	0.0	**4022.8**
Extent Damaged	Major						
	Minor						
	RainFed						
	Total	**0.0**	**0.0**	**0.0**	**0.0**	0.0	**0.0**
Net Extent Harvested	Major	1007.6	558.7	651.0	1301.8		3519.1
	Minor	57.0		357.8	19.6		434.4
	RainFed						
	Total	**1064.7**	**558.7**	**1008.8**	**1321.4**	0.0	**3953.6**
Average Yield (bu/Ac)	Major	78.0	89.0	89.0	78.0		
	Minor	78.0		94.0	78.0		
	R.ainFed						
Average Yield (mt/ha)	Major	4	4.5	4.5	4		
	Minor	4		4.8	4		
	R.ainFed						
Production bu (Excluding Losses)	Major	78595.6	49726.1	57937.0	101540.4		287799.1
	Minor	4448.8		33636.3	1524.9		39610.0
	RainFed						
	Total	**83044.4**	**49726.1**	**91573.3**	**103065.3**	0.0	**327409.2**
Production Mt (Excluding losses)	Major	4030.5	2514.2	2929.4	5207.2		14681.4
	Minor	228.1		1717.6	78.2		2023.9
	RainFed						
	Total	**4258.7**	**2514.2**	**4647.0**	**5285.4**	0.0	**16705.3**

Sources: Administration Report 2010, Department of Provincial Agriculture, Northern Province

Annexure 4: Production Achievement of Other Field Crops in *Maha* 2009/2010

Crop	Mullaitivu			Mannar			Vavuniya			Kilinochchi			Jaffna			Total		
	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)
Chilli				120.00	90.3	108.3	340.0	259.0	311.0				425.0	376.1	838.0	885.0	725.3	1257.3
Red onion	4.10	4.10	61.50	68.00	15.8	157.5	94.0	34.0	510.0	4.2	4.2	63.0	1003.0	1293.5	18213.0	1173.3	1351.6	19005.0
Big Onion					3.0								5.3	8.3	124.5	5.3	11.3	124.5
Kurakkan							31.0	30.0	21.0				33.0	12.5	22.3	64.0	42.5	43.3
Maize	26.00	26.00	1040.00	18.00	49.3	147.8	252.0	261.0	1176.0	34.0	34.0	1360.0	110.0	72.2	793.7	440.0	442.5	4517.5
Green gram	75.00	75.00	97.50	80.00	103.3	103.3	375.0	238.0	286.0	27.0	27.0	35.0	149.0	161.8	143.0	706.0	605.0	664.8
Black gram	4.00	4.00	6.40	2.00	24.0	24.0	3640.0	3037.0	3037.0	4.0	4.0	6.0	279.0	225.7	162.0	3929.0	3294.7	3235.4
Cowpea	7.95	7.95	12.00	62.50	58.3	58.3	490.0	664.0	797.0	7.5	7.5	11.3	204.0	138.4	134.0	772.0	876.1	1012.5
Groundnut	41.40	41.40	103.50	77.00	133.5	200.3	475.0	274.0	438.0	33.0	33.0	82.5	157.0	125.3	222.0	783.4	607.2	1046.3
Gingelly	158.00	158.00	205.00	46.00	6.5	6.5	282.0	96.0	57.0				695.0	290.5	190.5	1181.0	551.0	459.0
Tobacco								70.0	112.0				846.0	830.0	5150.0	846.0	900.0	5262.0
Sunhemp																		
Soya bean																		
Finger millets																		
Betel vine																		
Total	**316.45**	**316.45**	**1525.90**	**473.50**	**483.8**	**805.8**	**5979.0**	**4963.0**	**6745.0**	**109.7**	**109.7**	**1557.8**	**3906.3**	**3534.1**	**25993.0**	**10784.9**	**9407.0**	**36627.4**

Sources: Administration Report 2010, Department of Provincial Agriculture, Northern Province

Annexure 5: Production Achievement of Other Field Crops in *Yala* 2010

Crop	Mullaitivu			Mannar			Vavuniya			Kilinochchi			Jaffna			Total		
	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)
Chilli	42.0	20.8	35.4	120.0	68.0	81.6	77.0	38.2	54.0		15.0	22.5	66.5	78.5	150.5	305.5	220.5	344.0
Red onion	98.0	103.2	1265.0	68.0	37.0	370.0	470.0	314.0	4383.0		98.0	176.0	1191.5	1316.0	20702.5	1827.5	1868.2	27896.5
Big Onion		2.0	36.0		7.0	70.0	57.0	31.4	509.0				40.0	40.5	604.0	97.0	80.9	1219.0
Kurakkan							2.0						238.0	123.5	253.0	240.0	123.5	253.0
Maize		1.2	2.4	18.0	12.0	36.0	42.0	6.5	13.0				27.0	16.5	180.8	87.0	36.2	232.2
Green gram	28.0	91.2	91.2	80.0	47.0	47.0	55.0	9.4	10.3		20.0	20.0	59.0	87.3	87.3	222.0	254.8	255.8
Black gram		4.8	4.8	2.0	1.0		24.0	3.0	4.5		1.0	0.8	6.0	10.0	10.0	32.0	19.8	20.1
Cowpea	56.0	56.0	44.8	62.5	46.0	46.0	107.0	17.0	19.0		16.0	16.0	40.0	24.3	24.3	265.5	159.3	150.1
Groundnut	154.0	110.0	209.0	77.0	56.0	84.8	208.0	74.6	156.0		15.0	24.0	85.5	60.0	120.0	524.5	315.6	593.8
Gingelly							23.0	10.0	9.0					2.0	1.6	23.0	12.0	10.6
Tobacco													11.0	18.5	18.5	11.0	18.5	18.5
Finger millets														11.0	11.0	0.0	11.0	11.0
Betel vine													4.0	1.3	60.0	4.0	1.3	60.0
Sunhump														76.0	76.0	0.0	76.0	76.0
Total	378.0	389.2	1688.6	427.5	274.0	735.4	1065.0	504.0	5157.8	0.0	165.0	259.3	1768.5	1865.3	22299.5	3639.0	3197.5	31140.5

