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Policy Research in the Area of Innovative Marketing Strategies

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AGRICULTURE SECTOR MODERNIZATION PROJECT

No 123/2, Pannipitiya Rd, Battaramulla, Sri Lanka

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INFORMATION SHEET

Policy Research in the Area of Innovative Marketing Strategies

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ACRONYMS

ADB	Asian Development Bank
AMIS	Agricultural Marketing Information System
APMC	Agricultural Produce Market Committee
APTA	Asia Pacific Trade Agreement
APTIAD	Asia Pacific Trade and Investment Agreement Database
ARMA	Auto Regressive Moving Average
ARPA	Agricultural Research and Production Assistants
ASC	Agrarian Service Centre
ASMP	Agricultural Sector Modernization Project
BAAC	Bank for Agriculture and Agricultural Cooperatives
BULOG	Indonesian Bureau of Logistics
CACP	Commission for Agricultural Costs and Prices
CCI	Cotton Corporation of India
CF	Contract Farming
CRES	Certificate of Registration as Exporter of Spices
COP	Cost of Production
CSA	Community Supported Agriculture
CV	Coefficient of Variation
CWC	Central Warehousing Corporation
DEC	Dedicated Economic Centre
DOA	Department of Agriculture
DTPS	Dual Track Procurement System
EDB	Export Development Board
EPV	Export Promotion Village
EU	European Union
FAO	Food and Agriculture Organization
FCI	Food Corporation of India
FDI	Foreign Direct Investment
FGD	Focus Group Discussion
FPO	Farmer Producer Organization
FSC	Forward Sales Contract
FTA	Free Trade Agreement
GI	Geographical Indication

GPS	Green Procurement System
GSP	General System of Preferences
GTAP	Global Trade Analysis Project
HARTI	Hector Kobbekaduwa Agrarian and Research and Training Institute
ICT	Information and Communication Technology
ICUC	International Center for Underutilized Crops
IFAD	International Fund for Agricultural Development
ILFTA	Israel Free Trade Area Agreement
IPS	Institute of Policy Studies of Sri Lanka
ISFTA	India Sri Lanka Free Trade Agreement
ITC	International Trade Centre
ITI	Industrial Technology Institute
JA	Japan Agriculture
JCI	Jute Corporation of India
JICA	Japan International Cooperation Agency
KII	Key Informant Interview
LFVPPE	Lanka Fruit and Vegetable Producers, Processors and Exporters Association
MAPT	Myanmar Agricultural Produce Trading
MD	Marketing Department
MSPS	Minimum Support Price Scheme
NABARD	National Bank for Agriculture and Rural Development
NAFED	National Agricultural Cooperative Marketing Federation
NAM	National Agriculture Market
NBT	Nation Building Tax
NCCF	National Consumer Cooperative Federation of India Ltd.
NCE	National Chamber of Exporters
NES	National Export Strategy
NFA	National Food Authority
NPD	National Planning Department
NPQS	National Plant Quarantine Service
NTPP	National Trade Promotion Programme (Vietnam)
OFCs	Other Field Crops
PAL	Port and Airport Development Levy
PASSCO	Pakistan Agricultural Storage and Services Corporation

PDPS	Price Deficiency Payment Scheme
PIP	Public Investment Program
PM-AASHA	Pradhan Mantri Annadata Aay Sanrakshan Abhiyan
PMB	Paddy Marketing Board
POs	Procedural Obstacles
PPP	Public - Private Partnership
PPPP	Private-Public-Producer Partnership
PPSS	Pilot of Private Procurement and Stockiest Scheme
PSS	Price Support Scheme
RTAs	Regional Trade Agreements
SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asian Free Trade Agreement
SAPP	Smallholder Agribusiness Partnership Programme
SAPPTA	Spices and Allied Products Producers and Traders' Association
SAPTA	South Asian Preferential Trade Agreement
SCL	Special Commodity Levy
SCP	Structure, Conduct and Performance
SFAC	Small Farmers Agro Consortium
SFCs	Subsidiary Food Crops
SLFPA	Sri Lanka Food Processors' Association
SLSI	Sri Lanka Standard Institute
SME	Small Medium Enterprise
SPP	Support Price Programme
SPS	Stainable Procurement Systems
TBE	Trade Related Business Environments
TOR	Terms of Reference
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
VAT	Value Added Tax
WRFS	Warehouse Receipt Financing System
WTO	World Trade Organization

EXECUTIVE SUMMARY

The overall objective of the study is to carry out an in-depth analysis of domestic and regional food marketing systems with special reference to innovative marketing strategies adopted by successful entrepreneurs in Sri Lanka and other developing countries. The outcome of the study is to provide policy recommendations towards modernizing the agriculture sector in Sri Lanka and thereby making the agriculture sector more competitive and responsive to market demand. The analysis mainly focuses on a review of existing policies, structure, conduct and performance of the domestic food markets, performance of agricultural exports and marketing strategies of selected countries in the region. The study is based on both primary and secondary data. Primary data were collected through Surveys, Key Informant Interviews (KIIs), Focus Group Discussions (FGDs) and Case Studies. The secondary data and information were collected from published and unpublished documents.

Since the economic liberalization in 1977, there had been a marked absence of policies or interventions in the field of agricultural marketing in Sri Lanka. In spite of a few sporadic and indirect interventions such as the enactment of the Food Act of 1980 and its amendments in relation to the food processing industry, agricultural marketing has been in the hands of the private sector. A review of 15 policy documents found that existing policies were not reviewed at the time of preparation of new policy documents and hence repetition of the same policies over time was observed. Unlike other countries, there is no span of time in preparation of policies in Sri Lanka and attention was not given to prepare functional plans to implement policies. In the current context, Information and Communication Technology (ICT) is also an integral part of agriculture. Its importance covers the production, crop management, harvesting, storage and packaging, transportation and marketing. In 2016, a timely E-agriculture strategy was finalized by the Department of Agriculture but its implementation is very slow. Many countries in the region have implemented blockchain technology to enhance supply chain management through transparent information flow.

Market structure analysis shows that structural changes are taking place towards its development. New marketing channels led by supermarkets and agribusiness companies have evolved and provide competition to conventional marketing channels. The modern marketing channels are more integrated and pay attention to post-harvest management to enhance the product quality that results in reducing post-harvest losses by 5-10% as against 15-20% percent reported in conventional marketing channels. However, conventional marketing channels continue to dominate other field crops, vegetables and fruits crop sectors but not in rice sector in which modern marketing channels are leading bypassing traditional channels due to innovative marketing strategies such as modernization of rice mills, integrated marketing activities and branding of products.

The agricultural value chain analysis carried out for vegetables and fruits shows that although the highest marketing margins are received by farmers, their incomes are inadequate to meet the family requirements due to small-scale farming and lack of intensive farming. The second highest margin reported is with vegetable and fruit retailers. This is due to small scale of business. Transport cost for vegetables and fruits were also found to be high because of the use of small and medium scale vehicles. Another added reason is visiting individual wholesalers and retailers to market, instead of distribution by large wholesalers to retailers. The process of upgrading the existing agricultural value chain is slow mainly due to the lack of a level of trust and collaboration among players in the value chain to achieve the common goals.

The investment analysis carried out for paddy farming found that the return on investment is showing a decreasing trend because the cost of production rises at a higher rate than that of sales value. This situation affects the living conditions of paddy farmers adversely, especially, of those whose main income is derived from paddy farming. This has also resulted in low youth participation in paddy cultivation.

International trade is part and parcel of globalization and economic growth, and the development of a country. Polices on economic liberalization have helped the developing nations immensely in furthering economic development. However, it is questionable whether Sri Lanka has reaped the maximum benefits from economic liberalization policies since their introduction. Sri Lanka has entered into many Free Trade Agreements with many countries bilaterally and multilaterally. The empirical evidence suggests that Sri Lanka would gain much through policies like Multilateral Trade Agreements and creating a Customs Union among SAARC countries. Although many governments tried to adopt free trade policies, protectionism still exists in Sri Lanka. Sri Lanka has the most complicated tariff system and traders complain that they face many Non-Tariff barriers, Para-Tariffs, Procedural Obstacles (POs) and Trade Related Business Environments (TBEs).

The comparative study of the agricultural marketing systems of all the countries of the region found that almost all are similar with useful twists to fit the context. One of the most important and common agricultural marketing practices in the region is the operation of support price systems of the regional governments. Almost all the governments in the region intervene in agricultural marketing with Support Price Programs (SPPs) with different names for assisting the consumers as well as the producers. Though the Support Price Schemes are quite popular in the region, they are gradually being scrapped and almost all the schemes are highly criticized due to market distortions and the huge financial burden of these schemes. The institutional structures for agricultural marketing in the region

are also similar with several institutions established for marketing in Sri Lanka, while their effectiveness and efficiency are often questioned.

There are several noticeable developments in agricultural marketing in the region, i.e., emerging of dedicated transportation services, reduction of cost and time of transaction through the use of modern technology and IT facilities, promotion of post-harvest credit schemes to encourage farmers to store their outputs, revitalizing the value of cooperative/farmer groups in agricultural marketing, branding and labelling the fresh products (fruits and vegetables) through technology such as QR coding and Quality labelling. Furthermore, it is observed that government facilitation has been more successful than government intervention as observed in recent agricultural marketing practices. The following factors are identified as key success factors in linking small farmers with global value chains: i) use of low-cost effective modern technologies in marketing, ii) strengthening the cooperation among small farmers, iii) availability of improved and dedicated transport and logistic facilities for farmers, iv) government intervention in quality guarantee programs and v) major role of the public sector is to facilitate the marketing process rather than being directly involved as a trader.

Based on the innovative marketing strategies studied in Sri Lanka and other countries, a series of policy recommendations were provided to upgrade the existing agricultural value chains and improve the agricultural exports. These recommendations explain how to develop the marketing led production planning, sustainable farmer collective actions, the effective government procurement system, the promotion of agro-entrepreneurship, e-marketing, digitalization of economic centers, promoting of GAP certification, education of post-harvest management, diversification of product and export markets, and simplification of the tax structure and export procedures.

CHAPTER 1

INTRODUCTION

1.1. Background to the study

The report is submitted as a deliverable of the sub-project covering Policy Research on Innovative Strategies for Agricultural Marketing in Sri Lanka under the Agriculture Sector Modernization Project (ASMP). The ASMP is a project implemented by the government of Sri Lanka in collaboration with the World Bank aiming at increasing agriculture productivity, improving market access and enhancing value addition of smallholder farmers and agribusinesses of the country. The project has three components: 1) agricultural value chain development, 2) productivity enhancement and diversification and 3) human resource development. The policy research consultancy on innovative marketing strategies lies under component two.

1.2. Objectives of the study

The overall objective of the study was to carry out in-depth policy research in the area of Innovative Marketing Strategies, in order to identify knowledge gaps and policy and regulatory inconsistencies in realizing innovative marketing strategies. The outcome of the study is to recommend adjustments, reforms or new policies needed to modernize the agriculture sector in Sri Lanka and thereby making the agriculture sector more competitive, responsive to market demand, sustainable and resilient.

Based on the scope and tasks of the consultancy, this marketing study was focused on the following specific objectives:

1) Conduct a detailed analysis of the agricultural marketing systems operating in Sri Lanka with special reference to economic centers, the “Pola” system, Nuwara-Eliya vegetable marketing system, and Colombo based vegetable marketing system,
2) Conduct detailed analysis of local value chain systems with special reference to estimating post-harvest losses and cost of transport,
3) Describe the marketing systems prevailing in the neighboring countries and success stories with special reference to policies, regulations and institutions,
4) Study export performance, trade policies and incentives related to agricultural export performance, and
5) Recommend policy reforms, new policies and strategies to improve the agricultural marketing systems in the context of local and global competition.

1.3. Conceptual framework

The conceptual framework adopted for the research is described in Figure 1.1 below. As shown, the system approach is used as a conceptual framework. There are three inputs: the study on the domestic marketing system, the study on the regional agricultural marketing system and the study on agricultural exports. The process contains marketing research analysis. As explained in the methodology section, it includes two parts: 1) secondary research to investigate the existing knowledge about the study objectives and 2) primary research to add new knowledge to fill the information gap. Results of the processes are laid down as the outputs. Accordingly, innovative marketing strategies and policy reforms/new policies are the two main outputs of this exercise. The expected outcome is the contribution towards the development of a modernized agricultural sector in Sri Lanka.

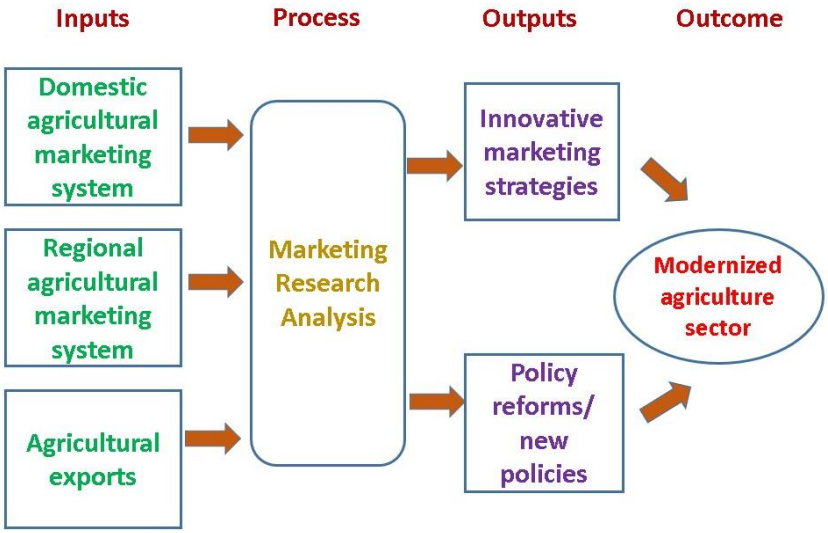

Figure 1.1: Conceptual framework

The Structure, Conduct and Performance (SCP) approach was used to meet the specific objective one of the study. Accordingly, the marketing structure explains how the marketing system is organized within the marketing channels which refer to the distribution routes of goods. Market conduct explains how the market performs, and the product, price, place and promotion (4Ps) approach was applied in market conduct analysis. Market performance is the effect of market structure and conduct. The effects were investigated using price analysis. The Agricultural Value Chain approach was used to study the value added at each stage of the supply chain. In this approach product, time, financial and information flows were investigated. The product flow shows how the product is distributed from the origin (farm) to the destination (consumption). Time flow measures the duration taken for product distribution while financial flow depicts the value added by each player in the supply chain. Market margin concept was employed to analyze the value addition. Producer margin is the difference

between the sales income and the Cost of Production (COP). This difference is the component added by the farmer who produces the product using inputs such as seeds, fertilizer, agrochemicals and management skills. By applying the same principle, market margins are computed for each task such as transport, wholesale and retail trading. Information flow is the partnership among and between the players. In this concept, the linear relationships (between the actors) and non-linear relationships (among the actors) were considered. The tracing approach, in which the same lot is taken into account from the origin to the destination, was used to analyze the value chain. For other specific objectives, the descriptive approach and the desk research were used to evaluate the prevailing situation in order to identify success stories, gaps and issues.

1.4. Study methods and materials

1.4.1. Desk research and analysis of policy documents

This study is based on both primary and secondary data. Desk research was undertaken at the outset by analyzing the secondary data collected from published and unpublished reports. The secondary data and information required to analyze the organization, operation and performance of food marketing systems was collected from documents published by various local and international organizations such as Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI), Export Development Board (EDB), Institute of Policy Studies (IPS), Central Bank of Sri Lanka (CBSL), Food and Agriculture Organization (FAO), World Bank (WB), Asian Development Bank (ADB), Japan International Cooperation Agency (JICA) and the International Fund for Agricultural Development (IFAD). Documents referred to included research reports, consultancy reports, conference papers and journal articles.

1.4.2. Analysis of agricultural marketing systems in Sri Lanka

1.4.2.1. Selection of crops

According to the scope of the study, the selected sub-sectors are: 1) vegetables and fruits, 2) spices, 3) floriculture, 4) paddy/rice, and 5) other field crops (OFCs). Primary data collection was done for the 1) vegetables and fruits, 2) spices, and 3) floriculture sectors only. Vegetable and fruit crops were selected based on the demand of the market and priority of the pilot projects of the ASMP. The selected vegetables are: green beans, carrot, beetroot, cabbage, tomato, cucumber, bitter gourd and green chilli. The selected fruit crops are: banana, mango, papaya and pineapple. Spice crops were chosen for the study considering their importance both in the local and global markets. Cinnamon and pepper were selected for the study as they are the main spice crops grown in the country and thereby contributing considerable export earnings. In addition, cardamom was selected as it is the most highly valued spice crop in the country. The floriculture sector comprised of upcountry cut flower sector for

local/export market, upcountry pot plant producers, small and medium scale pot plant producers in mid and low country areas, and cut-leaf and pot plant exporters as individuals or companies with/without foreign collaboration (BOI projects).

1.4.2.2. Selection of study area

For the vegetable and fruit crops, Nuwara-Eliya, Hambantota, Matale, Anuradhapura and Gampaha districts were selected, as most of the production of selected vegetables and fruits that are brought to the markets, the main economic centers and wholesale markets are from these districts. The Colombo district was added to the study districts due to this region being the main consumer of fruits and vegetables. In addition to these districts, data were collected from various other regions of the country through a tracer survey. In the spice sector, Galle and Matara districts were chosen for the study because they are the main cinnamon growing districts. As the central region is the main pepper growing area in the country, Matale and Kandy districts were selected to study the pepper marketing system. Kandy is the main cardamom growing district in the country and Ratnapura has greater potential for expansion in the future, and hence these two districts were considered most appropriate for the study. In order to study the up-country cut-flower marketing system, Nuwara-Eliya and Badulla districts were selected. For studying the pot plant trade and foliage trade, the mid country and low country districts such as Kandy, Matale, Kurunegala, Gampaha and Colombo were chosen.

1.4.2.3. Data collection methods

The primary data were collected using the mixed method, which involves the use of both quantitative and qualitative methods. Quantitative techniques include tracer, farmer and trader surveys while qualitative techniques comprise of Key Informant Interviews (KIIs) and case studies.

Key Informant Interviews – Selected key individuals who were in a position to provide the required information, ideas and insights were interviewed. They comprised of serving and retired officials from government and semi-government bodies and trade associations. A list of KIIs conducted and the questionnaire used for KIIs are given in the Annex 01 and 02.

Case Studies – Fifteen case studies were conducted on identified successful cases. The main purpose of conducting case studies was to identify the innovative marketing strategies adopted by successful entrepreneurs.

Producer Survey and Trader Survey – Five producers/farmers of each of the identified vegetable and fruit sectors were randomly selected and interviewed in the Producer/Farmer Survey. Information on the socio-economic profile, cost of production, input purchasing and output sealing behavior, prices

and problems of production were collected through face-to-face interviews using a pre-tested, structured questionnaire. The questionnaire used for producers is given in Annex 03.