Sources: Administration Report 2010, Department of Provincial Agriculture, Northern Province

Annexure 6: Production Achievement of Vegetables *Maha* 2009/2010

Crop	Mullaitivu			Mannar			Vavuniya			Kilinochchi			Jaffna			Total		
	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production(mt)
Up country Veg.																		
Potato													31.5	30		31.5	30	0
Beans				18.00	2	6	39	33	250				26.5	22.35	223.5	83.5	57.35	479.5
Capsicum				39.5	17.25	103.5	76	9.5	100				27	20.25	262.75	142.5	47	466.25
Tomato				59	25	375	56	42	752				105.9	95.75	1172.5	220.9	162.75	2299.5
Cabbage				28.5	3	60	64	29	636				54	35.75	807.25	146.5	67.75	1503.25
Carrot				17.5	3.75	56.25	9	1.5	21				68	43.75	525	94.5	49	602.25
Beet root				20.5	1	15	36	9.5	180				55	50	1180	111.5	60.5	1375
Raddish													4.5	5.75	115	4.5	5.75	115
Leeks													25	14.5	145	25	14.5	145
Low country Veg.																		
Long beans				84	30	270	115	64.5	774				179	168.55	2023	378	263.05	3067
Busitavo				30	8.75	105	46	14.5	174				2	1.8	18	78	25.05	297
Okra				73	36.5	584	101	64	965				141	122.85	1590.3	315	223.35	3139.3
Brinjal				78	32.5	650	152	97	2032				184	171.55	2986	414	301.05	5668
Bitter gourd				44	20	400	60	30	861				86	66	850	190	116	2111
Snake goured				45	17.75	390.5	52	32	841				64	18	20	161	67.75	1251.5
Pumpkin				49	13.75	275	84	28	616				87	80	1542	220	121.75	2433
Ash plantain				19.5	6.5	78		88	1141					10.45	945	19.5	104.95	2164
Luffa				7	0.5		16	1.2	30							23	1.7	30
Butternut													58	64.25	1156	58	64.25	1156
Cucumber							6									6	0	0
Murunga				61.25	35	525		17.5	262.5					5	4480	61.25	57.5	5267.5
Leafy vegetable				94	43.5	435	197	110	2190					188	1445	291	341.5	4070
Manioc	0.4	0.4	4	103	19	380	17			0.6	0.6	6	403.5	237	5885	524.5	257	6275
Sweet potato	0.03	0.03	0.6	23.5	2.75	44							21	9.25	185	44.53	12.03	229.6
Other yams				7	2	35										7	2	35
Sesbaniya																0	0	0
Total	0.43	0.43	4.6	901.25	320.5	4787.3	1126	671.2	11826	0.6	0.6	6	1622.9	1461	27556	3651.2	2453.53	44179.7

Source: Administration Report 2010, Department of Provincial Agriculture, Northern Province

Annexure 7: Production Achievement of Vegetables *Yala* 2010

Crop	Mullaitivu			Mannar			Vavuniya			Kilinochchi			Jaffna			Total		
	Target Ext.(ha)	Cultivated ext.(ha)	Production (mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production (mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production (mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production (mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production (mt)	Target Ext.(ha)	Cultivated ext.(ha)	Production (mt)
Up country Veg.																		
Potato																0	0	0
Beans																0	0	0
Capsicum				28	13.5	81					1	8	17.5	15.25	179.5	45.5	29.75	268.5
Tomato	10	12	144	33.5	19.5	292.5					6	48				43.5	37.5	484.5
Cabbage	3	2	50	16.5	14.75	295										19.5	16.75	345
Carrot		0.4	6		2	30	2	1.05	15.75				43	47.75	676.75	45	51.2	728.5
Beetroot		0.4	10	5	3	45	28	8.55	171				92	95.5	1892	125	107.45	2118
Raddish													17.5	2	40	17.5	2	40
Leeks													14	8	96	14	8	96
Low country Veg																0	0	0
Long beans	25	24	288	33	30	274.5	61	10.4	130		32	320	140	84.6	1221.8	259	181	2234.3
Busitavo	5	4.4	44	9.5	5	60	33	6.55	39.3		3	30				47.5	18.95	173.3
Okra	18	19.2	384	62	34.5	552	65	23.5	399		21	315	94.25	105	1121	239.25	203.2	2771
Brinjal	40	38	950	42	34	680	106	96.6	2083		21	315	59	78.6	1506.3	247	268.2	5534.3
Bitter gourd	10	10.4	312	26	25	500	64	11.65	347		6	120	57.75	46.95	909	157.75	100	2188
Snake gourd	10	8.4	252	30	24.5	441	40	19.1	554		10	200	35	44.6	946.7	115	106.6	2393.7
Pumpkin	10	14	350	27.5	24	480	47	5.3	106		15	150	87	64	1143.3	171.5	122.3	2229.3
Ash plantain				8	61.25	980	2						32.5	14.75	1514.4	42.5	76	2494.4
Luffa							7	1.2	30							7	1.2	30
Butternut		3.2	64								10	100	58	51.5	873	58	64.7	1037
Cucumber				5			9	1	20							14	1	20
Murunga					15	300	0.5						44	49.25		44.5	64.25	300
Leafy vegetable	12	14	392	34	52	520	39	14	140		28	280				85	108	1332
Manioc				40.5	33	660	105	9.5	180				214.5	189	4725	360	231.5	5565
Sweet potato				10.5	3	48							5	2.5	50	15.5	5.5	98
Other yams													108	98.7	2961	108	98.7	2961
Sesbaniya																0	0	0
Total	**143**	**150.4**	**3246**	**411**	**394**	**6239**	**608.5**	**208.4**	**4215**	**0**	**153**	**1886**	**1119**	**998**	**19856**	**2282**	**1904**	**35442**

Sources: Administration Report 2010, Department of Provincial Agriculture, Northern Province

Annexure 8: Production Achievement of Fruit Crop *Maha* 2009/2010

	Mannar					Vavuniya				
Crop	**Exist. Ext. (Ha)**	**Cul. Ext.(Ha.)**	**Total (Ha)**	**Bear. Ext. (Ha)**	**Production (Mt)**	**Exist. Ext. (Ha)**	**Cul. Ext.(Ha)**	**Total (Ha)**	**Bear. Ext. (Ha)**	**Production (Mt)**
Banana	113.5	5.5	119	42	575	590.75	2.25	593	723	13851
Lime & Lemon	25	0.5	25.5	15	120	453.65	1	454.65	325	3250
Orange	18.43		18.43	7.5	45	221.25	25.25	246.5	173.25	1732.8
Mango	297.25	2	299.25	186	1846	783.75	6	789.75	585	5850
Guava	35	1	36	15	75	225.25		225.25	179	1074
Papaw	89	4.5	93.5	32	520	227.75		227.75	208	4039
Jak	48.7		48.7	25	375	157		157	116	5800
Pomegranate	47	4	51	27	108	60.4	0.25	60.65	48	
Grapes	10		10	3	12	3.1		3.1	1.5	7.5
Pinapple	8.5		8.5			9.15		9.15	6	150
Woodapple	380.5		380.5	220	1320	5		5	4	
Nelli	0.75	0.25	1							
Passionfruit	1.5	0.5	2							
Jambo										
Cadju	22		22	10	80					

	Jaffna					Total				
Crop	**Exist. Ext. Ha)**	**Cul. Ext. (Ha)**	**Total (Ha)**	**Bear. Ext. (Ha)**	**Production (Mt)**	**Exist. Ext. (Ha)**	**Cul.Ext. (Ha)**	**Total (Ha)**	**Bear. Ext. (Ha)**	**Production (Mt)**
Banana	599	64.4	663.4	601	14415	1303.25	72.15	1375.4	1366	28841.0
Lime & Lemon	190	13	203	182	1820	668.65	14.5	683.15	522	5190
Orange	22	2.75	24.75	25	125	261.68	28	289.68	205.75	1902.8
Mango	525	76.75	601.75	430	2525	1606	84.75	1690.75	1201	10221
Guava	70.6	4.8	75.4	70	235	330.85	5.8	336.65	264	1384
Papaw	63.7	31.35	95.05	75.2	1425	380.45	35.85	416.3	315.2	5984
Jak	243.8	10.7	254.5	195	1560	449.5	10.7	460.2	336	7735
Pomegranate	88	12.8	100.8	80	240	195.4	17.05	212.45	155	348
Grapes	52	5.56	57.56	52	1040	65.1	5.56	70.66	56.5	1059.5
Pinapple	1		1	1	20	18.65	0	18.65	7	170
Woodapple	18		18	18	144	403.5	0	403.5	242	1464
Nelli	18.75	2.6	21.35	16	96	19.5	2.85	22.35	16	96
Passion fruit	0.8		0.8	0.8	1.6	2.3	0.5	2.8	0.8	1.6
Jambo										
Cadju						22	0	22	10	80