A sample of 38 vegetable and fruit wholesalers and 14 retailers, totaling 52 traders were randomly selected and interviewed for the Trader Survey. It included 35 vegetable traders and 17 fruit traders. Information on the socioeconomic profile, business structure, buying and selling behavior, value additions, cost of doing business, competiveness, post-harvest losses and prices were gathered by face-to-face interviews using a pre-tested, structured questionnaire. The questionnaire used for traders is given in the Annex 04. As shown in table 1.1, a total of 119 value chain partners were interviewed to collect primary data.

Table 1.1: Number of value chain players interviewed

Item	Farmer	Wholesaler	Retailer	Collector	Total
Green chilli	5	3	1	-	9
Cucumber	5	3	1	-	9
Tomato	5	3	1	-	9
Bitter gourd	5	3	2	-	10
Beetroot	5	3	1	1	10
Carrot	5	3	1	1	10
Cabbage	5	3	2	1	11
Beans	5	4	1	-	10
Pineapple	5	4	1		10
Mango	5	3	1	2	11
Banana	5	3	1	2	11
Papaya	5	3	1	-	9
Total	**60**	**38**	**14**	7	**119**

Tracer Surveys - Tracer surveys were carried out for the identified fruit and vegetable value chains to undertake quantitative analysis of value chain and post-harvest losses. Commodity flow, time flow and value flow were investigated from origin to the destination of the traced bags/boxes. Post-harvest losses were estimated in two ways: weight losses and quantity losses. Weight losses were worked out by measuring weight of the traced bag/box at each transaction point. Quantity losses (unsold) were estimated at the time of sorting the produce before selling at the retail level. In addition to such losses, information on costs of transportation, prices and time taken from the point of origin to the destination were gathered through a questionnaire (Annex 05).

Four well-experienced and trained enumerators were employed to conduct the tracer, producer and trader surveys. A one-day training program was conducted before data collection in order to facilitate familiarization of the questionnaires by the enumerators and to train them on how to conduct the tracer survey.

1.4.2.4. Data analysis

Descriptive analytical techniques such as average and percentage were applied to analyze the data collected from surveys. Since market performance is determined by structure and conduct, only performance measurement techniques (price and cost analyses) were used. Price analysis was carried out to measure pricing efficiency, and marketing cost analysis was performed to evaluate operational efficiency. Price analysis techniques included both descriptive and inferential statistics. Marketing margins (M), which was computed by the deduction of producer price (PP) from the consumer price (CP), was used to measure technical efficiency. Trend line was estimated to investigate margin behavior over time. Post-harvest loss assessment was carried out as a percentage to the quantity and value of the product at retail level. Investment analysis was carried out using Benefit-Cost (B-C) ratio.

1.4.3. Analysis of agricultural export performance

The analysis of agricultural export performance was purely dependent on secondary data. Data on imports, exports, tariffs, para-tariffs and other taxes and other essential economic indicators were sourced from the Central Bank of Sri Lanka, the Department of Census and Statistics, the Sri Lanka Customs Department and the Export Development Board. Apart from the local level data sources, the study made use of data bases such as GTAP, UNCTAD, and International Trade Data Bases – CEPII, APTIAD Data Bases, and the UN Comtrade Data Base. More specifically, published journal articles, books, policy documents and documents related to trade agreements were reviewed.

1.4.4. Analysis of agricultural marketing system in the region

This was done using the available secondary data from articles and reports already published on selected economies, i.e., India, Pakistan, Bangladesh, Vietnam, Thailand and Japan. For the purpose, policy documents, budget proposals, commissioned reports, program evaluations, country briefs and other relevant documents were reviewed comprehensively. India, Pakistan and Bangladesh were selected as the regional countries similar to Sri Lanka with similarities in market structures and socio-economic conditions. Vietnam was selected as a country with similar success stories on foreign trade in agricultural products. Thailand was selected to present a successful case of a packaging. Finally, even though Japan is a well-developed country, it was selected to learn about the well-known Japanese Agricultural Cooperative System (JA) which was formed when economic conditions similar to present day Sri Lanka were prevalent in Japan.

CHAPTER 2

LITERATURE REVIEW

2.1. Agricultural marketing system in Sri Lanka

The Asian Development Bank (ADB, 2017) did a study on value chain analyses of pineapple and mango, two fruit crops which have high export potential. According to the study findings, the main market participants for both crops are farmers, collectors, wholesalers, retailers, exporters and industrial buyers. Most farmers sell their products to collectors at the field level. The collectors are responsible for grading, sorting, packaging and transporting the fruits and supplying to the wholesalers, processors, supermarkets and institutional buyers. Similarly, exporters purchase the pineapple and mango from collectors and large-scale farmers. The major constraints in the industry as found from the study are, high price fluctuation in the export market, high cost of production, over- dependence of imported inputs such as packaging materials, high traffic density, lack of infrastructure for cold storage chain management, shortage of quality planting materials, practicing of old and traditional methods of cultivation, disintegrated marketing system, no standardization in price discovery mechanism, high cost of labor, lack of skilled and trained manpower and lack of business incubation facilities. Further, it was reported that the contract farming system has failed in Sri Lanka due to high transaction cost and lack of commercial discipline among farmers and corporate buyers. The study also highlighted the inability to solve these problems despite both local and donor funded programs. It recommended the implementation of more comprehensive training programs, obtaining accurate and sufficient information to improve packaging of produce, increasing profitability-enhancing measures and looking after the cold-chain management in the whole sector in order to increase the efficiency and reduce losses.

The International Center for Underutilized Crops (ICUC) conducted a study in 2006 on value chain for Rambutan *(Nephellium lapacium*) in Sri Lanka by using a research method of agro-enterprise development designed by the World Bank. Results indicated that product seasonality and short-shelf life are the biggest problems faced by the sector. Increased R&D efforts focusing on the processing and freezing of Rambutan as well as on developing off-seasonal production through management were some of the recommendations. Also, the quality and coverage of the extension system is weak and inequitable, resulting in poor technology transfer. According to the study, training of extension officers, farmer-led workshops and demonstrations, could serve as possible remedies. The study found that vertical integration of producers varies from weak to average. No sub-contracting arrangements exist between input suppliers, farmers and/or buyers. The problem has been acute because production is

highly scattered and fragmented. The reasons for large losses and low product quality are, poor cultivation methods and post-harvest handling. Losses could be cut significantly and product quality can be improved greatly by encouraging small-scale farmers to adopt better but simpler cultivation practices. Marketing is dominated by the middlemen who decide the price. Vendors on roadsides and at bus stations represent the major sales outlets for the domestic market.

The findings of a study conducted by Weerabahu (2016) revealed that the issues related to the fruit and vegetable value chain and food security have complex linkages. Transportation and food wastage, excess supply and price fluctuation are the key issues in the Colombo city region food system. Colombo depends highly on other regions for its fruit and vegetable supply. Transportation and food wastage, excess supply and price fluctuation are the key issues in the Colombo city region food system. The study stressed the need for policies and strategies for the development of an economically, environmentally and socially sustainable city region food value chain that integrates urban and rural sectors and actors.

A study was conducted by HARTI (2015) on agricultural forward contracts to assess the factors affecting the adoption of Forward Sales Contracts (FSCs) by applying the maximum likelihood logistic regression (*Logit*) method. The analysis found that agricultural experience, agricultural income, and total agricultural land holdings are positively and significantly related to the decision-making of farmers with reference to adoption of FSCs. It was further found that a higher yield was achieved by maize contract farmers over non-contract farmers, due to efficient input delivery mechanisms and the higher satisfaction they had with the extension services and as the seeds were given by the company. Efficient input delivery mechanisms, vertically well-integrated value chains of the company, proper monitoring of each step, agricultural extension services, long term relationships and building of mutual trust between farmers and buyers, assured market for buyers, and welfare and social programs implemented by the company, are the key factors for the success of FSCs. For ensuring more participation of small farmers, the company limits the land extent of individual farmers. The inability to sell the whole harvest to the company, high input prices, lack of credit, and the lack of crop insurance have been identified as major constraints of contract farmers. The study recommended that more attention should be focused on the contract farming system rather than the FSC approach in future planning.

Champika and Abeywickrama (2014) conducted an evaluation of the maize contract farming system in Anuradhapura district using the principal component analysis. The study found that full-time farmers who have a higher proportion of agricultural income, higher agricultural land holdings as well as agricultural experience and family labor participation, were more likely to adopt the contract farming system. This study revealed that contracted prices of maize were higher than the producer prices in

the relevant *Maha* seasons in Anuradhapura district throughout the period of ten years, except for the *Maha* season 2005/2006. Similarly, the results revealed that, except in the 2008/09 *Maha* season, a gap was observed between the agreed price and the paid price under the Contract Farming (CF) system. Regarding all the instances where a gap existed, the buyer has actually paid a higher price than the agreed price. The major constraint faced by CFs was, non-procurement of the whole harvest. Regarding non-contract farmers, the most critical problem was the uncertainty of obtaining a reasonable price in the next season. The majority of non-contract farmers have sold their produce to the collectors who generally come to their doorstep. Farmers had experienced various kinds of cheating when transacting with these mobile collectors; the most numerous complaint was the use of fraudulent balances in weighing. Both groups of farmers mentioned the absence of a crop insurance scheme as the main constraint that they faced.

A study conducted by Senanayaka and Premaratne (2012) on the Analysis of the Paddy/Rice Value Chains in Sri Lanka aims to test the hypothesis that both producers and consumers are exploited by the other players, particularly, by rice millers and whole sellers due to the oligopolistic structure in the market. The study's principal objective was to find out the level of competition in the paddy/rice market in Sri Lanka. According to the findings, the majority of the farmers sold to the collectors due to the high price (50%), close proximity (31%) and credibility (30%). On average, a collector has 65 regular farmers, and 41% of the collectors provided credit to the farmers. The major marketing problems reported by collectors are limited investment capacity (52%), lack of regular supply (31%), poor roads (15%), poor quality of paddy (15%) and irregular imports (15%). It also found that 71% of the rice mills belonged to the category of sole proprietor, 19% were partnership mills and only 5% of rice mills were owned by private limited liability companies. The major problems cited by millers are low quality of paddy (65%), high electricity cost (20%) and unstable prices (15%). The results further revealed that the low productivity of the existing rice mills has significantly contributed to high production costs. Achievable rice milling recovery is 69% in most rice mills as against the actual of 62-65%. In addition, the quality of rice is low, mainly due to presence of high amounts of broken grains, paddy seeds, type admixture, impurities, damaged and discolored grains and non-uniformity in grain removed. The price analysis in this study found that 82.88% of the consumer price is received by the farmers and the total marketing costs and margins in the entire value chain is only 17.12%. Of this figure, 13.60% consisted of the miller's cost and margin. The miller's profit margin according to the tracer survey was only 3.57%. Based on the findings, the study concluded that the profit margins of all the players involved in the rice value chain are not excessive when compared with the bank rate.

HARTI (2012) conducted a study on value chain analysis of pineapple and banana covering major producing and consuming areas in Sri Lanka using both secondary and primary data. Based on the EDB

data it was reported that out of 127 registered fresh fruit exporters, 29 companies were pineapple exporters and only six were banana exporters. There were 31 canned fruit exporters and 46 dried fruit exporters. The major processing companies listed in the study are MD, KIST, KVC, Alli and Edinborough. The major players in the pineapple value chain are collectors, wholesalers, retailers, exporters, processors and institutional buyers. The majority of farmers sold their produce to the collectors who come to their farms. The major buyers of the collectors were wholesalers in Colombo, hotels, restaurants and institutional buyers. The exporters mostly purchased pineapple from collectors and from large scale farmers. Suggestions made towards the improvement of the value chain are development of research and development, dissemination of information, credit facilities for processing, and linking farmers to the exporters.

Kuruppu *et al*. (2012) analyzed the vegetable value chain in Sri Lanka aiming at identifying the structure, conduct and performance of the different stakeholders in the vegetable value chain. The findings of the research show that the stakeholders consist of at least seven types of stakeholder segments from input suppliers to the consumers with overlapping among some of these segments. Similarly, some agri-business companies are involved in input supply, production and marketing throughout the entire value chain. There were many cases where the transporters, collectors and wholesalers appear at more than one link. The study found that 42% of the retailers are buying directly from farmers and 96% sold directly to consumers. It was found that the farmers operate in almost perfect competition due to the large number of sellers. As compared to segments in the value chain, the transporter segment was one of the most dissatisfied segments, due to problems such as increasing fuel costs, high vehicle maintenance costs, poor condition of inner access roads, and high financing costs for vehicles. The retail market structure was also found to have almost perfect competition, since the number of players is so large with each unable to influence the market due to their small size of operation in volume and value. However, with respect to the wholesalers the segment operates as an oligopoly at town or economic center level where a large number of sellers sell to a few large buyers who have the power to dominate the market. The trend analysis of the same study shows that retail prices have increased during the period of 26 years from 1985 to 2011 at a far greater rate than the rate at which producer prices and wholesale prices have increased. The price transfer analysis shows a 266% increase over the farm price. The producer's share was 25% and the Shepherd's market efficiency index is 50%. The findings have shown that the retailer adds the highest amount of value in sorting and cleaning the higher margin for the low volumes in their business. The study concluded that the segments that could be contributing to the inefficiency of the value chain are the collector and transporter segments. The recommendation is the replacement of collectors and transporters by farmer groups performing both

the roles played by collectors and transporters and the introduction of vegetable auctions instead of the current system that exists at the economic centers.

The German Development Institute conducted a study in 2006 to explore the possibilities and limitations of achieving a socially inclusive and competition based growth in Sri Lanka's agribusiness sector using the value chain approach. This study focused on export value chain and information collected through qualitative techniques. Identified key players in the export value chains are collectors, processors and exporters. It was reported that collectors play an indispensable role due to the atomized structure of agricultural production. However, constraints exist with collectors with reference to the in transference of knowledge from upstream to the downstream. Processing plants are mostly an integral part of exporting companies, especially those involved in fruit and spice processing. In this study, export based agricultural value chains are grouped into two different categories. The first category is the disintegrated value chains characterized by highly fragmented producers with few integrating satisfactorily with agents. Most value chains in Sri Lanka are in this group. The majority of the Sri Lankan exporters or processors had very little direct contact with institutional buyers and some were linked with international supermarkets. Many companies did not have contact with suppliers as well. The major drawbacks in the global value chain as found from the study includes, the absence of guarantee of quality, lack of constant supply, high post-harvest losses, high search costs and low level of knowledge delivery. The second category is the strongly linked chain which is small but growing. This was found in the organic food import sector. Despite several advantages, it entails the problems of high initial investment for developing out grower contacts and investment recovery being spread over a long time period. The study recommends the need for improvement of the value chain through firstly, by passing demand-side requirements from upstream to downstream and secondly, by responding to the information by producers.

The IPS (2003) conducted a study on the forward contract scheme which was introduced by the Central Bank of Sri Lanka in 1999. The objective of the study was to examine the forward contract scheme and review its performance. The legal standing of forward contracts originated from the Sale of Goods Ordinance No. 11 of 1896. This Ordinance describes forward sales as a "contract of sale of goods whereby the seller agrees to transfer the property in goods to the buyer on a future date for a monetary consideration". According to the study, a total of 6239 contracts were signed during the 1999-2001 period valued at Rs. 228.3 million. Seylan Bank had signed the highest number of contracts. Although many crops were under the scheme, paddy, maize, and big onion accounted for more than 75% of the total number of contracts. The contract price which is the most important element in a forward contract is determined based on the cost of production and the retail price or the border price of the commodity of concern. The contract price is 150% of the true cost of the product that will

guarantee the farmer a 150% margin over his cost of production. Although it was in its infancy at the time of conducting the study, the scheme has generated encouraging results. Farmers have the advantages of an assured market, high prices and the ability to obtain bank loans, while traders have advantages of lowering the cost of transactions, assurance of quality and ability to get bank loans.

2.2. Agricultural policies in Sri Lanka

Since the introduction of open economic policies in 1977, for the first time a comprehensive policy document on agriculture was prepared by the Planning Division of the Ministry of Finance in 1984. Since then a number of agricultural policy documents have been prepared by the Ministry of Agriculture. There are seven policy documents prepared by the Ministry of Agriculture during the period of 1995 to 2018 as shown in the Table 2.1

Table 2.1: Policy documents prepared by the Ministry of Agriculture during the period of 1995 to 2018

No.	Name of the Document	Name of the Agriculture Ministry	Year
01	National Policy Framework: Agriculture, Lands and Forestry	Ministry of Agriculture, Lands and Forestry	1995
02	National Policy on Agriculture and Livestock, 2003-2010	Ministry of Agriculture and Livestock	2003
03	"Let us grow and build the country": National Food Drive, 2007- 2010	Ministry of Agriculture Development and Agrarian Service	2007
04	Cooperate Plan, 2011-2013	Ministry of Agriculture	2010
05	National Policy and Strategy on Cleaner Production for Agricultural Sector	Ministry of Agriculture	2012
06	Agricultural Policy framework	Ministry of Agriculture	2015
07	National Agricultural Policy	Ministry of Agriculture	2018

In these documents, there are either a separate chapter or a section for marketing. High price fluctuation and high post-harvest losses are the two major issues highlighted in all the policy documents and suggested policy strategies to solve these problems are more or less the same: advocated planned production in terms of market demand (1995), build up market oriented agriculture (2003), market based production planning (2003) and market oriented development (2019). The suggested strategies for price stabilization are: 1) government procurement through a floor price scheme, 2) importation during the lean supply period, 3) product planning in line with market demand, 4) involvement of farmer organizations for marketing, 5) storage and value addition, and 6) private sector participation through an out-grower scheme. In addition, development support to supply and value chain actors was added to agricultural policies in the latest one (2019). Suggested strategies to reduce high post-harvest losses are cold chain, planned production and careful handling, packing and transporting.

As shown in Table 2.2, in addition to the Ministry of Agriculture, other agencies prepared the marketing policies at their documents related to the macro planning, but the same strategies have been included in these documents as well. Repeating the strategies over and over again means problems on high price fluctuation and high post-harvest losses are not resolved. None of the policy documents reported reasons for not achieving the given objectives. Also, none of the policy documents referred to the earlier policy documents. Policy reforms or new policies were not reported in policy documents. In principle, when preparing a new policy document, the starting point is reviewing the existing polices in order to identify the policy reforms and new policies. This mistake is to be corrected as according to "Vistas of Prosperity and Splendour", it was reported that a comprehensive agricultural policy would be prepared after studying the existing policies.

Table 2.2: Reviewed macro policy documents

No.	Name of the policy document	Agency	Year
01	National Agriculture, Food and Nutrition Strategy: policy issues and implementation measures	National Planning Division, Ministry of Finance and Planning	1985
02	The Path to Development-Investment Profile, 2000-2004	Department of National Planning Ministry of Fiancé and Planning	2000
03	The Future – Regaining Sri Lanka		2002
04	Overarching Agricultural Policy	Ministry of National Policies Ministry of Agriculture	2019
05	Vistas of Prosperity and Splendour	President's Manifesto	2019

Vistas of Prosperity and Splendour is the present government policy document prepared in 2019 before the Presidential election. Accordingly, the development model is based on agriculture (production economy). It clearly mentioned development of stallholder agriculture through modern technology under the theme of people centric economic development. Marketing strategies included in the document are: 1) pre-contracts between producers and traders including exporters, 2) branding of agricultural produce for export, 3) controls of importation of agricultural products for price stabilization, 4) tax-free importation of machinery and equipment required for agricultural value addition, 5) combining the state and private sector institutions and agricultural crop management system to minimize wastage of products, 6) railway coaches for goods transport 7) stabilization of paddy prices through purchasing by Paddy Marketing Board and 8) building of a community of youthful agricultural entrepreneurs. The functional plan is yet to be prepared to implement these strategies.

The review of policy documents found a lack of functional plans except in two documents (Let Us Grow and Build the Country-2007 and Cooperate Plan 2011-2013-2010). Furthermore, no or few attempts have been made to implement, monitor and evaluate strategies, even in functional plans. Since almost all strategies are still valid, the urgent need is to prepare, implement, monitor and evaluate

functional/operational plans to implement strategies whereby the prolonged marketing problems could be solved. The E-marketing strategy should be added as new policy and should be given the highest priority because it is superior to all other supply chains.

2.3. Policies and institutions on agricultural marketing in the neighboring countries

In analyzing the marketing policies and marketing institutions in Sri Lanka it is important to review the selected agricultural marketing policies and programs of the region. As explained in the methodology, India, Pakistan, Bangladesh, Vietnam, Thailand and Japan were selected as targeted economies for the review. This sub-section first provides a brief analysis of the agricultural marketing systems in the selected countries and then discusses the selected policies and institutions in detail.

Agriculture is the livelihood of 58% of the population of India with more than US$ 265 billion gross value added by the agriculture sector. With a huge policy support from the union government as well as the local governments such as the Doubling Farmers Income by 2020 initiative and Schemes like Paramparagat Krishi Vikas Yojana, the government provides the required policy support for the development of the agricultural sector. Furthermore, it promotes e-platforms for the development of the agricultural market, such as eNAM (National Electronic Marketing Program), Transport and Marketing Assistance program. These are examples of the orientation of the government of India on agricultural marketing. The infrastructure availability of the food industry in India is recorded with 7,845 cold storage facilities with a total capacity of 35 million metric tons. Agricultural storage facilities grew at a compounded annual growth rate of 4% between 2014 and 2017. There are more than 40 Mega Food Parks and 60 export zones. There are more than 37,000 food processing units in India. Importantly, India expected to tap US$ 28 billion as the Foreign Direct Investment directed to the food processing industry in the year 2019. Indian farmers are shifting towards increased cultivation of the horticultural products while changes in the consumption pattern of India also indicate a shift towards the consumption of more horticultural products. The food processing industry has identified product innovation as the key to the expansion of the sector and public/private investments are directed in achieving this goal.

Japan is focused on continuing with its agricultural production due to the severe hardship caused by the food shortages during and soon after the World War II. Therefore, the government is intervening in many aspects of Japanese agriculture, including marketing. The market prices as well the average price received by the Japanese farmers are affected by the government intervention which can be categorized into several areas; producer quotas, income stabilization policies, deficiency payments, the rice diversion program, hazard insurance subsidies and stockholding policies. Producer quotas are

administered mostly for the milk production with the objective of stabilizing the market price. Under the system of milk quota, famers are paid directly a payment per liter up to the level of quota of the farmer. Under the commodity-based stabilization policies, the government pays the farmers a part of the losses caused by price fluctuations based on the past records of the shifts in average prices. Deficiency payments are made to compensate the difference between expected price and the actual price. These types of programs are available for beef, pork and soya beans. To avoid the excess supply of rice in the market, the government is paying a substantial amount of money to the conversion of rice fields to other crops which is known as a diversion payment. An important fact to note is that the farmers are paid the diversion payments even if they cultivated paddy, but do not harvest them for food grain. If they harvest rice for some other use such as industrial usage or for manure, they are eligible for receiving the diversion payments. Government crop and livestock insurance programs are also provided for recovering the losses caused by sudden attacks due to diseases or some other reasons.

Japan also uses a Tariff Rated Quota to limit the import of some agricultural products. Under this scheme, the import of certain products is allowed free of or at a lower level of tax, but any excess over the quota will have a level of tax that may completely halt the import. However, the Japanese farmer population shows a continuous decreasing trend, especially the full-time farmers, mostly due to the economical and demographical changes. More than 80% of the Japanese farming population is now part-time employees in the agricultural sector while majority of them belongs to the aged population (more than 60 years old). However, the annual average income of the Japanese farming households is 25–30% higher than that of the national average. This implies that the living conditions of the farming households are better than the national average. Obviously, government protection provided for the agricultural sector has a huge bearing on this scenario, but there is yet another important factor behind the better welfare levels of the farmers. This contributory factor is the organization of the Japanese farmers under one strong umbrella which is called the Japanese Agricultural Cooperatives or JA. Japanese Agricultural Cooperative System, which provides an impressive case study for a successful cooperative movement with enormous strengths, and economic and lobbying power.

Thailand is popular for processed food production as well as for canned food production. Nearly half of the workforce in Thailand is engaged in agriculture. Thailand, a traditional agricultural economy, has changed to an export-led industrial economy within less than four decades. Thailand became one of the top 10 exporters of the globe before the slowdown while reaching the number one position in rice exports. Its export share accounts for more than 1/3 of its GDP with more than US$ 40 billion positive trade balance. Thailand’s march towards an export led economy especially from food, was greatly assisted by the advanced food labelling of Thailand.

Vietnam is an agricultural South East Asian country in the South China Sea with an economic growth rate which has increased in recent years. Importantly, the agricultural sector in Vietnam contributed nearly 15% to the economy in 2018. Exports increased to US$ 14 billion in 2000, and to US$ 245 billion by 2018 while import growth also was similar. Nevertheless, Vietnam has been able to record more than US$ 7 billion trade balance by 2018. This signifies the trade openness of Vietnam and its successful performance over the period. Paddy and maize are the two major crops produced by Vietnam while vegetable, fruits and several other industrial crops are produced. Vietnam has trade with more than 200 countries, out of which, it receives a turnover of than more than US$ 100 from over 70 countries. Signifying the openness, Vietnam has signed 12 Free Trade Agreements with 56 countries. All these have elevated Vietnam as the 27th global exporter and 25th global importer. Vietnam's agricultural exports increased more than 100% between 2015 and 2018 in both quantity and value. Major exports destinations of Vietnam agricultural products (in 2018) are China (US$ 7.26 billion), European Union (US$ 3.96 billion), USA (US$ 3.54 billion), ASEAN (US$ 2.64 billion) and Japan (US$ 1.77 billion). Vietnam is the third exporter of rice after India and Thailand. It is the second exporter of coffee after Brazil and it is the fifth exporter of tea. In addition, Vietnam is currently the largest pepper exporter in the world while it is an important player in the global market in many other agricultural products. It is very clear that "Doi Moi" policies in 1986 as well as other agricultural sector development policies and free trade agreements have contributed significantly towards the development of the agriculture sector itself and the agricultural exports of Vietnam in recent years.

Pakistan is a net food importer though there are several products that Pakistan exports to the world. Pakistan exports of rice to the world market equals to 10% of the total trade. Major agricultural crops in Pakistan include cotton, wheat, rice, sugarcane, fruits and vegetables. The Pakistan irrigation system is known as the largest irrigation system of the world. A noticeable difference in agriculture in Pakistan is the slow progress in the transformation of agricultural system as a whole, as well as the agricultural marketing system. More than 40% of the total arable land area is owned by larger land owners who control most of the irrigation system. Most of the powers with relation to Pakistan agriculture sector is vested with provincial governments though some powers are still with the central government. Therefore, much of policies and programs on agricultural marketing systems are handled by the provincial governments. The major focus of the Pakistan agriculture sector presently is to move from self-reliance agriculture to profitability in the sector. Major agricultural policies of Pakistan are targeted at provision of foods at an affordable price to the poor people. As more than 70% of the people in Pakistan live in rural areas where agriculture is the top livelihood, agricultural policies directly affect these people's lives. However, performance of the agricultural sector of Pakistan is a huge concern at present owing to the capacity of the sector to feed the ever-increasing population of Pakistan. Though

the slow progress of the sector is attributed to different reasons, Ghafoor et al. (2017) raise the concern of the weak performance of the agricultural marketing framework.

Bangladesh is known as one of the fastest growing economies in recent time. More than 83 per cent of the rural people depend on agriculture as their livelihood activity. Rice and jute are the major crops, while maize and vegetables are also gaining importance in recent times. Tea cultivation is also popular in the hilly areas. Adverse climatic conditions are frequent in Bangladesh making it a struggle to develop the rural agricultural sector. The agriculture sector contributes around 17% to the total GDP, while the sector employs more than 45% of the total workforce. It also provides the inputs for the industrial sector and significantly contributes to the export sector. According to Rahman (2017) there is a gradual decrease of agricultural land but there is a significant increase in agricultural output with enhanced use of agricultural inputs. Furthermore, Bangladeshi agriculture depends on few crops and the forces of nature, while the farm sizes are small. Nevertheless, the agriculture sector in Bangladesh has a high potential with regard to poverty reduction. Hence, given the above issues, value addition to agricultural raw products and agri-business management further enhances the ability of the sector in reducing poverty. Furthermore, increases in the number of middle-income earners and in the urban population and the increased demand for value added products in the Bangladesh markets has been noted (Agri Business Development Project - 2004).

The study found the following policy mix relevant to marketing in the above selected countries (Table 2.3). All the countries concerned have policies on price support, institutional support, legal support and infrastructure support, but the structure and level of operation varies as explained in the foregoing sections.

Table 2.3: Policy mix in the selected countries

Policy mixes/ variables	India	Pakistan	Bangladesh	Thailand	Vietnam	Japan
Support price system (staple products)	Yes	Yes	Yes	Yes	Yes	Yes
Institutional development for Agricultural Marketing	Yes	Yes	Yes	Yes	Yes	Yes
Dedicated legislation for Agricultural marketing	Yes	Yes	Yes	Yes	Yes	Yes
Modern Warehousing facilities	Yes	Yes	Yes	Yes	Yes	Yes

(Source: Author's compilation)

2.3.1. Support price systems

One of the most important and common agricultural marketing policies operating in the region is the support price systems of the governments. Almost all the governments in the region intervene in the agricultural marketing with Support Price Programs (SPPs) which are aimed at assisting the consumers as well as the producers. There are different names for these programs in different countries, i.e., Price

Support Scheme (PSS) in India, Minimum Support Price Scheme (MSPS) in Pakistan, and Dual Track Procurement System (DTPS) in China. All these governments intervene in the markets with minimum prices for agricultural commodities for the protection of producers especially with the objective of food security and sustainability. On the other hand, almost all the governments intervene in the food markets with maximum prices to protect the consumers and to ensure the continuous supply of food to the consumers, especially to the poor segment of the population. With the price support systems, governments pre-announce the trade prices, and procures and stores the stock, and subsequently distributes them again with support prices (mostly lower than the market prices). This type of intervention is common for rice and wheat markets in the region, while other produce such as corn and millet, also get the similar interventions. Nevertheless, a common observation in many of the countries with regard to the support price system is that presently they are gradually relaxing these interventions and allowing marketing forces to play a greater role in agricultural commodity marketing.

Until the guidelines for the Price Support Scheme were introduced in 2014, the Indian Price Support System was in operation for many decades with different programs, i.e., Price Support Scheme (PSS), Price Deficiency Payment Scheme (PDPS), Pilot of Private Procurement and Stockiest Scheme (PPSS). In 2018 all these schemes were amalgamated and an umbrella scheme of Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA) was introduced with the objective of ensuring minimum price for the farmers with guidelines for the operation of the scheme being introduced at the same time. According to the cabinet approved guidelines of PM–AASHA, the Government announces the minimum support prices for 25 agricultural commodities based on the recommendations of the Commission for Agricultural Costs and Prices (CACP). These crops mainly include grains and oilseeds and few other crops such as cotton. However, neither fruit nor fresh vegetables are included under this scheme. The crops falling within the purview of this scheme include paddy, wheat, sorghum, millet, maize, ragi, pigeon pea, mung bean, black gram, ground nut, soybean, sunflower, sesame, nigerseed, barley, gram, lentils, mustard seed, safflower, jute, copra, sugar, toria and de-husked coconut. Until 2018, there are three major formulas used by CACP in determining the minimum price, i.e., A2: covers all paid-out expenses, both in cash and kind, incurred by farmers on seeds, fertilizers, chemicals, hired labor, fuel and irrigation, among others; A2+FL: covers actual paid-out costs plus an imputed value of unpaid family labor; C2: which is more comprehensive, accounting for the rentals and interest forgone on owned land and fixed capital assets respectively, on top of A2+FL. However, the Indian Minister of Finance iterated that from 2019 onwards the government will use 1.5 times the A2+FL formula in determining the minimum prices keeping its promise of 50% more to the farmer.

The National Agricultural Cooperative Marketing Federation of India (NAFED), the Central Warehousing Corporation (CWC), the National Consumer Cooperative Federation of India Ltd. (NCCF),

and the Small Farmers Agro Consortium (SFAC) are the major public and cooperative institutions for procuring oil seeds and pulses. NAFED and the Cotton Corporation of India (CCI) are the major institutions for procuring cotton. Other than the above organizations, the Food Cooperation of India (FCI), the Jute Corporation of India (JCI), the National Consumer Cooperative Federation of India Ltd. (NCCF) and several other state institutions are participating in the program as procurement agencies. An important characteristic of the operation of the Indian Minimum Support Price schemes is the inclusion of Farmer Producer Organizations (FPOs) in executing the program. For example, the NAFED took steps to include the FPOs in the list of eligible institutions which act on its behalf to undertake price support purchase operations and the Department of Agriculture and Cooperation to work with the Food Corporation of India (FCI), and for State Governments to include FPOs as procurement agencies under the Minimum Support Price (MSP) procurement by government approved policy on Farmer Producer Organizations (Government of India, 2013). However, having identified the possible duplication and overlapping of the marketing institutions, the government has defined the duties of the marketing agencies in its policy guide on PM-AASHA program (Government of India, 2018).

Major policy decisions of the program are taken by a High Committee comprising of the Minister of Finance, the Minister of Agriculture and the Minster of Food. The Indian price support system is not mandatory. Farmers are allowed to trade their surplus in the food market with the market price and when the market price falls below the government pre-determined price, the government starts procuring and storing the food grain. This stored food grain is later distributed among the targeted people with pre-determined prices. However, even though the government announces the minimum prices for 25 agricultural crops, only wheat and paddy are procured most of the time. Furthermore, report and literature studies reveal that though the price support schemes are intended to provide a remunerative price for the farmers, they often distort the market and impact negatively on small famers. Gulati et. al. 2018 states that “MSP formula based on just cost plus pricing, without any considerations to the demand side of the commodities and their inter-crop price parity, is likely to play havoc in the economy causing major distortions to the functioning of markets. Under such a pricing structure, farmers may find it profitable to allocate more area under jowar, increasing its production significantly. In the absence of commensurate demand, market prices may fall way below the announced MSP necessitating large scale procurement at MSP, or a large outgoing through PDP. This would not be economically very rational. Besides, the BBY is prone to manipulation by traders and several middle level functionaries. Since the window for registration and bringing produce to the market is going to be short, it is likely to depress market prices unduly, with traders exploiting full advantage of it. The non-registered farmers, especially the small ones who generally sell their produce at farm gate level to aggregators, would be the worst victims of these low market prices as they will

not get any compensation and yet they would face unduly low market prices. The resulting efficiency losses, therefore, are likely to be bigger than the support the government may be intending to extend to farmers" (Gulati et at. 2018, p iv).

Pakistan also operates a Minimum Support Price Scheme (MSPS) for the food grains especially for the wheat sector. The minimum support price is announced before the sowing period, and as such farmers can make their cultivation decisions early. The Agricultural Price Commission sets the minimum price based on the cost of production. The calculation formula of the MSP of wheat in Pakistan is not available with the literature. However, it is estimated that on average 25% of the profit margin is provided for the farmers. Though the average price of wheat in Pakistan is higher than the average price in India, the average profit margin for the farmer is 50% in India. This difference is explained by the higher cost of agricultural inputs in Pakistan compared to India. However, the announced price becomes a minimum price only if the announced price is above the market price; when it is below the market price, it becomes the procurement price. The Pakistan Agricultural Storage and Services Corporation (PASSCO) at federal level and provincial food departments at provincial level, procure food grains and later distribute them at the subsidized price. This has become a huge financial burden to Pakistan. The Agricultural Price Commission has increased the minimum support price on par with the increase in cost of production and it has led to a higher price of food grain in Pakistan (cost of production of food grain in Pakistan is higher compared to regional competitor, India). However, the recent literature argues that the current policy of minimum price prevailing in the country should be abandoned. Even though this policy encourages the farmers to produce greater amounts of wheat, it causes a severe financial burden to the government. Therefore, instead of minimum price policy, input costs need to be reduced to compete in the international markets (Shahzad, 2017, Javed et al., 2015).

The price support system in Thailand is mostly politically oriented (Ricks, 2018) depending on the political leadership and the incentives to the existing electoral system. The popular minimum support price for the rice program of Thailand also shows how the minimum support price can distort the market, and can perhaps lead to a collapse in a well-established market. Thailand announced its pledging system where public institutions buy paddy with a premium price which was much higher than the market price. This encouraged farmers to produce more rice and increase the government expenditure. At the same time, Thailand also lost the competitiveness in the international market as a rice exporter further aggravating the problem (Chulaphan et al., 2016). It made the government a huge debtor to the rice farmers and finally ended up with the collapse of the government leading to taking legal action against the Prime Minister who set up the rice pledging program in his political manifesto. With the failure of the rice pledging program, Thailand recently introduced a price guarantee program which announced a guaranteed price but with no procurement involved. However, this Income

Guarantee Program compensates the farmer if they sell their product lower than the guaranteed price (the difference between the actual price and guaranteed price). The price of the selected varieties of rice is made by Thailand's Rice Policy and Management Committee, chaired by the Prime Minister. To be eligible for the program rice farmers need to register with the Department of Agricultural Extension prior to two months of sowing the paddy. The benefits of the program are also limited only to farmers having less than 2.4 hectares of paddy cultivation with the benefit of the price guarantee being limited to 14 to 30 tons of rice depending on the type of rice. The administration of the program and disbursement of the funds are vested with the state owned Bank for Agriculture and Agricultural Cooperatives (BAAC).