Annexure 9: Production Achievement of Fruit Crop *Yala* 2010

Crop	Mullaitivu					Mannar					Vavuniya				
	Exist. Ext (Ha)	Cul. Ext (Ha)	Total (Ha)	Bear. Ext (Ha)	Production (Mt)	Exist. Ext (Ha)	Cul.Ext. (Ha)	Total (Ha)	Bear. Ext (Ha)	Production (Mt)	Exist. Ext (Ha)	Cul.Ext. (Ha)	Total (Ha)	Bear. Ext (Ha)	Production (Mt)
Banana	8.5		8.5	2.5	50	70.5	3.25	73.75	37.5	499	590.75	2.25	593		
Lime & Lemon	22		22	18	72	25		25	10	80	453.55	1	454.55	325	3250
Orange	4		4	4	12	18.43		18.43	4.5	27	221.25	25.25	246.5	173.25	1732.5
Mango	95		95	95	285	236.25	1.25	237.5	146	1448	783.75	6	789.75	585	5850
Guava	12		12	12	60	25		25	15	75	225.25		225.25	179	1074
Papaw	3		3			39	1.5	40.5	15	236	277.75		277.75	208	4039
Jak	78		78	78	1560	48.7		48.7	25	375	157		157	116	5800
Pomegranate	5		5	5	25	40	0.75	40.75	27	108	60.4	0.25	60.65	48	480
Grapes						10		10	3	12	3.1		3.1	1.5	5
Pinapple						1		1			9.15		9.15	6	150
Woodapple	26		26	26	78	380.5		380.5	220	1320	5		5	4	
Nelli	2		2	2	4		0.25	0.25							
Passion fruit							0.5	0.5							
Jambo															
Cadju															

Crop	Kilinochchi					Jaffna					Total				
	Exist. Ext (Ha)	Cul. Ext. (Ha)	Total (Ha)	Bear. Ext (Ha)	Production (Mt)	Exist. Ext (Ha)	Cul.Ext. (Ha)	Total (Ha)	Bear. Ext (Ha)	Production (Mt)	Exist. Ext (Ha)	Cul.Ext. (Ha)	Total (Ha)	Bear. Ext (Ha)	Production (Mt)
Banana	10	20	30	10	150	677	78.75	755.75	665	7605	1356.75	104.25	1461	715	8304
Lime & Lemon	30	0.5	30.5	30	210	183	4.75	187.75	178	712	713.55	6.25	719.8	561	4324
Orange	1		1	1	5	20	3.1	23.1	18	36	264.68	28.35	293.03	200.75	1812.5
Mango	150		150	150	1050	606	2.75	608.75	459	1970	1871	10	1881	1435	10603
Guava	40		40	40	320	41	0.25	41.25	36	64	343.25	0.25	343.5	282	1593
Papaw		4	4			59	19.05	78.05	55	850	378.75	24.55	403.3	278	5125
Jak	25		25	25	125	190	0.75	190.75	183	545	498.7	0.75	499.45	427	8405
Pomegranate	20		20	20	140	72.75	1.25	74	68.75	102	198.15	2.25	200.4	168.75	855
Grapes			0			57.57	1	58.57	57.07	1560	70.67	1	71.67	61.57	1577
Pinapple			0				0.02	0.02			10.15	0.02	10.17	6	150
Woodapple			0			13		13	10	30	424.5	0	424.5	260	1428
Nelli			0			12	0.25	12.25	9	18	14	0.5	14.5	11	22
Passion fruit			0			0.5		0.5	0.5	1	0.5	0.5	1	0.5	1
Jambo			0					0			0	0	0	0	0
Cadju											0	0	0	0	0

Source: Administration Report 2010, Department of Provincial Agriculture, Northern Province

Annexure 10: Paddy Varieties grown in Maha 2009/2010 & *Yala* 2010
District: Jaffna

Age Group	Variety	Sown Extent(Ha) Maha 2009/10				Sown Extent(Ha) Yala 2010			
		Major	Minor	Rainfed	Total	Major	Minor	Rainfed	Total
2- 2 1/2 Month	Bg 250			0.5	0.5				
	Sub total			0.5	0.5				
3 Month	At 303			280	280				0
	Bg 350			2	2				0
	At 353			862	862				0
	BW 351			340	340				
	At 362			981	981				0
	Bw 361			124	124	**0**	**0**	**0**	**0**
	Sub Total	**0**	**0**	**2307**	**2307**				0
4-4 1/2 Month	Bg-406			2933	2933				**0**
	At 402			856	**856**				0
	H4			253	253				0
	Other			72	72	**0**	**0**	**0**	**0**
	Sub Total	**0**	**0**	**4114**	**4114**				0
Local	P.Vellai			653	653				0
	M.Karuppan			1427	1427				0
	Morunkan			1188	1188				
	P.Perumal			495	495				0
	CO 10			22	22	**0**	**0**	**0**	**0**
	Sub Total	**0**	**0**	**3785**	**3763**	**0**	**0**	**0**	**0**
Grand Total		**0**	**0**	**10206.5**	**10184.5**	**0**	**0**	**0**	**0**

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province

District: Kilinochchi

Age Group	Variety	Sown Extent(Ha) Maha 2009/10				Sown Extent(Ha) Yala 2010			
		Major	Minor	Rainfed	Total	Major	Minor	Rainfed	Total
3 Months	BG 300	98			98				**0**
	Sub Total	**98**	**0**	**0**	**98**	**0**	**0**	**0**	**0**
3 1/2 Months	At 362	154			154	1073	19		**1092**
	Bg 358	50			50	26			**26**
	At 353	240			240				
	Bg 352	206			206				**0**
	Bg 359	29			29				
	Bg 94-1	201			201				**0**
	Sub Total	**880**	**0**	**0**	**880**	**1099**	**19**	**0**	**1118**
Trditional Varities	Local	22			22	350			350
	Sub Total	**22**	**0**	**0**	**22**	**350**	**372**	**744**	**1466**
Grand total		**1000**	**0**	**0**	**1000**	**1449**	**391**	**744**	**2584**