Although the Indonesian government has also found that intervention in the price support system in the food market needs to be minimized, it still announces minimum prices for a few crops such as rice, wheat, sugar and soybeans. Farmers can sell their products through their traditional system of pre-harvest merchant agreements or they can sell it to the Indonesian Bureau of Logistics (BULOG) through agricultural cooperatives. However, the government's procurement is very small and it is distributed among the entitled groups later. It is thus clear that although the Support Price Schemes are quite popular in the region, the schemes are gradually fading away and almost all the schemes are highly criticized due to market distortions and the huge financial burden of these schemes.

2.3.2. Institutional development and legislation

There are several institutional developments in the region for assisting in agricultural food marketing at national and local level. For example, India has established the India the Food Corporation of India (FCI), the National Agricultural Cooperative Marketing Federation (NAFED), the Cotton Corporation of India, the Jute Corporation of India, the Tobacco Board, the Rubber Board and the Coffee Board for operation of the marketing systems. There is also a Commission for Agricultural Costs and Prices (CACP) to advise the government on a regular basis on all matters related to agricultural marketing. The CACP of India is operating from 1965 (then named as Agricultural Prices Commission). The commission comprises of the chairman, secretary and three other members. The major role of the commission is to advise the government on setting the minimum support prices of the designated crops and also ensuring that agricultural productivity is in line with the market demand. In setting the minimum support prices, CACP analyses the demand and supply, cost of production, price trends in the market, both domestic and international, inter-crop price parity, terms of trade between agriculture and non-agriculture, a minimum of 50% as the margin over cost of production, and likely implications of minimum support prices on consumers of that product.

The Nepal Food Corporation, the Malaysia Federal Agricultural Marketing Authority, the Philippines National Food Authority, the Myanmar Agricultural Produce Trading (MAPT), the BULOG in Indonesia, the Public Corporation for Jute in Bangladesh, the National Agricultural Cooperative Federation, the Agricultural and Fisheries Marketing Corporation in the Republic of Korea, the Pakistan Agricultural Storage and Services Corporation (PASSCO) and Warehouse Organization in Thailand are some examples of other formal government sponsored organizations working in the field of agricultural marketing. These institutions assist the government to operationalize its policies and programs. As an illustrative example, Pakistani marketing institutions and policies are discussed below.

The public sector of Pakistan formulates and regulates the agricultural marketing sector while the private sector is operating it as in many other countries of the region. Therefore, both private and public sectors are equally important in agricultural marketing in Pakistan. According to Ghafoor et al. (2017) there are seven types of agricultural markets that operate in Pakistan, namely: the assembly markets, wholesale markets, retail markets, weekly markets, farmers' markets, occasional markets and consumer convenience markets.

Assembly Markets, operate mostly in rural areas, where farmers and small village assemblies sell their agricultural products to larger traders and agro processors. These markets mainly function to assemble agriculture products which are produced in distant and dispersed farms and to enable buyers to purchase in significant volumes at one place. Wholesale markets operate mostly in towns and cities. Their major functions include assembling of agriculture produce brought by farmers, contractors and other marketing agents from different production areas and their subsequent distribution to urban areas or channeling agricultural produce for export. Retail Markets operate everywhere - in cities, towns and villages to serve the needs of consumers. They may supply a wide range of products such as fruits, vegetables, meat, pulses and other processed food items. Although they operate mostly on a permanent basis, some retail markets may function only on certain days of the week. Weekly markets (similar to" *Pola"* system in Sri Lanka) are often organized to facilitate consumers to purchase food and agricultural commodities in bulk at cheaper prices in the vicinity of their homes. In some areas, these markets are organized on Sunday (Itwar bazars) and in some areas on Friday (Jumma Bazars). Normally food retailers from the nearby areas and farmers come to these markets to sell their produce. Occasional markets are organized on special occasions such as Eid-al-Adha. Local governments make arrangements for such markets and market committees to regulate various market functions in these markets. Generally, these markets are organized at some specific places around the outer borders of city areas. Recently in Pakistan, an initiative has been taken to establish consumer convenience markets on regular basis. In these markets, the basic infrastructure and facilities are provided so that sellers can sell their produce in a comfortable environment. Another entity, the Farmers' Markets

provide the opportunities for farmers to sell their produce directly to consumers, as it is often understood that farmers are generally exploited by market intermediaries. Development and regulation may enable them to earn their legitimate share by avoiding use of cash, which otherwise could have gone in the pockets of middlemen. These markets are generally established on public-private joint partnership and operated by an elected committee of farmers.

After independence, the 1st Five Year Plan of Pakistan recommended the proper implementation of grades and standards for agricultural commodities, the grant of agricultural loans by the Agricultural Development Bank of Pakistan to farmers for the purchase of fertilizer, the introduction of high yielding varieties of seeds, training of stakeholders in post-harvest management and the grant of subsidies for the construction of cold storages in different production areas. Nevertheless, these policy changes were not effective in improving the agricultural marketing sector of Pakistan. Second and third Five Year plans recommended addressing the issues of the malpractices of middlemen, inefficient handling of produce during marketing, inadequate storage space, improper processing, non-compliance to standardization and grading and inadequate supply of packing material. Furthermore, the Weights and Measures Act and the development of new regulated markets were also introduced during the improvements. The Agricultural Produce Marketing Regulation Bill was introduced to envisage the newly emerged regulated markets and thereby to minimize the malpractices of the middlemen against the farmer. However, despite these measures, the lack of cold storages/warehouses for perishable commodities, improper grading and standardization, and poor infrastructure continued to be the major obstacles for the development of agricultural marketing in Pakistan. The Pakistan Agricultural Storage and Services Corporation (PASSCO) was established in 1973 to ensure better returns to producers as well as reasonable prices to consumers. During the latter part of 1970s and in the early 1980s the emphasis was more on the development of agricultural marketing infrastructure. During this period, some progress was witnessed in improving infrastructural facilities (such as grain silos, warehouses, cold storages, product quality testing laboratories, grading and primary processing plants, transportation systems for handling and speedy clearance of perishable agricultural commodities, etc.). Air-freight arrangements for promoting export of perishable products were improved. The development of the food processing industry (through availability of cheap packing material and chemicals supported with other incentives such as packaging, tax concessions, import of machinery for modernization, etc.) remained an important component of government policy" Ghafoor et al. (2017).

Agricultural legislation in Pakistan started well before the independence. The Agriculture Produce Markets Act 1939 which is the major act on agricultural marketing in Pakistan was introduced by the British India government with the intention of safeguarding the farmer from the malpractices of the middlemen. The act was implemented even after independence. The Punjab Agricultural Produce

Markets Ordinance 1978 replaced the long-standing Agriculture Produce Markets Act of 1939. All the marketing activities (especially the wholesale marketing) of the province were controlled under this ordinance. The Punjab Agricultural Produce Grading and Marking Act 1972 legally controls the grading and quality certification in the domestic markets. There are several other legislations for agricultural marketing in other provinces of Pakistan such as Baluchistan Agricultural Produce Market Act 1991 and the Sindh Wholesale Agricultural Produce Market (Development and Regulation) Act 2010. These acts regulate the agricultural marketing at respective provincial levels.

Other than these policies, several other institutions were introduced for the development of agricultural marketing in Pakistan. Among them, the Agricultural Policy Institute (API) which was previously known as the Agricultural Prices Commission was established to formulate agricultural policies including those on agricultural prices, marketing and export competitiveness of agricultural products. The Department of Agricultural and Livestock Products Marketing and Grading (DALPMG) is established under the Agriculture Ministry to ensure quality and grading assurance in the domestic market. DALPMG is the central government body that works with the grading and standardization of agricultural commodities in the whole of Pakistan. The Pakistan Horticulture Development and Export Company (PHDEC) which was formally known as the Pakistan Horticulture Development and Export Board which is established under the central government Ministry of Commerce is the institutional arrangement for all the trade issues of horticulture marketing at local and international level of horticulture products of Pakistan.

However, the effectiveness and efficiency of these policies and institutions are highly questioned by literature with the slow progress of the agricultural marketing sector of Pakistan. The following concerns and the problems are raised in relation to the Pakistan agricultural marketing by Ghafoor et al. (2017).

Lack of Proper and Modern Wholesale Markets: At present, there are over 700 reported fruit and vegetable wholesale markets in Pakistan. The province of Punjab occupies the largest share followed by Sindh, KPK and Baluchistan respectively. In Baluchistan, there are two central wholesale markets for fruits and vegetables, one at Quetta and second at Dera Murad Jamali. Many wholesale markets were built several years ago and are unable to cope efficiently with increased transactions. Serious traffic congestion, insufficient space for efficient movement of products in and out, inadequate storage and improper management are some of the major factors for increased marketing costs and physical losses of farm products. Hygiene conditions, particularly in the case of fruits, vegetables and livestock, are quite dismal. Although market committees have been constituted under the provincial statutory laws and are responsible for smooth administration, operations, management and development of these markets in the respective provinces, their activities are much influenced by political interests. Most

market committees are unable to discharge their obligations. The sole concern of market committees is to regulate markets. Unfortunately, the enforcement of regulations is mostly defective and is to the disadvantage of the entire marketing system.

Lack of Farm to Market Roads and Poor Transportation Facilities: Poor farm-to-market roads are a common feature of the agricultural marketing system in Pakistan. These roads are often unusable during rainy months and in some cases during winter. Current length and status of farm to market roads is not satisfactory. The present length of farm to market roads (60,000 km) is significantly less than potential requirements. High amounts are charged for freight by transporters due to poor condition of roads, which ultimately increases marketing costs, largely shared by the consumers and farmers. Non-existence of good roads limits the use of economical modes of transportation (e.g., trucks). As such, farmers and traders have to rely upon relatively less efficient modes of transportation (e.g. carloads, small vans etc.). Poor condition of farm to market roads is also stumbling block in introducing innovations and new technology in the future.

Inadequate Storage Facilities: Inappropriate storage facilities both in the public and private sector register highest losses during handling operations. The perishable farm produce (fruits and vegetables), due to their specific nature and characteristics, require variable storage conditions. In most cases, produce (especially the perishable products) are stored in shallow pits covered with farm waste without ventilation, proper sanitation and preventive measures for insect and disease control. These conditions usually exist in on-farm storage houses. The investment by the private sector is nominal.

Lack of Modern Cool Chain Infrastructure: Modern cool chain infrastructure is a prerequisite for an efficient agricultural marketing system. This is lacking in Pakistan. It is an important as it contributes to post-harvest losses and quality deterioration which results not only in price destabilization and loss of foreign exchange earnings. The existing cold storage facilities are also unevenly distributed among various provinces. These facilities lack blast freezers that bring down temperature of the produce to a level that can be maintained within the cold store. As a result, the produce is taken directly into the cold store where it loses heat and deteriorates the temperature of the commodities already in the store.

Processing and Value Addition: Processing of agricultural commodities is performed to add value and prolong life. This is another good option to make existing supply of agricultural commodities more sustainable. An unfortunate fact about the existing status is that only a nominal amount of the total production is processed (3% of fruits, vegetables and milk) in the country. Some fruits are processed into products such as jams, jellies, squashes, juices and pulp. Even many vegetables are processed by extracting moisture/water to prolong their shelf life (e.g., dry vegetables, cutlets and essence). There

exists enormous potential of adding value to various agricultural commodities, especially perishables in the country. Value addition can be achieved by inculcating entrepreneurial skills among stakeholders by offering special incentives by the government to the agribusiness entrepreneurs. In addition, the role and working of food processing firms (sugar and flour mills) needs to be reviewed and regulated to avoid a food crisis.

Poor Physical Handling of Perishable Products: The typical farm products change hands from four to ten times. Initial handling is done in the field during harvest where the product is subject to various handling operations, viz., picking, piling, sorting and packaging. During these stages significant losses of produce occur. Careless loading and unloading of perishable farm produce also causes heavy losses. As such, while analyzing marketing costs, a significant part of the total marketing costs comprises of produce handling costs.

Inappropriate Packing and Packaging: The types of containers used for transporting and storing products (e.g., fruits and vegetables) vary from place to place. The most popular containers for fruit packing are wooden crates. Irrespective of the structure and properties of the farm products, a common practice is to use whatever container is available. As a result, produce is pressed hard in the crates or carried in oversized containers causing huge losses. Packaging in prescribed containers (corrugated card board boxes) is an international trade norm/international requirement. Currently, the private sector enjoys an exclusive monopoly in the packaging material industry in Pakistan. There is a strong need for offering special incentives to new entrants in this industry.

Non-Implementation of Grades and Standards: By its very nature, agricultural produce is characterized by variation in its quality. The specifications for classifying various fruits and vegetables vary and depend upon the nature of the product and requirements of the marketing system.

Lack of Agricultural Marketing Information System (AMIS): The availability of accurate and timely marketing information plays an important role in facilitating the process of transactions. In addition, this information helps in negotiating and establishing prices for the stakeholders. Farmers are handicapped by the lack of reliable information on prices and market conditions. Many farmers accept the price dictated by traders or their informal financiers. The traders who operate in rural areas are not well informed about the prevailing prices in the wholesale markets. Even if the information is available, it is either too late or inaccurate. Information on daily prices and market arrivals are vital for farmers and village traders in planning the shipment of their produce and in negotiating prices.

The Spice Board was formed by merging of the Cardamom Board and the Spices Export Promotion Council in India. The board, which is placed under the Ministry of Commerce, in addition to all the aspects of the spices industry, also oversees the production and marketing for exports. It undertakes

promotional campaigns such as advertisements, exhibitions and fairs (Anbuchelvi, 2019). Licensing and registration is a part of the regulatory functions of the Board. The Board issues Certificates of Registration as Exporter of Spices (CRES) and also the auctioneer dealer licenses for trading in cardamom (Annual Report, Spice Board India, 2017-18).

The Spice Park has been started by India with a broad objective of building a brand image for Indian spices by showcasing a mix of elements such as historical aspects, unconventional applications, entrepreneurship avenues, etc., besides, undertaking the sale of spice and spice products. This is a way of expressing the glory of Indian spices and marketing the spice products simultaneously. A separate department is in charge of the export marketing, namely, the Export Marketing Department. All export orders are received and executed through this department. It has to conduct the promotion of goods, supply goods to different foreign markets, maintain liaisons with international buyers, etc. (Anbuchelvi, 2019). A trade information service undertakes collection, compilation, analysis and dissemination of statistics relating to exports, imports, area, production, auction of cardamom and domestic and international prices of spices (Annual Report, Spice Board India, 2017-18). These statistics help to understand price trends and farmers are guided as to whether to stock or sell their produce.

The objective of registration of a brand name is to support the export of spices and spice products in consumer packs under Indian brand names and gain a market share in the fast-growing market of branded consumer packs. The Spices Board of India has specified a packing standard for different spices and different unit weights in consultation with the Indian Institute of Packaging, and registration is offered to exporters for a period of three years. Assistance is provided by the government when the spice products are sold to identified overseas markets, through a series of measures leading to the positioning of quality Indian spice brands within the reach of the foreign consumers with a clear mark of traceability and food safety. Under this program, exporters who have registered their brand will be provided financial assistance towards an interest free loan up to Rs.100 lakhs per brand with an objective to position specified brands in the identified outlets in selected cities abroad. The program envisages improvement and modernization of export packaging for increasing shelf life and reducing storage space, establishing traceability and better presentation of Indian spices in markets abroad. Registered exporters can avail themselves of assistance up to of 50% of the cost of packaging development and bar coding registration subject to a ceiling of rupees one lakh per exporter (Annual Report, Spice Board, 2017-18).

The Government of India has also identified floriculture as a priority industry and accorded it 100% export-oriented status. Owing to a steady increase in demand, flower floriculture has become one of the important commercial trades in agriculture. Hence, commercial floriculture has emerged as a hi-

tech activity-taking place under controlled climatic conditions inside green houses. Floriculture in India is being viewed as a high growth industry. The liberalization of industrial and trade policies paved the way for development of export-oriented production of cut-flowers. The new seed policy had already made it feasible to import planting material of international varieties.

Several incentives offered by the government have enabled the setting up of a number of floriculture units for producing and exporting flowers who have obtained technical know-how from Dutch and Israeli consultants. Tax benefits are offered to new export oriented floriculture companies in the form of income-tax holidays and exemption from certain import duties, as for example, the reduction of duties for import of flower seeds and tissue-cultured plants. Financial support is provided for setting up of pre-cooling and cold storage units, as well as for using improved packaging material.

The National Bank for Agriculture and Rural Development (NABARD) is an apex bank of the country for supporting and promoting agriculture and rural development. Floriculture being a capital-intensive activity, the finance aspect is one of the most significant inputs in its development. Finance is essential for development of land. NABARD has played a very helpful role in aspects pertaining to development such as drip irrigation, machinery and equipment, green houses, cold storage, planting material, post-harvest management, as well as other activities. It provides facilities of refinancing in floriculture in different areas of the country. It has contributed immensely in promoting and supporting hi-tech floriculture projects by way of providing large sums in financing.

There are standard cold storage and cargo handling centers for perishable cargo at Chatrapati Shivaji International Airport, Mumbai. The Agricultural and Processed Food Products Export Development Authority has contributed by way of grant-in-aid. This facilitates growers to enjoy better prices due to the large potential and growing domestic market during the season when exports are not available.

The Indian government promotes joint ventures where, technological assistance, input supply and buy-back arrangements are the objectives of the joint venture. Initially such ventures were mainly with companies based in Europe, whereby the European firms enjoyed the benefit of transferring their production from Europe to India while local partners could avail themselves of technical assistance to standardize their production technology. In certain cases, Indian companies simply worked as off-shore production units with complete assistance from their foreign partner along with a 100% buy-back arrangement.

In summary, it can be noted that almost all the governments in the region are involved with the agricultural food marketing in different ways and on different scales. While supporting prices for producers as well as for consumers are a common intervention in the region, the effectiveness of these programs is highly criticized. Instead, subsidizing agricultural input is recommended by many studies. However, there is a gradual decrease in government direct intervention in the food market in the region. Moreover, private participation in export and import of agricultural food has increased significantly in recent years. At present, government intervention can be seen in providing institutional arrangements for agricultural marketing, including the regulatory framework. It is also found that many countries in the region provide several support services such as roads, transportation and warehousing for smooth functioning of the market, combined with several other support services especially targeted at small scale farmers.