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province

District: Mannar

Age Group	Variety	Sown Extent(Ha) *Maha* 2009/10				Sown Extent(Ha) *Yala* 2010			
		Major	**Minor**	**Rainfed**	**Total**	**Major**	**Minor**	**Rainfed**	**Total**
3 Month	Bg 300	1600	165	0	1765	125			125
	At 307	2200	140	0	2340	25			25
	Sub Total	**3800**	**305**	**0**	**4105**	**150**	**0**	**0**	**150**
	Bg 358	951	25		976				0
	Bg 360	430	40		470	300			300
	At 353				0	50			50
	At 362	997	60		1057	50			50
	Bw 351	200	20		220				0
	Sub Total	**2578**	**145**	**0**	**2723**	**400**	**0**	**0**	**400**
	Bg 406	125	123		248				0
	Sub Total	**125**	**123**	**0**	**248**	**0**	**0**	**0**	0
Traditional /Local Varieties	Attakari	3500	110		3610	50			50
	Sub Total	**3500**	**110**	**0**	**3610**	**50**	**0**	**0**	**50**
Grand Total		**10003**	**683**	**0**	**10686**	**600**	**0**	**0**	**600**

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province

District: Vavuniya

Age Group	Variety	Sown Extent(Ha) Maha 2009/10				Sown Extent(Ha) Yala 2010				
		Major	Minor	Rain fed	Total	Major	Minor	Rainfed	Agro well	Total
2 -2 1/2 Month	Bg 250	38			**38**	76				**76**
	Sub Total	**38**	**0**	**0**	**38**	**76**	**0**	**0**		**76**
3 Month	Bg 300	335	428	89	**852**	140	125		4	**269**
	At 307			278	**278**	112	140			**252**
	At 308	253	545	168	**966**	100	121			**221**
	Sub Total	**588**	**973**	**535**	**2096**	**352**	**386**	**0**	**4**	**742**
3 1/2 Month	Bg 358	504	577	454	**1535**					**0**
	Bw 351	116	487	98	**701**					**0**
	Bw 361	25	244	262	**531**					**0**
	Bg 352		568		**568**					**0**
	At 353	53	120	280	**453**					**0**
	Bg 350	17	270		**287**					**0**
	Sub Total	**715**	**2266**	**1094**	**4075**	**0**	**0**	**0**	**0**	**0**
4 -1/2 Month	At 402		274	29	**303**					**0**
	BG 450	85	365		**450**					**0**
	BG 406	64	356		**420**					**0**
	Sub Total	**149**	**995**	**29**	**1173**	**0**	**0**	**0**	**0**	**0**
Traditional /Local Varieties	Local		**464**		**464**					**0**
	Sub Total	**0**	**464**	**0**	**464**	**0**	**0**	**0**	**0**	**0**
Grand Total		**1490**	**4698**	**1658**	**7846**	**428**	**386**	**0**	**4**	**818**

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province

District : Mullaitivu

Age Group	Variety	Sown Extent(Ha) Maha 2009/10				Sown Extent(Ha) Yala 2010			
		Major	**Minor**	**Rainfed**	**Total**	**Major**	**Minor**	**Rainfed**	**Total**
3 Month	BG 300	54	15		69	24			24
	At 307	110	68						0
	Bg 306	49							0
	Sub Total	**213**	**83**	**0**	**69**	**24**	**0**	**0**	**24**
3 1/2 Month	BG 352	72	57			48			48
	At 353	175	32			293	2		295
	At 362	312	94			556	56		612
	Bg 357	8	3						0
	BG 359	44				90	2		92
	Bg 358	45	22						0
	Sub Total	**656**	**208**	**0**	**0**	**987**	**60**	**0**	**1047**
Traditional /Local Varieties	Local				0	49			**49**
	Sub Total	**0**	**0**	**0**	**0**	**49**	**0**	**0**	**49**
Grand Total		**869**	**291**	**0**	**69**	**1060**	**60**	**0**	**1120**

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province

Annexure 11: Financial Allocation for Development of Agriculture Provincial Specific Development Grants Summary in Northern Province

S. No.	Name of the work item	Location	Allocation (Rs.)	Expenditure (Rs.)
1.	Renovating of Agro-well	Mullaitivu, Vavuniya, Kilinochchi, Mannar	800,000.00	600,000.00
2.	Seeds and planting material production programme	Mullaitivu, Vavuniya, Kilinochchi, Mannar, Jaffna	687,750.00	483,207.50
3.	Organic farming for sustainable development	Mullaitivu, Vavuniya, Kilinochchi, Mannar, Jaffna	632,500.00	533,054.75
4.	Expansion of OFC cultivation in the abandoned high lands	Mullaitivu, Vavuniya, Kilinochchi, Mannar, Jaffna	1,395,500.00	1,350,550.00
5.	Home garden development to sustain national food security	Mullaitivu, Vavuniya, Kilinochchi, Mannar, Jaffna	1,208,000.00	382,861.00
6.	Block demonstration for rice yield improvement	Mullaitivu, Vavuniya, Kilinochchi, Mannar	468,750.00	409,651.89
7.	Market promotion	Mullaitivu, Vavuniya, Kilinochchi, Mannar	1,282,500.00	1,317,717.50
8.	Capacity development of Govt. organization	Vavuniya	300,000.00	723,860.00
9.	Pre & post harvest processing and technology for agricultural produce	Mullaitivu, Vavuniya, Kilinochchi, Mannar, Jaffna	5,540,000.00	7,127,755.00
10.	Land development & tube well construction	Mullaitivu, Vavuniya, Mannar	1,500,000.00	1,342,260.00
11.	Fruit crop quality improvement programme	Mullaitivu, Vavuniya, Kilinochchi, Mannar, Jaffna	705,000.00	523,100.00