(Refer Final Report - Section II, Annex 06 for details of agricultural marketing related policy document and journal articles review and Annex 07 for literature review on role of ICT in modern agricultural marketing)

CHAPTER THREE

AGRICULTURAL MARKETING POLICY ANALYSIS

Public policies are the enforcements by the state on the entire society or on a specific segment of it, with explicitly stated (or occasionally implicitly held) 'objectives' usually to be achieved through one or more specifically stated 'instruments' (causes of action). On this basis, "agricultural marketing policies" are those policies enacted by the government (in the form of Acts, Regulations or any such legally binding decrees) on the sub-set (of people or organizations) within the agriculture sector, that are dealing with marketing (and not to be confused, as usually done in Sri Lanka, with the policies relating to agricultural production and any other allied developments in the agricultural sector).

Another factor that justifies this explanation is that in Sri Lanka, policies are often confused or mixed-up with acts and laws passed by the Parliament as well as documents identified with various strategies, plans and even projects initiated by Ministries or Departments. Strategies immediately follow policies and, in some cases decrees like Acts of Parliament are mixes of policies and the related strategies. A mix of legal provisions following from all these, widely known as regulations, are the administrative 'rules and limits' that directly affect the group of people targeted by a policy. Sudden or seemingly erratic changes in these 'rules and statements of limits' that affect peoples' lives and businesses are often interpreted as faults of the 'policies.' In fact, such adjustments are sometimes made according to varying circumstances over places and time by the bureaucracy at ground level. Such apparent anomalies may also be due to misinterpretation of a policy or due to gross inefficiency of the implementing agencies. However, they are quite frequently being attributed to the broad policies as faults or inefficiencies of the policies themselves. Mixing-up of all these by the ill-informed populace is somewhat justifiable, but carrying such confusions into any analysis of policies would adversely affect the focus and the intentions of the said analysis. The sole purpose of this preamble, therefore, is to make the following analysis short, objective and, as far as possible, unambiguous.

3.1. Review on policies relating to marketing of food crops

Table 3.1 presents a list of agricultural marketing policies, laws and regulations pertaining to the time of present liberal economic paradigm started in 1977. In addition, Table 3.1 also presents some related information in order to make it somewhat self-explanatory. It is stated in the first place in Table 3.1 that Sri Lanka has not had a wide-ranging public agricultural marketing policy or organization since the dissolution of the Paddy Marketing Board (PMB) and the privatization of the Marketing Department (MD) soon after the economic liberalization in 1977. The PMB used to be the public monopsony on

purchasing the entire paddy output produced in Sri Lanka and the monopoly on processing and distribution of rice before 1977. The MD was a public company that bought mainly fruits from the growers, produced processed products like jam and cordial and retailed through their own sales network. The dissolution and privatization of both bodies was done in keeping with the open economy policy of 1977, but the consequences were not as favorable to the society as expected, especially in the case of the rice market. The private sector collectors, stock holders, processers and distributors gradually moved away from the desired perfect competition and presently have resulted in an oligopsony cum oligopoly market. Recent experience shows that this market organization does not even respond to government rulings on guaranteed prices for paddy and ceilings on consumer price of rice. While going for a massive government structure like PMB is not an option under present economic ideology, the government's entry into the market on a scale sufficiently large and pervasive enough to offer serious competition to the large scale private operators seems to be the solution to maintaining 'fair' prices to both farmers and consumers while maintaining sufficient stability of prices.

Table 3.1: Existing Policies/Regulations/Laws in relation to Agricultural marketing in Sri Lanka

Existing policy/regulation/law	Responsible Authority	Whether revisions / amendments are needed? (Yes/No)	Justification
There has been no Public Policies on AGRICULTURAL MARKETING in Sri Lanka since the termination of PMB operations and privatization of the MD (due to recent crises in paddy purchasing some UNCLEAR arrangement has been made for procurement at the guaranteed price).	The Government	Government intervention of some sort is needed to break the oligopsony in the rice sector.	Because rice market is trapped in an oligopsony for many years.
Establishing Dedicated Economic Centers for wholesale marketing of vegetables and fruits. Started in 1999 at Dambulla and later spread to other areas such as Nuwara-Eliya, Meegoda, Thambuththegama, Kilinochchi, Vavuniya, etc. Operating 24/7.	Ministry of Rural Economy.	Yes	Management of Economic centers are not satisfactory and no attention is given to improve the quality of services.
Consumer Protection Act. Con. Prot. Act No.1 of 1979 and CP (Amendment) Act No. 37 of 1980 have been repealed by Consumer Affairs Authority Act No. 9 of 2003. All these are to protect the consumers on all commodities and NOT exclusively for food or agricultural commodities.	Consumer Affairs Authority	Yes	Food and agriculture have special characteristics needing special regulatory measures on

Existing policy/regulation/law	Responsible Authority	Whether revisions / amendments are needed? (Yes/No)	Justification
			prices, quality control, etc.
Maximum Retail Price. There is no such POLICY other than ad hoc announcements of maximum and minimum prices.	By Presidential decree.	Yes	Because Sri Lankan agriculture at present experiences large price fluctuations and the existing open market cannot handle it.
Food Act No. 26 of 1980, Food (Amendment) Act No. 20 of 1991 and Food (Amendment) Act No. 20 of 2005 (The last one repeals the former ones). These Acts deal with FOOD PROCESSING and processed food. Fresh foods are left out.	The Parliament	Yes	A new Food (Amendment) Act is currently under review.

(Source: Author's compilation)

A careful scrutiny of Table 3.1 reveals that after Economic Liberalization in 1977, there had been a marked absence of agricultural marketing policies or state marketing organizations until 1999. This has serious implications, not only on marketing but also on the development of the entire agricultural sector of the country, but this matter will be discussed in further detail in another section of this report.

The rest of the policies and amendments to policies (other than the 'Maximum Retail Price Policy") set out in Table 3.1 are not broad ranging or straight forward agricultural marketing policies but consumer protection policies. However, as consumers are at the end of any agricultural supply chain, they also qualify to be included in this analysis. The Consumer Protection Act No. 1 of 1979, its Amendment No. 37 of 1980 and Consumer Affairs Authority Act No. 9 of 2003, are all aimed at protecting consumers from trade malpractices on all commodities, but is not specific to agricultural commodities. On the other hand, the Food Act No. 26 of 1980 and its Amendments of 1991, 2005 and 2010 are on marketing of food products and related issues such as food coloring and labelling, etc. Further improvements to these have been felt necessary and even at present a new Food (Amendment) Act is under consideration. A further detailed analysis of these policies is set out in the following section. One other 'statement of qualification' is that the above description and all the following analyses are restricted to the 'food crops sector' only because the marketing issues relating to the 'export agricultural crops'

sector are treated exclusively in a separate section of this report. Furthermore, Sri Lanka's involvements with the World Trade Organization (WTO) regulations and Regional Trade Agreements (RTAs), even though certainly within the realm of public policy and affecting agricultural marketing and trade, is not included in this section as this subject is dealt with in detail in a separate section.

All public policies comprise two essential components as the 'objectives' and 'instruments'. Often the 'scope', or the segment of the population for which the policy applies is also stated explicitly even though it may be left unstated where it is quite obvious. The other component, the 'institutional framework' that implements the policy, is sometimes specified directly under the policy document but in some cases left to the details such as 'strategies' that immediately follow the policy.

There is no stereotyped way a policy is documented or presented. It could be a Presidential Decree, an Act of Parliament or perhaps as simple as a Gazette Notification, but in all cases it bears the authority of the Government. A Ministry or Department circular, although with some authority behind it, is not treated as public policy. In whichever manner a policy is stated or documented, a formal analysis of a public policy takes into consideration the previously stated four essential elements, viz., objective, instruments, scope and the institutional setup. In addition to such an analysis, the analyst would have look into such matters as to whether the objectives of the policy were met in reality or if any unexpected consequences have emerged, etc.

The agricultural marketing policies, (and sometimes strategies) explained in the previous section are presented with more detail with analytical comments in the Analytical Framework in Table 3.2. Nevertheless, the table has been made as self-explanatory as possible and the text discusses only a few selected points.

Table 3.2: Details Pertaining to Agricultural Marketing Related Policies and Regulations

Policy	Major Objective	Instruments	Institution Setup	Scope	Policy Effectiveness & Related Issues
Paddy Marketing Board Act No. 14 of 1971	To provide for the establishment of a board to carry on the business as purchaser, seller, supplier, distributor, huller, miller or processor of paddy and rice.	Guaranteed prices in respect of any variety of paddy	PMB's own institutional network	Authorized purchase or a producer of paddy/paddy farmers	The main objective is protecting of declining paddy prices at harvest time but it was unable to achieve due to lack of proper planning and management.
Food Act No. 26 of 1980	Ensure availability of safe, wholesome and honestly presented food for human consumption.	Legislation and regulation	Ministry of Health, Nutrition and Indigenous Medicine	All food manufacturers, importers, distributors and sellers	As specified under the amendments/regulations below.
Food (Labeling and Advertising) Regulations 2005	To ensure that information given about food is truthful, sufficient and not misleading. To help improve the operating conditions for food business operators. To ensure the traceability of food.	Legislation	Ministry of health Nutrition and Indigenous Medicine	Sellers, retailers, distributers, advertisers of products - biscuits, meat products, carbonated soft drinks	Some food products are exempted completely from labelling by Sri Lankan regulations. Sri Lankan regulations are not organized under headings/ components like in the codex standards.
Food (packaging, materials and articles) Regulations 2010	To prevent food packaging material or articles which, under normal foreseeable conditions, are injurious to human health.	Legislation	Ministry of Health Nutrition and Indigenous Medicine	Manufacturers, importers, sellers, packagers	Need to promote the implementation of this Act because demand for packed product is on the increase.
Food (Hygiene) Regulations 2010	To protect food from the contamination associated with food manufacturing and establishment processes and to ensure the effectiveness of any reasonable measures that might be taken to protect food.	Legislation	Ministry of health Nutrition and Indigenous Medicine	Processors, Transporters, distributers, handlers, sellers or other food establishment entities	Less availability of National Quality Infrastructure facilities in the country will lead to inefficiencies in the regulations.

Policy	Major Objective	Instruments	Institution Setup	Scope	Policy Effectiveness & Related Issues
Food (Color Coding for Sugar levels) Regulations 2016, under Food Act, No. 26 of 1980	To ensure that information given about food is truthful, sufficient and not misleading. To protect the consumer from health hazards and financial losses caused by foods that violate the food regulations.	Legislation	Ministry of Health Nutrition and Indigenous Medicine (Minister)	Sellers, distributers, advertisers of specified food products	Expanding the traffic light labelling on sugar levels to capture milk-based sweetened products, jams, biscuits and chocolates would be beneficial in addition to the specified products.
Food (color coding for sugar, salt and fat) Regulation 2019 under Food Act, No. 26 of 1980	To ensure that information given about food is truthful, sufficient and not misleading. To protect the consumer from health hazards and financial losses caused by foods that violate the food regulations.	Legislation	Ministry of health Nutrition and Indigenous Medicine (Minister)	Sellers, distributers advertisers of specified processed foods	Nutrient declaration and hypersensitivity details of the ingredients are not compulsory under regulations. Difficulties in supervising the trustworthiness of data displayed in labels.
Consumer Affairs Authority Act, No. 9 of 2003	(a) To protect consumers against all marketing malpractices of goods or the provision of services which are hazardous to life and property of consumers. (b) To protect consumers against unfair trade practices & to ensure food security.	Legislation	Department of Internal Trade, Municipal Council, Urban Council, Pradeshiya Sabha	Consumers, producers, manufacturers, sellers, suppliers, traders	Marketing malpractices such as hoarding stocks and application of harmful chemicals to enhance the shelf-life are taking place.

(Source: Author's compilation)

As mentioned before, after the Economic Liberalization of 1977 (and dissolution of the PMB and privatization of the MD), marketing of agricultural products in Sri Lanka is in the hands of private traders at various levels of supply chains. In fact, this is the 'implicit public policy' on agricultural marketing at that time in Sri Lanka: not to get involved. However, public pressure must have propelled the government to protect the consumers from trade malpractices and consequently resulted in enacting the Consumer Protection Act No. 1 of 1979 which was followed by a series of amendments and finally ending up with the Consumer Affairs Authority Act No.9 of 2003 that repealed all preceding acts. However, this series of policies did not have any specific impact on agricultural marketing as the common objectives of these policies were "to protect the consumer against all marketing malpractices and provision of goods hazardous to health". The only relationship to agriculture was that the above provisions were supposed to ensure food security: a weak statement of objectives from an agricultural standpoint. Further, the policy instrument employed was the only legislation imposed via the Department of Internal Trade and the Local Government network which is a passive approach to enforce a public policy.

The enactment that qualifies as a public policy on agricultural marketing that came into being in recent times is the Food Act No. 26 of 1980 which may be a policy response to control the expanding food processing and importation operations, in the interest of the health of Sri Lanka's population. This is clear from the stated objective of the policy which is to "ensure the availability of safe, wholesome and honestly presented food supply for human consumption", a justifiable objective for a well-meaning government. Nevertheless, the policy instrument is only regulatory, the implementation of which is vested with organizations under the Ministry of Health, Nutrition and Indigenous Medicine. Thus, a lot depends on the efficiency and the commitment of these state institutions and the individual officials. There are issues in this respect which would be investigated in the coming sections.

The Food Act of 1980 was followed by a series of amendments, titled "Regulations" that apply to specific subject areas related to the basic objectives of the original Act. Amendment Acts or Regulations chronologically are the Food Labeling and Advertising Regulations of 2005, Food Packaging Materials and Articles Regulation of 2010, Food Hygiene Regulations of 2010, Food Color Coding for Sugar Levels Regulation of 2016 and Food Color Coding for Sugar, Salt and Fat Regulation of 2019. The objectives, instruments and scope of the above regulations are given in Table 3.2. Only some of the important observations indicated therein are highlighted in summary form in the following text.

The ‘observations’ or ‘criticisms’ can be divided into 3 categories.

1. Inadequacies of the provisions in regulations such as inadequate coverage of food products under Traffic Light labelling, non-compulsory declaration of some nutrient details, exemption of some food products in labelling.
2. Non-conformity of Sri Lankan regulations with international standards of headings and labelling like Codex standards.
3. Inefficiencies in implementing regulations such as non-uniform availability of high quality infrastructure to enforce Food Safety regulations.

These are the existing weaknesses of the Food Act No. 26 of 1980 and the regulations following as amendments, which can be taken into consideration in future amendments.

The Consumer Affairs Authority Act No. 9 of 2003 and its predecessors that were repealed by it were adequately discussed before and Table 3.2 neither offers any additional information, (particularly under ‘related issues’), nor discusses them.

Responses to Public Policies and Regulations by the “Organized Sector”

The foregoing analysis and discussion on public policies and regulations relating to agricultural marketing, concentrated on the ‘principles’ behind them and the actual policies and regulations, at a ‘macro’ or national level. This explained the objectives, structures and some of the implications of them on the agricultural marketing ‘sub-sector’. Another aspect of the study of policies and the regulations that follow is the impact of them on the sector concerned: more specifically on the ‘affected parties’ themselves.

There are many parties affected by policies and regulations. The parties considered first in the immediately following investigation are the “organized sector”, i.e., the collaborative institutions and the organized businesses involved in agricultural marketing. The reasons behind this choice are:

1. These are the entities that are, in the majority of the cases, the most educated and therefore, the most perceptive in their understanding of the policies and regulations, which are high level activities in the economy and the polity. Hence, they can be more aware of the consequences and the implications of them on the agricultural marketing fraternity as well as the economy and the society at large.
2. This is the social group that is most influential in drawing up public policies and regulations from amongst all the participants in agricultural marketing.

3. The views, opinions and the problems of the "Organized Sector" are apparently under-investigated at present and therefore call for further investigation.

Considering these factors and taking a critical look at the knowledge and perspectives of the "organized sector" is seen as an appropriate starting point to the investigation into the 'response to public policy and regulations' by the participants involved in agricultural marketing channels.

Although there are some sophisticated approaches to such investigations, the methodology adopted in this study is the simple Key Informant Interviews (KIIs) approach in the first place, with reference to relevant past studies and personal experience of the researcher, to support it. Two types of such KIIs were conducted in this study for: 1) a group of organizations/trade associations involved in agricultural marketing and 2) a group of private companies involved in agriculture marketing. The complete records of information gathered are tabulated and presented in Annex 08, Annex 09, Annex 10 and Annex 11. Relatively more concise and edited tables derived from them are used in the following analyses.

Analysis of KIIs on organizations/trade associations involved in agriculture marketing

Results from the KIIs conducted with three main well recognized organizations involved in agricultural marketing, viz., the Export Development Board (EDB), the Food Processors' Association (FPA) and the National Chamber of Exporters (NCE) were analyzed and the summarized results derived from the interviews are presented in Annex 08 and Annex 09. Another important fact to be mentioned at the outset is that the responses given by these institutes are somewhat 'colored' by the business or other activates they are engaged in and the 'mandates' of the respective institutes. Consequently, generalization of the views and opinions expressed by them is not always warranted. The researcher's unbiased judgment is applied in this respect, where necessary.

Annex 08 presents, in the first place, the responses given by the three institutes when they were questioned about the consistency of state marketing policy and regulations. There is no agreement or conformity in the responses and the EDB, being a semi-government institute does not mention any inconsistency. The FPA being an organization of private firms insists that there are too many regulations, but does not specify any of them. The NCE which also represents the private sector interests identifies Inland Revenue (taxes), NPQSL (quarantine regulations), Customs (regulations that apply to all) and Foreign Exchange Regulations.

Reconciling these reactions is difficult as each organization is mainly concerned about its own business interests. This is nothing unusual as mentioned earlier too and would be a repeated pattern of responding

to the ensuing enquiries as well. However, when it comes to reconciling and generalizing, what appears to be the common practice with the private organizations, is a complaint about regulations because of their usual obsession on making extra profits, or on a 'perceived sense' of what could have been earned, if not for regulatory constraints (such as taxes payable). In addition, the FPA and the NCE, being the recognized professional organizations, are generally expected to be aware of a country's economic, financial and trade practices and that some regulations, taxes and charges are the norm. Hence, pointing out some irregular policies and regulations, if at all, on reasonable grounds is what is expected from them. However, the general animosity shown by them towards almost all policies and regulations does not help the intended analysis in any meaningful way.

With regard to responses of the three institutes about any help rendered by state regulations, only the NCE responded by stating (in contrast to its response to the previous question) that regulations are helpful in general, but that it is the implementation that is faulty. This is a serious allegation raised against almost the entire public institutional network that has to be taken very seriously at the highest level of policy making hierarchy. When asked about any problems they face due to state policies and regulations on the other hand, both the FPA and the NCE turn vocal while the EDB remains silent. Several specific cases are presented as indicated in Annex 08, but only two issues are discussed here. The first one is the statement by FPA that the regulations do not guide, but only act as a policing force. This is an important matter to be taken up in policy/regulatory circles as legislation of this nature should first give clear and unambiguous guidelines as to how things should be done in conformity with regulatory and legal provisions, and policing is the second and the less palatable procedure involved. Secondly, there are issues with the NPQSL and the Plant Protection Act, which are national policies based on technical premises to keep Sri Lanka clear of alien plants and other biological matter that are hazardous to the country. This issue, as would be noticed on several occasions in the following sections, is a commonly raised allegation by agricultural marketing organizations, obviously without a proper understanding of its implications.

The issues raised in KIIs presented in Annex 08 are the problems experienced by organizations involved in agricultural marketing, due to state policies and regulations. As expected, numerous problems of this nature appear in Annex 08, but a few important matters therein are further elaborated on below. The EDB raises the issue of the NPQSL along with two related matters of the National Seed Policy and Plant Protection Act. These are technical legislations based on scientific considerations such as quarantine regulations. Some of them are old and the EDB asserts that they should be changed. However, being based on scientific and technical foundations, changing these are not simple matters and as such, being an

influential state organization the EDB should make representations to the highest authorities on its claim. Some of these concerns are stated in the action plan of the National Export Strategy 2018-2022 published by the EDB. The other important issue is raised by the FPA. It claims that the Food Act and Consumer Protection Act (referring to Consumer Affairs Authority Act which is functional at present) are sometimes contradictory. This is a clash between two major public policies and it definitely needs the attention of policy makers.

The results of the KII relating to 'participation in the policy processes', 'problems in policies observed' and 'suggestions to improve policies' in relation to agricultural marketing, are presented in Annex 09. This table too contains a lot of details, but they are clear enough for an interested reader to go through. Therefore, in this case too only a selected set of issues deemed to be of great importance is handled in this discussion.

All three institutions included in the analysis seem to have had some form of access to the policy making process when they encountered relevant problems. They report access to the policy circles through lobbying (by EDB), institutional affiliation like what is stated to prevail between FPA and SLSI or institutional power or "civil power" of the individuals as in the case of the NCE. However, the extent to which and the purpose for which such 'powers of accessibility' are being used is not clear. All three organizations have past experiences in participating in the policy process in important capacities. However, with regard to suggestions for improving the policies and the policy making process, only the EDB has suggestions to offer. This could obviously be related to the fact that the EDB recently completed preparing a comprehensive document "National Export Strategy 2018-22" that includes agricultural export promotion as a significant component of the 'strategy'.

With respect to any inconsistencies in policies and regulations, quite surprisingly, only the NCE made a comment: that there are too many checks on exports by four agencies. A somewhat similar comment was recorded in KIIs, but by the FPA. Enquiries were also directed to the institutes on practical problems caused due to the policies and regulations, and here too, the EDB responded with a long list which is, however, self-explanatory (Annex 09). However, some Non-Tariff Barriers (NTBs) are also indicated therein, and they are out of the scope of this discussion, as was indicated earlier. In addition, the FPA raised a problem pertaining to branding of agricultural export products and a consequent loss of global competitiveness on questions 5 and 6 in Annex 09, but did not present details. A general comment is made that "there are many policies that are not implemented" by the EDB, but it is very non-specific and could be ignored as a casual remark. When the open opportunity was offered to give suggestions to improve

agricultural marketing in Sri Lanka, the EDB came up with an idea that has broad implications, to the effect that the government should get involved in promoting technology for improving production and reducing post-harvest losses. Although this is not an exclusively marketing oriented problem, it is reiterated, that this issue involves important implications and hence would be further elaborated on, in the coming sections of this report.

A careful scrutiny of the ideas and suggestions spread over Annex 09 such as,

- "a need for a single food authority covering all aspects" by the FPA,
- the "absence of a proper plan for production and the related problem of the absence of a database (for such planning)" by the EDB,
- the previously stated "need for government involvement in promoting production technology" by the EDB,
- the "low volume of production that is inadequate for export" by the EDB,

together show that Sri Lanka does not produce agricultural products in volumes adequate for domestic consumption and exploitation of the export potentials and the situation has not improved significantly over the years. The respondents expressed their dissatisfaction over the existing situation relating to production and marketing of agricultural products in Sri Lanka and the response of the government to it. They indicate a desire for a more active involvement of the government in an integrated effort in order to remedy the situation regarding both production and marketing.

This leads to a plausible hypothesis that the above state of affairs has become "a self-perpetuating 'crisis' of insufficient production and unplanned marketing and trade. The existing economic paradigm of 'free market with minimum government intervention' has not apparently performed the duty expected of it in the case of food crop agriculture of Sri Lanka". It follows from this hypothesis, therefore, that Sri Lanka at present may be in need of a 'Novel Policy and Institutional Solution'. The information that emerged in the preceding analyses highlights the necessity of formulating a "Policy of Integrated Production and Marketing" covering all basic farm products as well as the domestically marketed and exported agro-based products as the solution needed to break free of this stalemate. Obviously, this would be an ambitious public policy calling for large resource commitments on the part of the State. This hypothesis and the policy solution following from it will be put into further scrutiny in the following analyses.

Analysis of KIIs conducted on organized private companies

The results of the KIIs conducted for number of well reputed private companies and organizations engaged in marketing, processing and exporting of agricultural commodities are discussed and analyzed in this section. The field entries of the KIIs are summarized in Annex 10 and Annex 11 which are placed in the Final Report – Section II. Individual responses of all the organizations are too detailed to be presented and therefore, the responses of 10 organizations[1] were selected for each question asked, are included instead. Even within this format each table comprises of a sizeable number of entries which are too large to be individually discussed, under each question. Further, the same issue has been raised under various questions. As a solution to this, important issues are singled out after overall scrutiny of each table and these 'issues' are discussed in the following text.

Annex 10 summarizes the opinions expressed by the respondents included in this investigation on the 'effects of public policies and regulations', the 'inconsistencies surrounding and among them' and the 'practical problems faced and observed', all of which are in relation to agricultural marketing. According to the methodology of sorting-out the details and isolating the key issues pertaining to public policy and the regulation explained in the last paragraph, the following are listed in the order of the number of times they are referred to in Annex 10. Note however, that this order may or may not comply with the order of their importance as policy priorities of the country.

1. Government taxation: rates of tax are too high, need for tax reliefs for domestic industries, inconsistent tax policies.

   All these responses fall within the purview of the profit motivation of private businesses which was observed under Annex 08 above as well. This is definitely a policy concern, but obviously not the top one.

2. Lack of incentives for domestic industries: this may draw more attention in policy making as promoting local industries is considered beneficial (this is arguable).

3. General disapproval towards the NPQSL and related regulations: this was discussed in detail under Annex 08 and involves a protracted procedure to revise or change.

[1] CIC Agriculture, Hayleys Agriculture, HJS Condiments Ltd, Country Style Foods (Pvt) Ltd (SMAK), Ellawala Horticulture (Pvt) Ltd, Dole Lanka (Pvt) Ltd, Lanka Agri Produce Management Corporation (Pvt) Ltd (LAPMC), Cargills Ceylon PLC, CR Exporters, NIDRO Supply (Pvt) Ltd

4. Unplanned and insufficient production is hurting exports: point elaborated under Annex 09 and would be further discussed in the following sections.

Since this study is specifically concerned on 'Innovative' agricultural marketing, the KIIs were concentrating on innovativeness and related attitudes of the selected group of firms as well (Annex 11). When questioned on innovative agricultural marketing ventures in Sri Lanka a group comprising of ten large firms and some individually operated firms were identified by the respondents. But it is intriguing to note that only one company identified itself as a successful innovator. It is difficult to interpret this but could it be that Sri Lankan firms lack confidence on their own achievements or alternatively, are they only being modest?

On the other hand, the companies recognize innovations abroad and quite interestingly, 'pre-planned production' is the feature that is identified as an important 'innovation'. In fact, pre-planned production is a common practice in many countries and the fact of it being identified as an innovation by a Sri Lankan firm implies that Sri Lanka is far behind the rest of the world in its agricultural production and marketing.

Response to Public Policies and Regulations by the "Unorganized Sector"

Responses to public policy and regulations would not be complete with the foregoing inquiry into the "Organized Sector" alone, as the agricultural marketing chain also comprises of an "Unorganized Sector" in the Sri Lankan context. This sector again consists of the agricultural producers or the farmers and the market intermediaries. Farmers are the most numerous but the least organized, and almost certainly, the least powerful. The market intermediaries or the so called 'middle men' occupy the middle position in numbers as well as in power in the agricultural supply chains. The issues relating to both these categories are examined in this section using a totally different methodology compared to that of the last section. This methodology is very brief and devoid of surveys or KIIs, but this is with some valid reasons.

It was pointed out in the last section that the "Organized Sector" is educated, more articulate but relatively under-investigated in Sri Lanka. But the unorganized sector is fairly well researched on and almost all the important issues involved are fairly well established in professional circles. Further, these individuals are less educated and less articulate on more distant and 'esoteric' matters like public policies and strategies. When enumerated, what they express are their individual or small-group problems and existing needs. It is up to the investigator to translate them into policy or regulatory concerns using the already established theory or empirical facts and his or her personal knowledge and experience in the field. To complicate

matters further, the food crops sub-sector in Sri Lankan agriculture is heterogeneous and the growers can be divided into four categories by their main products as Rice, Subsidiary Food Crops (SFCs)/Other Field Crops (OFCs), Vegetables and Fruits. The issues pertaining to the growers of each crop are specific to the crop to a great extent. Any attempt to gather all this information in one attempt would be an enormous and expensive task. Therefore, this less expensive and less time-consuming methodology was selected for this section of the study.

Agricultural marketing policies for the farmers

At the root of the agricultural marketing channel are the producers or the 'farmers' despite the fact that in many investigations of 'marketing', they are excluded as a separate category. However, in several instances in the forgoing discussion, planned or 'synchronized' production was highlighted as a significantly important requirement for effective marketing and exports. This indicates the need for including the 'farmer element' in designing and implementing policies and regulations for successful 'marketing'. In fact, this implies that there cannot exist two separate production and marketing policies, but an "Integrated Production and Marketing Policy" for Sri Lanka to succeed in both these activities.

Farmers are, traditionally and predominantly concerned with their production activity. Although an "Integrated Policy of Production and Marketing" is strongly advocated in this paper, the production activity is kept out of the current discussion because the mandate of this study is on 'marketing' policy. It is clear though, that the production aspect which has already been extensively studied by others, should definitely be amalgamated with marketing, in the final exercise of policy making.

In tracing the marketing issues at the producers' level in Sri Lanka there are several factors to be taken into account.

1. Sri Lankan agricultural producers are "small farmers" who, in some cases, are less concerned about the market than they should be in the case of commercial agriculture.
2. They are often constrained by lack of financial stability and lack of ability to negotiate.
3. They live in rural areas where 'market infrastructure' such as roads, banking facilities and information flow are often poor.
4. They are less educated and less knowledgeable of modern market opportunities.

This situation is further complicated by two natural factors, viz., seasonality in production and year to year variation in weather/climatic conditions.

As indicated in the discussion on methodology for this section farmers often state the 'problems they face' and the 'needs they have', in a mix. From the five facts presented above based on past studies and the personal experience of the author in the field, the following are isolated as the predominant 'marketing issues' at the farm level.

1. Price fluctuations, often to the disadvantage of the farmers.
2. Absence of a buyer when needed at an accessible place.
3. Lack of bargaining power against the intermediaries.
4. Fragility and non-durability of products, especially vegetables and fruits.
5. Absence of knowledge of alternative methods of utilization, processing or preservation.
6. Non-availability of market information on prices, alternative markets, etc.

Some of these issues are obviously interrelated and also, it is convenient to relate these marketing issues to the formerly stated "structural and institutional" characteristics of the rural farming sector. (Finding solutions for the natural vagaries that are fundamentally related to production are not dealt with here, as mentioned before).

The farmers in the food crops sub-sector are a relatively marginalized segment of the population and their marketing issues reflect a constant battle with the more powerful segment known as "Market Intermediaries". Farmers lacking resources and social capital are definitely incapable of emerging as successful beneficiaries from this perpetual contest on their own and this is therefore a clear case for public policy intervention.

The problem that arises immediately is what policy intervention would serve the purpose in question. The obvious answer would be a "Policy of Empowerment of the Rural Small Farmers" which would make the farmers both 'individually' and 'collectively as a community' capable of standing upto competition against the powerful market intermediaries. Again, this is a policy solution needing strong commitment and resource allocation from the state, as empowering the farmers requires correcting the four social and structural ills that are listed earlier. This would entail:

1. Changing attitudes of the farmers to take up the challenges of commercial agriculture.
2. Educating the small farmers on technology on production and technology of on-farm processing and preservation.
3. Organizing farmers into groups to increase their bargaining power against the intermediaries.
4. Introducing physical infrastructure such as roads and business infrastructure such as rural banks.

5. Introducing them to modern information technology to furnish them with business information such as market prices and alternative markets as well as new technical information.

Perhaps there may be more to this list. Yet the problem remains as to what conduit would carry these into the rural farming areas. There should be a network of qualified rural extension services to fill this gap. Re-establishing such a service similar to the Krushikarma Vyapthi Sevaka (KVS) service that existed prior to 1990 would be a sensible idea particularly as such a service will not only serve the rural marketing needs but also serve as the grass root level agent, driving the previously proposed "Integrated Agricultural Production and Marketing Policy" in rural areas.

Agricultural marketing policies for the "Market Intermediaries"

The previous section revealed that agricultural marketing at rural level is a constant battle between the farmers and the "marketing intermediaries" popularly called the middlemen. This notion of 'battle' brings a notorious reputation to this group as 'exploiters' of the poor farmers and unscrupulous 'profiteers'. Their legitimate role in the entire marketing channel and the service they render is rarely recognized.

However, the term 'intermediaries' is appropriate because they are the people who stand in the middle, between the farmers and the final users of the products. However, in the Sri Lankan context large companies who process, retail at supermarkets and export agricultural products are not referred to as intermediaries because they are rich and powerful; those who qualified as the "Organized Sector" in this study. Their problems and issues are different as were revealed in the relevant discussions. This discourse though, is about the middlemen who are between the farmers and usually the retailers and, in some cases, the larger firms.

The market intermediaries, in spite of their notorious reputation, are the agents who perform all the 'marketing functions' between the two points of production and of consumption. In terms of formal economics, they cater to the time, place and utilities of the end user of a product and this means in practical terms, they perform a wide variety of functions such as collecting (at the farm level), stocking and storing, transporting and processing of agricultural products. As such, the issues they face, the problems they handle, the needs they have are very diverse and they change from person to person, place to place, time to time, product to product and task to task they perform. In fact, being more commercial-minded and resourceful, they find solutions to all their problems as and when they arise. They are the 'real' innovators in agricultural marketing in Sri Lanka. Given the rate at which the circumstances change, no external body of 'experts on marketing' would be able to find more 'innovative solutions' which are

prompt and effective. This group epitomizes the efficient working of the private (competitive or otherwise) market explained in economic text books.

In this environment, the role of public policy and regulation for improving the efficiency of the operation of the agricultural marketing operations handled by the intermediaries is a challenging question. The only rational answer is that the Public Policy should ensure that their marketing operations are rendered easier, more regular and thereby more efficient. This leads to taking steps that would make their business environment more favorable for efficient functioning. Such steps are three-folds:

1. Providing a physical environment that is more favorable with, for example, better road facilities and improved infrastructural facilities such as Dedicated Economic Centers, etc.
2. Providing an improved business environment with, for example, easy financing facilities, insurance facilities, easy licensing where necessary and secure property right regulation where appropriate, etc.
3. Facilities for obtaining training on entrepreneurship for the aspiring youth.

The Government can use its public policy mechanism to ensure the above facilities through establishing relevant institutions and passing some regulations without much capital expenditure, relative to the previously made policy proposals. Although it can be expected that the agricultural marketing intermediaries would be able to further enhance the effectiveness of their already efficient operations, the question remains whether it would receive the desired public approval. There is a possibility that the general public may not like leaving the operation of the intermediary marketing network entirely to the private sector. (It was pointed out earlier that the public attitude towards their modus operandi is not totally favorable, although it is very subjective and could be unfounded). Perhaps the general public may favor the government to competitively intervene in agricultural marketing to a limited extent as was suggested earlier in the case of the rice trade. This is another policy option open to the government for serious consideration.

It was argued in the foregoing text that the agricultural marketing intermediaries are ‘innovative’ in their activities and capable of finding solutions to their problems. Yet, it should not be forgotten that, in spite of their ‘private’ efficiency and innovativeness, it is not clear whether they always find solutions and innovations that are ‘socially optimal’: that is in the best interests of society. Further, agriculture is an activity that is volatile by nature in the short run, and evolving and responding to the technological and market oriented changes in the long run. Even the analysis of the responses of the “organized sector” indicated this inherent need in agricultural marketing for making careful adjustments to marketing

'strategies', but not always the policies, depending on changing situations. Local and small scale or international and large scale, monitoring and analyzing natural, technological or market based changes and making recommendations on 'socially optimal' adjustments to the national strategies is in the domain of professionals. Establishing a government owned professional organization for continuous monitoring and strategic recommendations could be in the interests of not only the agricultural marketing arena, but also for the administration of the proposed Policy for Integrated Agricultural Production and Marketing of Sri Lanka.

3.2. Review on policies relating to marketing of spices

The following section presents the analysis of local policy environment in relation to the spice trade. At the end of the section policies of other countries in the region were compared with that of Sri Lanka to see what is lacking in this country.

Food Acts

The lack of representation of relevant officers in food advisory committees and the omission of important quality parameters in the Food Act were two weaknesses observed in the Food Act. The ban on imports of spices adversely affected the extraction industry and the Food Act needs it to be revised specifying important parameters for solving the problem of raw material supply of pepper and cardamom. The current production is inadequate to meet the local demand of the extraction industry. The Food Act and Financial Act are summarized in Table 3.3.

Table 3.3: Acts, identified gaps and suggested reforms related to spice industry

Details of the act	Clause affected	Gap identified	Reform needed
Food Act No. 26 of 1980 and Food (Amendment) Act No. 29 of 2011	Nomination of members of Food Advisory committee.	Despite spices being an important area of the Food Act, no position has been allocated to represent Department of Export Agriculture (DEA) in the Food Advisory Committee.	Creating a position in the Food Advisory Committee to represent DEA.
Regulations of Food Act No. 26 of 1980	Quality parameters considered were volatile oil content, physical cleanliness and microbial qualities	No provision in the Act to prevent inclusion of sub-standard products that are of no value to consumers.	A clause should be included specifying bulk density of pepper >500g/liter and the same for cardamom >330g/liter indicating the products are at correct

Details of the act	Clause affected	Gap identified	Reform needed
	of pepper and cardamom.		maturity having the required flavor and aroma attributes.
The amendments to No. 12 of Financial Act of 5/12/ 2019	Ban enforced on import of pepper and cardamom.	Oil and oleoresin extraction industry of pepper and cardamom was affected due to shortage of raw material.	Allowing import of pepper light berries (300-400 g/liter) and cardamom (320g/liter) under TIEP 1 for extraction purpose and subsequent re-export under a strict monitoring procedure.