12.	Supply of micro irrigation unit	Mullaitivu, Vavuniya, Kilinochchi, Mannar, Jaffna	3,500,000.00	3,133,556.00
13.	Agricultural exhibition	Vavuniya, Jaffna	355,000.00	348,985.52
14.	Sustain self reliance of resettled farmers	Mullaitivu, Vavuniya, Kilinochchi, Mannar, Jaffna	4,425,000.00	3,599,978.57
15.	Institutional strengthening for model gardening	Jaffna	200,000.00	-
	Total		23,000,000.00	21,876,537.73

Source: Administration Report 2010, Provincial Department of Agriculture, Northern Province

Annexure 12: Retail Market Price for Agricultural Produce

Produce	Jaffna		Vavuniya		Mannar	
	Min **R.P**	**Max R.P**	**Min R.P**	**Max R.P**	**Min R.P**	**Max R.P**
Rice Type						
Samba 1	60.00	105.00	62.00	85.00	100.00	125.00
Samba 2	70.00	90.00	60.00	78.00	60.00	90.00
Kora 1			42.00	42.00	60.00	70.00
Kora 2					66.00	66.00
Nadu 1	60.00	100.00	55.00	78.00	60.00	80.00
Nadu 2	45.00	70.00	48.00	72.00	50.00	77.00
Raw (Red)	50.00	95.00	54.00	68.00	55.00	75.00
Raw (White)	55.00	100.00	45.00	62.00	55.00	70.00
Kurakan	60.00	70.00	55.00	80.00	90.00	130.00
Maize	40.00	160.00	33.00	60.00	160.00	160.00
Dried Chillies						
Grade 1	160.00	240.00	175.00	240.00	190.00	380.00
Medium	130.00	200.00	165.00	220.00	180.00	360.00
Onion						
Sinnan	30.00	180.00	50.00	300.00	50.00	200.00
Vedalam	45.00	200.00	60.00	200.00	70.00	220.00
Big Onion	40.00	200.00	50.00	160.00	55.00	180.00
Potatoes						
Imported	50.00	120.00	55.00	100.00	60.00	120.00
Local	50.00	140.00	60.00	140.00	80.00	160.00
Pulses						
Black gram	180.00	280.00	130.00	280.00	160.00	320.00
Green gram	165.00	240.00	150.00	230.00	140.00	250.00
Cowpea	130.00	230.00	140.00	180.00	140.00	180.00
Oil Crop						
Ground nut	125.00	150.00	110.00	170.00	140.00	160.00
Gengelley- White	120.00	200.00	110.00	160.00		
Gengelley-Black	90.00	160.00	100.00	150.00		
VEGETABLE						
Up- Country						
Butter Beans	80.00	200.00	120.00	200.00	100.00	200.00
Green Beans	80.00	200.00	120.00	190.00	100.00	200.00
Carrot	50.00	220.00	100.00	260.00	90.00	240.00
Leeks	80.00	140.00	60.00	160.00	90.00	210.00
Knolkhol			60.00	70.00	50.00	100.00
Raddish	20.00	80.00	40.00	80.00	60.00	100.00
Cabbage	25.00	120.00	60.00	120.00	80.00	140.00
Tomato	40.00	160.00	80.00	150.00	60.00	200.00
Beet root	30.00	200.00	60.00	200.00	80.00	200.00
Cauli flower			120.00	200.00		
Low Country						
Ladies fingers	30.00	100.00	50.00	85.00	60.00	140.00
Brinjal	40.00	200.00	30.00	140.00	50.00	180.00
Capsicum	60.00	300.00	80.00	280.00	100.00	300.00
Cucumber	25.00	80.00	60.00	70.00	60.00	120.00
Bitter Gourd	30.00	260.00	60.00	200.00	60.00	200.00
Snake Gourd	30.00	100.00	60.00	140.00	60.00	140.00
Ash pumpkin	20.00	70.00	60.00	80.00	60.00	140.00
Butternut	25.00	100.00	50.00	80.00	60.00	120.00
Drumstick	100.00	1200.00	80.00	260.00	80.00	250.00
Luffa			60.00	100.00		
Long Beans	40.00	220.00	60.00	200.00	60.00	200.00
Ash Plantain	30.00	80.00	60.00	90.00	60.00	120.00
Green Chilli	50.00	300.00	20.00	350.00	120.00	360.00

Retail Market Price for Agricultural Produce - Cont.d/……

Produce	Jaffna		Vavuniya		Mannar	
	Min R.P	Max R.P	Min R.P	Max R.P	Min R.P	Max R.P
Root Crops						
Karanai	25.00	70.00	60.00	220.00	70.00	180.00
Sweet potatoes	30.00	120.00	40.00	60.00	60.00	140.00
Manioc	25.00	60.00	50.00	60.00	50.00	130.00
Mothagavalli	30.00	40.00			120.00	160.00
King yam	40.00	200.00	80.00	220.00	80.00	150.00
Leafy Vegetable						
keerai'/bundle.	15.00	40.00	15.00	50.00	20.00	30.00
Ponnankarney	15.00	25.00	10.00	20.00	10.00	30.00
Kankun	10.00	15.00	8.00	15.00	15.00	30.00
Vallarai	5.00	10.00	10.00	10.00	15.00	30.00
Pasali	5.00	10.00	8.00	10.00	10.00	20.00
Akathy	5.00	10.00	10.00	10.00	10.00	20.00
Coconut						
Large /one	30.00	50.00	22.00	45.00	33.00	50.00
Small/one	25.00	40.00	15.00	40.00	20.00	40.00
King Coconut/one	35.00	50.00	25.00	35.00	30.00	50.00
Fruits						
Banana						
Katahli /Kg	25.00	100.00	50.00	80.00	50.00	100.00
Kappal/Kg	11.00	150.00	100.00	150.00	120.00	160.00
Seeni/Kg	130.00	130.00	50.00	70.00	50.00	90.00
Aanai/Kg	35.00	50.00	90.00	140.00	100.00	120.00
Etharai/Kg	25.00	80.00	60.00	100.00	60.00	150.00
Pine apple						
Large / One	70.00	170.00	100.00	200.00	130.00	180.00
Medium	60.00	140.00	70.00	180.00	80.00	130.00
Small	40.00	100.00	50.00	150.00	50.00	100.00
Mango						
V.Kolumaban/one	15.00	40.00	10.00	30.00	10.00	30.00
Ampalavi/one	20.00	100.00	10.00	30.00	10.00	15.00
Karthakolumban/one	25.00	150.00	25.00	60.00	20.00	40.00
Vilad/one	10.00	80.00	15.00	30.00	20.00	20.00
Other Fruits						
Lime/kg	40.00	120.00	60.00	100.00	50.00	250.00
Papaw/Kg	20.00	80.00	50.00	60.00	50.00	150.00
Passion/Kg			8.00	80.00		
Wood apple/one	20.00	40.00	5.00	70.00	60.00	100.00
Orange/one	30.00	50.00	25.00	30.00	20.00	40.00
Pomegranate	50.00	250.00				
Jak/one	200.00	1000.00				
Grapes/Kg	250.00	600.00	360.00	360.00	650.00	800.00

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province

Annexure 13: Progress of Demonstration programme in the Northern Province - 2009/2010 *Maha* & 2010 *Yala*

Crop		Jaffna		Kilinochchi		Mullaitivu		Vavuniya		Mannar		Total	
		Maha	***Yala***	***Maha***	***Yala***	***Maha***	***Yala***	***Maha***	***Yala***	***Maha***	***Yala***	***Maha***	***Yala***
Paddy	Paddy							17		5		**22**	**0**
OFC	Red onion	5	6							10		**15**	**6**
	Chilli		10							2	1	**2**	**11**
	Big onion										1	**0**	**1**
	Kurakkan	6	4									**6**	**4**
	Millets	2										**2**	**0**
Pulses mix cropping		4										**4**	**0**
Vegetable	Brinjal		1									**0**	**1**
	Carrot									4		**4**	**0**
	Beetroot		5									**0**	**5**
	Cabbage										3	**0**	**3**
	Okra										2	**0**	**2**
	Gourds	5	7									**5**	**7**
	Pumpkin				8							**0**	**8**
	Soya beans							4				**4**	**0**
	Potato							4				**4**	**0**
	Compost making									2		**2**	**0**
	Wormy culture usage									2		**2**	**0**
Fruit	Banana	2										**2**	**0**
	Mango	10										**10**	**0**
	Papaw	3	6		26							**3**	**32**
	Pomegranate	4									3	**4**	**3**
	Guava									2	2	**2**	**2**
	water melon		7									**0**	**7**
	Pineapple		5									**0**	**5**
Mushroom cultivation		5						6				**11**	**0**
FWAE	FWAE	10						5				**15**	**0**
Total		**56**	**51**	**0**	**34**	**0**	**0**	**36**	**0**	**27**	**12**	**119**	**97**