(Source: Author's compilation)

Cess imposed under the Sri Lanka Export Development Act. No 40 of 1979

A local levy is imposed on a commodity/product for special purpose. The authority for imposing a cess is given to the Minister in-charge of the Export Development Board. A cess could be imposed both on imports and exports according to the act. The collection under the cess is expected to be credited to the Export Development Fund. Rates applicable as a cess for various products of pepper and cinnamon are given in Table 3.4.

Export quality certification scheme for cinnamon

Cinnamon is one of Sri Lanka's heritage crops and Sri Lanka is the main suppliers of authentic cinnamon to the global market. The rejection of consignments by the importers is not a rare occurrence which is associated with quality issues. In order to safeguard the cinnamon industry and streamline cinnamon exports, the Extra Ordinary Gazette Notification No. 1813/15 dated 05/06/2013 was issued. However, the gazette has not been implemented as yet due to protests by some cinnamon exporters. The practice from historical times is to export inferior products along with quality cinnamon. Once the quality certification comes into effect the inferior products cannot be exported. This might be the reason for the protest. Details of this gazette are given in Table 3.4.

South Asian Free Trade Area (SAFTA), pepper export and legal restrictions enforced

SAFTA has allowed exporting of 2500Mt of pepper at zero duty and where this volume is exceeded a duty of 8% duty is chargeable for Sri Lankan pepper. Since 60-80% of the pepper is exported to India, Sri Lanka's pepper farmers benefitted from this agreement. The procedural weakness of implementing the SAFTA and the absence of a monitoring mechanism have led to misuse of the agreement and trans-shipping of Vietnamese pepper as being of Sri Lankan origin, thus misleading importers. Exporting of low quality

pepper at low prices raised a public protest in India and India imposed Minimum Import Price of 500 Indian rupees, making Sri Lankan pepper export to India impossible. In reaction to the pressure exerted by India, the cabinet decision was taken to ban import of some spices including pepper without consulting stakeholders and the main government department responsible for spices, the DEA and industrialists. These details are presented in Table 3.4.

Declaration of Knuckles mountain range as a World Heritage Site

The traditional cardamom growing area, the Knuckles region, had to be abandoned due to this declaration. As a result, a shortage of produce was created which negatively affected cardamom exports. The agreement and the declarations are summarized in Table 3.4 giving repercussions and suggesting reforms.

Table 3.4: A gazette notification, an agreement, a cabinet decision and a declaration affecting cinnamon, pepper and cardamom export

Gazette/Agreement /declaration	Clause affected	Gap identified	Reforms needed
Gazette No. 1885/45 of 24/10/2014	Rates on pepper: Light berries (<450 g/l) -HS No. 0904.11.10-Rs. 10/kg; Organic -HS No. 0904.11.11. Rs. 10/kg; Other pepper - HS No. 0904.11.19- Rs. 10/kg; and other pepper - HS No. 0904.11.90-Rs. 3/kg	It was seen that cess collection was not transparent and no details available with the EDB. The information on utilization of the collected funds was not available.	Declaration of available funds and utilization the same for export promotion of Sri Lankan pepper. A clear and transparent system is expected to be institutionalized.
Gazette No. 1885/45 of 24/10/2014	Rates on cinnamon in various forms: organic cinnamon -HS No. 0906.11.10-Rs. 6/kg; cinnamon quillings-HS No. 0906.11.13, HS No.0906.11.93-Rs. 6/kg; cinnamon featherings-HS No. 0906.11.14, HS No. 0906.11.94-Rs. 6/kg; cinnamon chips-HS No. 0906.11.15, HS No.0906.11.95-Rs. 6/kg	It was seen that cess collection was not transparent and no details were available with the EDB. The information on utilization of the collected funds was not available.	Declaration of available funds and utilization the same for export promotion of Sri Lankan cinnamon.

Gazette/Agreement /declaration	Clause affected	Gap identified	Reforms needed
Extra Ordinary Gazette Notification No. 1813/15 dated 5/6/2013	No cinnamon quantity of above 25kg is allowed to be exported without conformity certificate with SLS81:2010, issued from Sri Lanka Standard Institution (SLSI).	Failure to implement this gazette notification for nearly seven years.	Implementation of the gazette notification without delay to safeguard the cinnamon industry without any revision.
South Asian Free Trade Area (SAFTA) of 6/1/ 2004	Monitoring procedure of SAFTA.	Failure of monitoring the process of export and gaps in the procedure of allowing permission to export have led to increase illegal imports and re-export of pepper.	The 'Country of origin' letter should be issued only after inspection of pepper consignment at the port and studying the verified copy of 'Cargo Dispatch Note' issued by the Department of Customs.
Cabinet decision on suspension of the importation of spices through different methods for solving the issues affecting the local spices and the related manufacturing industry Gazette notification of 5/12/2019	Suspension of importation of pepper, arecanut, nutmeg, mace, tamarind and cinnamon.	Abrupt banning of imports affected extraction industry of pepper oil and oleoresins due to raw material shortage.	Under a strict monitoring and supervision procedure imports of pepper should be granted for value addition and re-export.
Declaration of Knuckles Conservation Forest in UNESCO Natural World Heritage list on 31/7/2010	Banning of entering and doing any human activity in the protected area.	75% of traditional cardamom growing areas had to be abandoned and created product scarcity to catch export market.	In order to offset the harvest loss, it is suggested to demarcate alternative growing areas preferably in Kegalle and Ratnapura districts where thrips attack was not found.

(Source: Author's compilation)

The Export Development Board (EDB) of Sri Lanka has taken action to create a brand for 'Ceylon cinnamon'. This institute is also working on obtaining GI for cinnamon. Both efforts are for declaring Sri

Lanka's cinnamon as a nationally important spice product (National Export Strategy of Sri Lanka 2018-2022).

It was seen that the Spice Board of India under the supervision of Trade Ministry acts as a regulatory body for production and marketing. It also undertakes promotional activities whereas in Sri Lanka such a regulatory body exclusively for spices is not functioning since it has not been entrusted with legal powers. The Department of Export Agriculture is supposed to act in a similar way to the Indian Spices Board. However, due to the failure of enactment of the Export Agricultural Promotional Act of 1992 No. 46, the DEA possesses no legal status to perform regulatory functions. This was found to be a notable weakness in the Sri Lankan context. The main focus of the assistance schemes is to improve primary processing of spices, for instance subsidizing of pepper threshers, graders and dryers, etc. The assistance is to cover 20% of the machinery cost. Common processing facilities like spice parks in India have not been established and spice farmers in Sri Lanka faced problems in drying during rainy seasons.

Trade promotional activities aiming at the international market are not undertaken by the DEA. It has no arm to deal with market research. In addition, no allocations were made for market promotional activities. However, starting of GMP, organic and fair-trade certifications is a good initiative taken by the DEA towards trade promotion. Even though the EDB organizes 'buyer-seller meetings' and partially subsidizes potential exporters enabling them to participate in international fairs and exhibitions, no responsible organization comes forward to assist brand promotion and bar coding, etc. Exporters themselves try to achieve this objective on their own initiative without government support. In the event of sharp price reductions, India acted on imposing a minimum import price for pepper while Indonesia started a warehouse receipt strategy. Sri Lanka failed to take measures to safeguard pepper growers during the recently experienced price reduction in a tangible way.

3.3. Review on policies relating to marketing of floriculture

In the field of floriculture, the acts and gazettes relating to quarantine, fertilizer and pesticide-related issues have affected input supply such as specialized fertilizer, agrochemicals used for export quality plant production and import of planting materials. The relevant acts and gazette notifications have been summarized in Table 3.5.

Table 3.5: Acts and gazette notifications influencing export and production of floricultural products to export market

Act/ Gazette notification	Clause affected	Gap identified	Reform need
Plant Quarantine Act of 1999-35	Protection of local flora and fauna from introduction of pests and diseases that do not exist in the country.	Import restrictions made on plants belonged to the families of Palmae, Rosacea, Cecus, Bromiliacea and Arecea. In addition, problems have been faced in exporting pandanus spp., eucalyptus leaves and aquatic plants. Failure to provide guidelines and regulations caused inconvenience to import and export plants of those families	It is a timely requirement to conduct 'Pest risk analysis' to reconsider restricted items and make necessary reforms.
Regulation of Fertilizer Act (No. 69 of 1988) and Fertilizer (Import, Manufacture, Formulation) Regulations, No. 1 of 2010	No provisions have been given for specialized fertilizer needed for floriculture industry.	Cut-flower exporters encountered difficulties in importing specialized fertilizer in order to produce flowers for international standards.	Amendments to the Act is needed to cover the requirement of specialized fertilizer like iron-fertilizer.
The government Extraordinary Gazette No. 1894/4 of 22/12/2014 under the Control of Pesticides Act No. 33 of 1980	Regional restriction for sale, offer for sale and use of Carbofuran.	No recommended substitute for controlling nematodes as the importers' requirement is zero-nematodes.	Revisions are required to introduce alternative nematocides in place of Carbofuran in the Act.
Ban of importation of Glyphosate by the government Extraordinary Gazette No. 1813/14 of 5-6-2013 under the Import and Export (Control) Act No. 01 of 1969	It was believed that the Unidentified Kidney Disease (UKD) of dry zone was associated with the use of Glyphosate.	Cut-flower and foliage export to Australia was terminated where Glyphosate is the only dipping treatment permitted by this country.	The damage is already done as Australia has gone to other suppliers. It is necessary to study sector by sector and make necessary amendments in the gazette to allow Glyphosate usage.

(Source: Author's compilation)

The involvement of different organizations has made the export procedure of floricultural products more complex. It was found that foliage exporters tried indigenous varieties. However, prior approval is required from the Department of Forests. Since the provisions were not given in the relevant act and

regulations clearly, the officers are in dilemma as to whether to allow exports or not. On the other hand, it is difficult to identify the plant family to which the particular species it belongs to until flowering occurs.

A good export potential prevails for aquatic plants and flowers. Thought should be given to relax regulations for exporting of aquatic flowers with some value addition, since flowers are in abundance in lakes of dry zones.

Since there is no 'Apex Body' to verify unclear points of acts and regulations, which arise in the process of export, exporters of floricultural products are dissatisfied as per the key informant interviews conducted.

The main government organization supporting the floriculture sector is the Department of National Botanic Gardens. The objective of its national floriculture development program is to empower lower and middle level horticulturists in the floriculture sector and uplift their economic standards (Annual Performance Report of Department of National Botanic Gardens, 2017). Approximately, 7,000 members have been facilitated through this program. Other activities performed by the Department include training of members on cultivation of anthuriums, orchids, roses, gerbera, cut greens and tissue culture; conducting workshops to enhance technical skills of growers, conducting small scale exhibitions of around 300/year and district level exhibitions around 20 annually and enhancing marketing capability of growers. Distribution of materials among the growers is another activity. These materials include shade nets, UV-treated polythene and plastic pots (Annual Performance Report of Department of National Botanic Gardens, 2017).

India and Nepal identified the floriculture industry as a commercial industry, while the identification is a means of livelihood for small and medium scale farmers. India tried improved technology and foreign collaboration for upgrading the industry and marketing, whereas Sri Lanka depends on conventional technology and local marketing. Sri Lanka's foreign ventures are limited to a few companies run with the partnership of countries like the Netherlands and Switzerland. Nepal also focused on branding of products, exploring niche markets and examining marketing opportunities in neighboring countries. The government involvement for the above initiatives is almost negligible. However, some export companies have obtained environmental and quality certification on their own initiative, such as GLOBALGAP, MPS and FAIRTRADE label to comply with requirements in the international market (Industry Capability Report, 2012).

While government, semi-government institutions and banks come forward to assist the export oriented floriculture industry in a large way in neighboring countries, Sri Lanka's assistance schemes are confined to a few donor institutions. For example, the Export Development Board under its 'Market Access Support

Program' extends assistance for creative and innovative business strategies and activities to increase market access. Matching grants are given to a maximum of Rs. 1.0Mn for projects/activities to be completed within 6 months, whereas a maximum of Rs. 5.0Mn is given for projects to be completed within 18 months. The 'Agriculture Sector Modernization Project' which is being implemented by the Ministry of Plantation Industries and Export Agriculture also financially assists in cut-flower and foliage projects. A grant up to 50% of total capital investment Rs. 1.5-22.5Mn is given for small and medium scale projects while Rs. 22.5Mn or above is granted covering 20%-35% of the total capital investment for large scale projects (asmp.mpi.gov.lk). All these projects are aimed at individual entrepreneurs so that helping them individually cannot be expected to support sectoral growth that would significantly make an impact on the economy and improve sustainability and growth of the sector as a whole.

CHAPTER FOUR

ORGANIZATION, OPERATION AND PERFORMANCE OF PADDY, VEGETABLE AND FRUIT MARKETING SYSTEMS IN SRI LANKA

4.1. Organization of the marketing system

In this context, organization refers to how the market is structured, and how it can be explained by marketing channels. Based on the literature review and KIIs conducted the main marketing channels of paddy, other field crops (OFCs) and vegetable and fruit sectors are given below.

Paddy/ Rice

Identified major channels which move paddy into rice and then to consumer through the retail level are given below.

Farmer → Collector → Miller → Wholesaler → Retailer → Consumer

Farmer → Miller → Wholesaler → Retailer → Consumer

Farmer → Miller → Retailer → Consumer *(Emerging system)*

There are three major channels for movement of paddy/rice from the farmer to the consumer. The government marketing channel (PMB) was not included, because it is not a major channel. The oldest of the channels is the first one of the above three, while the latest one is the last one. The difference between the two is the length of the channel. In the first one, there are four actors or layers between the farmer and the consumer. The last one has only two actors. From the efficiency point of view, the last one is more efficient due to low cost and close partnerships between the farmer and the miller, and the miller and the retailer. Either the farmer brings the paddy to the miller or the miller goes and purchases the paddy. In most cases, the miller does the purchasing, because they have their own lorries (Wijesuriya & Dumida, 2011; Bulankulama, 2006). Millers distribute rice to retailers on credit having developed strong partnerships between the parties. In the conventional system, the wholesaler visits the miller to purchase rice and the retailer comes and purchases rice from wholesaler. This is a costly system and it is now deteriorating because of the inability to compete with the modern system. The best example is the wholesale rice market at Maradhagamulla. The disadvantage of the modern channel is governing of the channel by few large millers. This characteristic is popularly known as “rice mafiya”. As pointed out by medium and small millers, this happened due to absence of competition within the channel as a result of

barriers to enter into this channel, i.e., big capital requirement to apply modern technology, purchase vehicles and sell rice on credit basis. Section 2 - Annex 12 gives the analysis results of the investment for paddy farming.

OFCs

Main marketing channels for OFC products such as green gram, cow-pea, groundnut, big onions and red onions are shown below

Farmer → Collector → Colombo Wholesaler → Retailer → Consumer *(Colombo based commission system)*

Farmer → Economic Center → Wholesaler → Retailer → Consumer *(Economic Center based system)*

Farmer → Economic Center → Retailer → Consumer *(Economic Center based system)*

Farmer → Wholesaler → Retailer → Consumer *("Pola" system)*

Farmer → Retailer → Consumer *("Pola" system)*

Farmer → Collector → Retailer → Consumer *(Established retail shops)*

Farmer → Retailer → Consumer *(Road side system)*

Farmer → Processor → Consumer *(Processor system)*

There are eight channels in OFC marketing showing absence of leading channels due to lack of innovative agro-entrepreneurs. Hence, there is no channel competition like paddy/rice despite the presence of many channels. It was found from the studies that many OFC marketing channels are location specific and commodity specific (JICA, 2016; Menege etc. 1998). For instance, the "Pola" system dominates Hambantota and Ratnapura districts while the processor system dominates maize. Except for a few crops like maize and soybeans, OFC cultivation takes place by smallholders under rain-fed conditions. Hence, farmers mainly depend on collectors for selling.

Vegetables and Fruits

The main marketing channels of fruits and vegetables are given below.

Farmer → Collector → Colombo Wholesaler → Retailer → Consumer *(Colombo based commission system)*

Farmer ⟹ Colombo Wholesaler ⟹ Retailer ⟹ Consumer *(Colombo based commission system)*

Farmer ⟹ Economic Center ⟹ Wholesaler ⟹ Retailer ⟹ Consumer (*Economic Center system)*

Farmer ⟹ Collector ⟹ Economic Center ⟹ Wholesaler ⟹ Retailer ⟹ Consumer *(Economic Center System)*

Farmer ⟹ Economic Center ⟹ Retailer ⟹ Consumer *(Economic Center system)*

Farmer ⟹ Wholesaler ⟹ Retailer ⟹ Consumer *("Pola" system)*

Farmer ⟹ Retailer ⟹ Consumer *("Pola" system)*

Farmer ⟹ Collector ⟹ Retailer ⟹ Consumer *(Emerging system)*

Farmer ⟹ Collecting Center ⟹ Supermarkets *(Super market system)*

Farmer ⟹ Consumer *(Emerging system for fruits)*

Compared to marketing systems of all other commodities, the system of vegetables and fruit is much more complicated. Nevertheless, certain dynamics and changes are taking place with channel competition which is explained in the following paragraphs. The market conduct analysis given below is mainly related to fruit and vegetables as highlighted in the TOR.

4.2. Operation of the marketing system

The operation of a marketing system technically refers to market conduct which comprises of marketing mix strategies: product, price, place (distribution) and promotion. In this section, these strategies are described.

Periodic markets – "Pola" based marketing system

"Pola" or periodic market is a place where buyers and sellers meet once or twice a week for exchange (Ratnayaka & Godage, 2001; Menege etc., 1998). If the market opens daily it is referred to as a public market and such a market is often located in urban cities where consumers come and purchase products daily. In this context, most periodic markets are concentrated in rural localities and hence they are named as rural markets or rural "Polas". Customarily, periodic markets are named with the day of operation e.g. "Sunday Pola". The history of periodic markets in Sri Lanka goes back to ancient times (Ratnayaka & Godage, 2001). Nevertheless, the present periodic markets began and were developed in the 20th century

(Senanayaka, 1980). In Sri Lanka, there were 500 periodic markets by 1975 (Jakson, 1977) and increased to 550 by 1979 (Senanayaka, 1980). Almost all periodic markets in Sri Lanka are owned and managed by local authorities. The majority were given to private parties on tender basis for operation. Revenue from periodic markets is a principal source of income for many local authorities (Menege, etc., 1998).

Periodic markets can be categorized into three segments, based on the nature of operation: wholesale, wholesale cum retail, and retail. At the wholesale periodic markets, producers are the main suppliers followed by collectors, while buyers comprise of wholesalers and retailers coming from demand areas of the country. These types of markets are located in producing areas. The best example is the "banana market" at Barawakubuka in Ratnapura district. This market evolved due to the expansion of banana cultivation under the Mahaweli development project. Wholesale periodic markets operate early in the morning mostly at 6.00am because buyers prefer to buy early and leave to their destinations as soon possible in order to sell the products while they are fresh. Peak transactions take place from 7.00am to 10.00am of the day.