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province

Annexure 14: Farmer Training Classes Conducted in AII Ranges *Maha* 2009/2010

Crop	Main Aspect of Training	Jaffna		Mannar		Killinochchi		Mullaitivu		Vavuniya		Total	
		No. of class	No. of Atten	No .of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten	No .of class	No. of Atten	No. of class	No .of Atten
Paddy	Post harvest technology	1	36									1	36
	High yield Cultivation Technique									1	21	1	21
	Reduce inorganic fertilizer usage									4	85	4	85
	Introduce parachutt mtd									1	21	1	21
	Hybrid cultivation practices									1	18	1	18
	Tray method nursery preparation									1	25	1	25
	IPNS usage									14	34	14	34
	Self seed production									2	30	2	30
	IPNS Paddy									12	265	12	265
Total		**1**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	**36**	**499**	**37**	**535**
Home garden	Home garden cultivation									1	25	1	25
	Home garden cultivation									1	30	1	30
	Compost making									1	41	1	41
	Home garden technique									2	48	2	48
	Cultivation methods									2	82	2	82
	Organic fertilizer making									1	41	1	41
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**267**	**8**	**267**
OFC	Cultivation methods									3	115	3	115
Pulses	Abandoned cultivation									2	44	2	44
	Pulses cultivation	3	90									3	90
Chillie	Disease management	2	36									2	36
	Chilli cultivation									1	8	1	8
Onion	Control mtd of onion disease									1	25	1	25
Green gram	Fertilizer management									1	25	1	25
Black gram	Post harvest technology									4	150	4	150
	Pest disease control									1	20	1	20
Soya	Introduction of cultivation method									1	22	1	22
Cowpea	Cultivation method									2	48	2	48
Maize	New variety introduction	1	37									1	37
	Cultivation practices									1	26	1	26
Groundnut	Large scale cultivation for Samaposha company									1	25	1	25
Gingelly	Cultivation Technique									1	25	1	25
Total		**6**	**163**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**533**	**25**	**696**

Farmer Training Classes Conducted in AII Ranges *Maha* 2009/2010 Cont.d……..

Crop	Main Aspect of Training	Jaffna		Mannar		Killinochchi		Mullaitivu		Vavuniya		Total	
		No. of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten
	Cultivation method									3	115	3	115
	Yam Cultivation Technique									1	22	1	22
	IPNS vegetable									4	90	4	90
	Nursery management									2	53	2	53
Total		**2**	**49**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**280**	**12**	**329**
Fruits	IPNS method									6	82	6	82
Citrus	Sweet orange cultivation practices									1	10	1	10
	Sweet orange Pruning & training	2	30									2	30
	Planting methods									1	20	1	20
Banana	Compost making	2	22									2	22
	IPNS Banana									2	46	2	46
Mango	Cultivation Technique									1	21	1	21
Pine apple	Cultivation method	1	22									1	22
	Cultivation methods - IPNS									1	22	1	22
Pomegranate	Pruning & Pest management											0	0
Total		**5**	**74**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**201**	**17**	**275**
FWAE													
Yam	Introduce variety of food preparation mtd									1	20	1	20
Milk	Yoghurt preparation									1	10	1	10
Soya	Food preparation									1	13	1	13
	Food preparation									1	15	1	15
	Value addition									1	12	1	12
	Value addition									1	20	1	20
Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**70**	**6**	**90**
Special	Introducing Sunflower cultivation	1	33									1	33
	Sunflower cultivation	1	20									1	20
	Sprinkler Irrigation	1	24									1	24
	Bee keeping technology									1	24	1	24
	Solution to market problem									1	20	1	20
Total		**2**	**44**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**44**	4	88
Grand total		**16**	**366**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1894**	**109**	**2280**

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province

Annexure 15: Farmer Training Classes conducted in AII Ranges *Yala* 2010

Crop	Main Aspect of Training	Jaffna		Mannar		Killinochchi		Mullaitivu		Vavuniya		Total	
		No. of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten	No. of class	No. of Atten
Paddy	Par boiling									1	25	**1**	**25**
	Pest & disease control					1	25					**1**	**25**
	Pre seasonal training					2	66					**2**	**66**
Total		**0**	**0**	**0**	**0**	**3**	**91**	**0**	**0**	**1**	**25**	**4**	**116**
Home garden	Home gardening									2	80	**2**	**80**
	compost making									1	20	**1**	**20**
	Organic farming	2	38									**2**	**38**
	Livelihood agriculture					1	21					**1**	**21**
Total		**2**	**38**	**0**	**0**	**1**	**21**	**0**	**0**	**3**	**100**	**6**	**159**
OFC													
Pulses	Pulses cultivation					2	65					**2**	**65**
Chilli	IPNS	2	39									**2**	**39**
Onion	Bulb rot treatment	2	52									**2**	**52**
	Cultivation Practices					1	30					**1**	**30**
B.Onion												**0**	**0**
Green gram	Cultivation practices & pest & disease management									1	24	**1**	**24**
soya	Soya bean cultivation									1	25	**1**	**25**
Ground Nut	Cultivation practices									2	60	**2**	**60**
Total		**4**	**91**	**0**	**0**	**3**	**95**	**0**	**0**	**4**	**109**	**11**	**295**
Vegetable	Vegetable cultivation									1	30	**1**	**30**
Beet root	Offseason cultivation	1	26									**1**	**26**
Total		**1**	**26**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**30**	**2**	**56**
Fruits													
Papaw	Increase the extent and timely application of fertilizer	2	50									**2**	**50**
Citrus	Training of farming	2	39									**2**	**39**
Total		**4**	**89**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**89**
Grand total		**11**	**244**	**0**	**0**	**7**	**207**	**0**	**0**	**9**	**264**	**27**	**715**

Sources: Administration Report 2010, Provincial Department of Agriculture, Northern Province