Periodic markets related to wholesale cum retail trading have two sets of transactions happening at the same place: one for wholesales and the other for retail sales. Wholesales takes place from early morning to 11.00am while retail sales take place throughout the whole day, but the peak hours are 11.00am – 1.00pm because those who get money from selling products on wholesale come to the retail section to purchase daily necessities. Due to the expansion of the volumes of both wholesale and retail businesses over time, these two types of businesses now take place on separate days in many markets. For example, the periodic market at Sooriyawewa functions on a wholesale basis on Tuesday and as a retailer on Saturday.

Retail periodic markets are mainly located in urban cities. Consumers are the major buyers and retailers are the sellers. Consumers prefer to come to retail "Polas" due to wider selection of products at cheaper prices. Menege et al. (1998) found that the periodic market is the main place for retailing fresh vegetables for the majority of the Sri Lankan population. Most of the sellers are found to be youth. Ratnayaka and Godage (2001) reported that 74% of the traders belonged to the age group of 18-30 years. It is also found that 68% had education up to grade eight. Menege etc., (1998) reported that the periodic market provides employment opportunities for youth of low education levels. Traders move from one market to another known as the market circle for retail business. Bandara and Godage (2001) found that 74% traders used the "Pola" circle.

There are large number of buyers and sellers at periodic markets and hence individuals have no scope to influence on prices. Also, there are no entry and exist barriers. Similarly, product differentiation does not exist. Due to these features, periodic markets operate competitively which result in lowering prices. The periodic market has the characteristics of perfect competition (Bandara & Godage, 2001). Vegetables and fruits are the main items traded in periodic markets. Bandara and Godage (2001) found that 91% of the demand was for vegetables and fruits. Also, Menege, etc., (1998) found the rural "Polas" are the primary places for bringing vegetables for sale of itinerant traders who come in lorries to access retail markets. Key personnel interviews and personnel observations found that vegetables and fruits are the main traded commodities at present. Rice trading is declining at periodic markets. The government established an economic center at Debara Weva in Hambantota district but had to close down due to inability to compete with the "Pola" system. Having understood this situation, the economic center at Embilipitiya was constructed like a "Pola". Compared to the economic center, the "Pola" is characterized by simple structures which result in lowering the stall rent compared to the economic center. Another important point is that farmers directly sell products to the buyers which is similar to the famers' markets.

In western countries, it is a new trend in cities to organize farmer markets for the same purpose. However, these markets tend to sell mainly fresh and organic products and it is the same situation that mostly exists at Sri Lankan farmer markets as most products are organically grown in home gardens. Periodic markets lack basic facilities such as stalls, water, electricity, sanitary facilities, parking and security (Bandara & Godage, 2001; Menege etc., 1998). Although infrastructure facilities have been improved recently under the village building program there are still many without facilities. This is due to poor attention of local authorities in developing and facilitating market places despite the large income generated from them. It is also due to a lack of a proper understanding on the marketing concept (Menege etc., 1998) and its value to the economy.

Colombo based commission system marketing

This is the oldest system of marketing. It originated from Colombo and Kandy. The Colombo market is the largest commission market with over 1200 vegetable/fruit traders and around 200 dried goods traders. Dried goods traders are along the roadside shops located on Fourth and Fifth Cross Streets in Pettah, while the vegetable and fruit markets was located at the Kacheri Road in Pettah with 302 open stalls. In 1983 it was temporarily shifted to the old sugar warehouse (Manning vegetable market) built during the British colonial period but still exists despite several proposals to move to new places such as Orugodawatta and Paliyagoda. The main problem of shifting to a new place is the links with other dried goods market

located in Fourth and Fifth Cross Streets. Empty lorries after disposing vegetables and fruits move to the dried goods market to load the dried products. However, the Manning Market shifted to a newly constructed wholesale market at Peliyagoda known as the Manning Dedicated Economic Center (MDEC) in November 2020. It is located 5 kilometers away from the Manning Market. The new market is spread over 13.5 acres with 1192 stalls and a parking space for 600 lorries. All the traders at the Manning Market obtained stalls in the new market and the operational system is the same as it was in the Manning Market.

Under the Manning system suppliers send their products to the commission agents through transport agents. The commission varies by the product. For instance, it is 5% for rice and 10% for fruits and vegetables. Dried goods such as, chilli, onions, cowpea and green gram are supplied by collectors who purchase from farmers. Millers supply rice while vegetables and fruits are supplied by both farmers and collectors. Farmers mainly from Nuwara-Eliya, Welimada and Bandarawela areas supply vegetables through transport agents while collectors mainly supply fruits to the market. After the deduction of the commission and transport charges, the balance is sent to the suppliers either through transport agents or money orders. Money deposits direct to the farmer's account is now functioning. Commission agents act as the selling agent to the suppliers. Since the agents do not have ownership of the products due diligence is not followed and handling, loading and unloading is performed in a careless manner resulting in deterioration of the product quality and increasing post-harvest losses (Menege, 1998).

Buyers are the wholesalers and retailers coming from various locations. Although institutional buyers and exporters used to purchase from the Colombo market, they stopped buying due to poor quality and now depend on collectors as they are accountable and ensure quality. Before developing a decentralized wholesale system this commission market was characterized as an oligopolistic market structure. Few large buyers decided the price reported in the bills. It was claimed by suppliers that the price received by them and the sale price were different and always indicated a lower price than the actual selling price. This malpractice was gradually wiped out from the commission system with suppliers having an alternative selling source of the decentralized wholesale system which is explained below.

Decentralized wholesale marketing system

This system evolved with the easy access to import vehicles as a result of the introduction of open economic polices since the late 1970s. Wholesalers who visited Colombo and Kandy commission markets purchased lorries and started to visit producing areas to purchase vegetables by-passing commission markets which are located in congested cities of Combo and Kandy which lack infrastructure facilities such as parking. In addition to wholesalers, a group of retailers visited producing areas by hiring vehicles to

purchase vegetables. With this initiative assembly markets emerged in producing areas such as Nuwara-Eliya, Welimada, Haputale and Bandarawela. Collecting centers were also set up in some locations such as Kandehandiya (Hanguranketa) and the sixth mile post (Nuwara-Eliya) to supply vegetables to itinerary traders coming from demand areas. Institutional suppliers, processors and exporters also largely depend on collectors in purchasing vegetables and fruits due to the ability of getting required quality and quantity.

A decentralized wholesale system has a number of advantages compared to the centralized Colombo and Kandy based commission system. The advantages include shorter time spent, lower transport cost, lower buying price and reduced post-harvest losses. Despite these advantages, the decentralized wholesale system involves the problem of searching for vegetables due to the absence of all the requirements at one location. Buyers first place orders at different locations and provide empty bags and then collect orders from the various locations. This practice of collection takes at least 8 hours (Rupasena, 1995). This was the reason for the inability to compete with the economic centers. After establishment of the economic centers buyers prefer to visit them due to availability of all the requirements at one place. Some of the collecting points such as Kandehanidiya and the sixth mile post (Nuwara-Eliya) had to be closed down after setting up the economic centers.

Price determination in the decentralized wholesale system is mainly dependent upon supply because demand is stable. Buyers inquire about the price before making orders and the quantity purchased depends on the price. Most of the wholesalers have links with famers and hence they have regular suppliers, either farmers or collectors or both. Farmers bring vegetables to the assembly markets/collection points or collectors go to the farms and bring the products. Collectors decide the price based on the degree of supply and Colombo prices. However, Menege etc., (1998) reported that Colombo prices are no longer used as a reference price.

The decentralized wholesale system for rice is different when compared to the vegetable and fruit systems described above. At the initial stage, wholesalers visited large mills for purchasing. Now millers distribute rice to the retailers through their own lorries or trucks. Unlike vegetables/fruits, many millers started packing rice with labels in order to differentiate their product from competitors. Piyadasa (2016) found that rice producers operate on a competitive basis due to competition among millers. Large millers often try to maximize profit by reducing costs, increasing turnover and improving the quality of the product. It can be argued that improvement of quality of rice is due to competition. Most of the small and medium scale rice mills had to be closed due to strategies adopted by large millers to meet the competition. These strategies include increasing profit by increasing turnover instead of price, delivery of rice to the retail

point on credit basis, reducing transport costs using big trucks instead of lorries and improving quality by upgrading rice mills. Distribution of rice to the retailers by large wholesalers is similar to other Asian countries where the large wholesalers visit the retailers with products.

Economic center based marketing system

This system can be treated as a decentralized commission system which was centralized around Colombo and Kandy as explained earlier. This can also be considered as an improvement of the decentralized wholesale system because many economic centers were established in locations where assembly markets/collecting centers existed. The first economic center was established in 1999 at Dambulla where there were nearly 77 wholesalers along the main road doing vegetable assembling and wholesaling. The government established the new wholesale market center which was named, as the Dedicated Economic Center (DEC), with 143 stalls. Stalls were given to all existing 77 wholesalers as well as to new comers. One was given to a bank to set up a bank branch and another was given to a farmer organization to do wholesaling. The market is managed by a Trust comprising of the Divisional Secretary, officials from relevant ministries such as Agriculture and Trade, farmers and traders. In addition, there is a manager appointed by the government to look after day-to-day operations. He is also a member of the Trust.

Major suppliers are farmers and collectors. Farmers from Anuradhapura and Matale districts largely supply to the DEC at Dambulla. In producing districts that are located long distances away such as Nuwara-Eliya and Badulla, collectors purchase vegetables from farmers and send to the DEC. Buyers comprising of wholesalers and retailers come from different parts of the country by small and medium sized lorries. Small lorries are used by individual wholesalers who do wholesale and retailing. Medium lorries are hired by a group of retailers. The JICA study (2012) pointed out the high transport cost due to use of small vehicles. Over 75% of the vehicles incoming and outgoing from the DEC at Dambulla are small and medium trucks (JICA, 2013).

The prices are determined by demand and supply. Before purchasing, the buyers go around to see the range of supplies at the market and bargain with suppliers. Suppliers also have a reference price and if that price is not materialized they reduce the prices. When the price behavior is analyzed for a year, it is clear that the price is mainly determined by the supply. In a normal year without adverse weather conditions, prices become the lowest during the period February – April due to arrival of large stocks especially from Jaffna and Puttalam areas, in addition to the Maha harvest coming from the other areas. Prices are highest in May and June due to lower supply coming from limited areas where production takes place under irrigation conditions. After June, prices again decline due to continuously increasing supply

from Matale, Hanguranketa, Ragala, Welimada and Bandarawela areas. Prices start increasing once again in November and continue till February. From this analysis, it is clear that prices are mainly determined by the supply level.

Trading takes place on a commission basis as in the Colombo market, but not on a percentage basis. The commission is based on the price of the commodity per kg. For example, commission fees for price less than ten rupees per kg is cents 50, and one rupee for between Rs.10-19 per kg. Most of the transactions take place on credit basis but payment to farmers is in cash. The DEC at Dambulla mainly functions as a distribution market. It is located in a central point where produce from the Northern Province (NP) is brought and products arriving from other locations is dispatched to the NP. Today, this market has become the largest market in the county due to its location specific competitive advantage compared to the Colombo market.

After the success of the Dambulla Economic Center, government established several economic centers both in supply and demand areas. Centers were set up in supply areas such as Nuwara-Eliya, Keppetipola, Thambuttegama and Norocholai which function as assembling points of products, while centers set up in demand areas such as Meegoda, Veyangoda, Welisara and Ratmalana function as distribution centers of products to the retail shops. Economic centers in demand areas have linked with economic centers in supply areas. For instance, the bulk of the stocks to the Meegoda market come from the Dambulla market. However, these trade linkages are not sufficiently formalized to enhance marketing efficiency. There is no advance order system through backward and forward relations.

Nuwara-Eliya based marketing system

It is important to investigate the marketing system operating in Nuwara-Eliya area due to two reasons: 1) year-round production and 2) commercial farming. Agriculture is the main occupation for 60.53% of the population and a secondary occupation for 73.77%, while 83% of the households mainly depend on vegetable farming for their livelihood in the Nuwara-Eliya district (Rupasena, 1995). The main vegetables grown in the district is exotic vegetables such as carrot, leeks, beetroots and cabbage. Of the total production in the country, 81% of carrot, 85% of leeks, 61% of beetroot and 51% of cabbage is from the Nuwara-Eliya district (Menege et al., 1998).

Before establishing the economic centers, the collector system and Colombo based commission system were the main marketing systems operating in the district. Rupasena (1995) found that 62% of the farmers sold vegetables to the village collectors, 12% to the outside collectors and 18% to the Colombo market

(Manning). The highest number of lorries carrying vegetables to the Colombo market (18 per day) were reported from Nuwara-Eliya (Menege et al., 1998). The collector system is well organized. Collectors have own trained laborers to undertake harvesting, packing, loading and unloading. Farmer inquire and negotiate the prices over the phone first, then a group of laborers harvests the product after the order is placed. This system first started with cabbage and expanded to all the crops. The reason for popularization of harvesting by collectors is due to difficulties in finding laborers by individual farmers. Payments for laborers are based on the piece. Key personnel interviews reveal that payment is Rs. 2.00 for cabbage, Rs. 2.50 for carrots/leeks and Rs. 5.00 for potatoes per kg. Variation depends on the nature of the work. The cabbage is cut, but the others are uprooted. Uprooting of potato takes much time. Although payment is paid by the collector, actually it is charged from the farmers in kind by deducting two kilograms per 50 kg.

The second most popular market outlet for sending vegetables from Nuwara-Eliya before establishing the economic center, was the Colombo commission market which is still functioning. Under this system, farmers have to harvest at about 10.00am, pack and bring to the roadside. Lorries belonging to the transport union travel and pick up vegetables from 2.00pm to 5.00pm and take it to the main center located in Nuwara-Eliya. From there, reloading take place into large lorries and the produce is transported to Colombo. The problem is that farmers have to handle the harvesting, packing and transportation to the roadside. There is price risk as prices are known only after the sale. Before setting up the economic center, collectors also sent vegetables to Colombo.

After the establishment of the economic center in Nuwara-Eliya in 2006 it has become a leading marketing system. It has a two-story building with 138 stalls and the ground floor is allocated for business. The number of stalls on the ground floor is 85. Of them, wholesale trading performs in 65 stalls, and the other stalls are used for retailing. Collectors occupy the stalls and one collector may own more than one. As mentioned earlier, the collectors do the harvesting and bring the vegetables to the economic center. Unlike in Dambulla, business takes place on a wholesale basis, not on a commission basis. It was revealed from the key personnel interviews that a cartel system operates in Nuwara-Eliya where price is determined by a few big collectors. This is the main reason for moving products to the other markets. As reported by government officials, discussions are taking place to introduce the commission system.

Roadside marketing system

This system evolved at production areas on a small scale to sell to local travelers. Fruits and vegetables are the major commodities sold and these traders obtain their supplies from neighboring areas by visiting the places. Interviews with consumers highlighted the fact that although prices are often higher than in

other places they prefer to buy here due to freshness. Retailers in these shops informed that prices are higher due to small scale businesses and the need to cover family expenditure from it.

In recent years, an increasing trend in roadside retailing in major consuming areas such as Colombo, Meerigama, Gampaha and Kurunegala was observed. There are two types of such selling: selling inside the van and selling in permanent shops. In many cities, big roadside shops are emerging with attractive displays of vegetables to attract buyers. Some shops are owned by the big producers and wholesalers. Development of organized retail shops at consumption areas is an innovative marketing strategy and can be developed further by supporting them. Interviews with these roadside traders found that the majority of them are young entrepreneurs. They mentioned that buyers prefer to buy from those who they know and trust. Hence, the customer relationship is a key to success in the business. In this context, there is a possibility to develop e-marketing tools with them because e-marketing operates successfully with strong business trust. There are no regulations for these types of shops at present. However, there is an urgent need for regulations if expansion is proposed (example is Helabojun).

Supermarket based marketing system

This is a modern marketing system compared to the conventional marketing systems explained above. The main difference between the two is integration of production and marketing in the supermarket system. Farmers are registered and only the products qualified with the requirement is purchased. The order is placed to the farmer on the phone and farmers brings the product to the collecting center. From collecting centers, products are transferred to the main warehouses by hired pre-cooled vehicles and then distributed to the retail shops. Fruits and vegetables are packed in plastic crates. Due to organized marketing systems, post-harvest losses are reduced to 5-10% and the farmers receive a higher price (Vidanapathirana, 2013). The same study found the purchasing of a limited quantity as a major constraint. Key officials from the supermarket confirmed this constraint and they are working on increasing the demand by improving quality and reducing price. In this regard, some supermarkets indicated the need of government involvement to improve quality and organize farmers. One supermarket chain has already started on their own initiative, providing technology, credit facilities and building strong network with farmers. The supermarket based marketing system operates with farmers through understanding. There are no written agreements.

Interviews with farmers confirmed their willingness to supply fruit and vegetables to the supermarkets, but the problem is the demand side. At present, supermarkets are only involved in retailing with their

shops - not doing wholesaling, processing or exporting. From the supermarket point of view, they are faced with difficulties in recruiting people. Many male youth are involved in three-wheel driving and recruiting females is problematic because of long work hours and absenteeism. At the other end, the cost of doing business is high due to a fragmented production system which brings about lower efficiency.

Company based marketing system

This is another modern marketing system. Under this system established companies developed links with farmers through contract farming. Some exporters and agro based industries use this business model mainly to obtain quality products and to lower costs removing the dependency on collectors who keep a higher margin. In fact, this model is not new. It was introduced in the early 1900s under the Mahaweli project through the Export Village Program (EPV). Under EPV, farmers are linked with exporters. However, this model was not successful. This was even implemented by many donors such as the World Bank, USAID, and UNDP. Due to a lack of commercial orientation of both the farmers and the traders, it resulted in an inability to establish business confidence that is required for sustainable businesses. Famers tend to sell to outsiders when market prices are higher than that of the contract price.

Despite weaknesses in the operation of this model, it is still being practiced and tested by developing business confidence with farmers and by correcting mistakes and introducing new strategies. One strategy is implementing welfare activities for the farmers as well as farmer communities as a Corporate Social Responsibility (CSR). Some companies construct common wells, farm roads and community centers as well as provide scholarships for year five students. The second is the provision of assistance such as technology, seeds and credit to the farmers. The third strategy is purchasing at higher prices than the market price by adopting a variable pricing policy instead of a rigid pricing policy. The fourth one is purchasing the entire stock from farmers without leaving rejects.

It was found during the course of the study that one company was established recently to purchase vegetables from farmers and distribute to the retailers in addition to its own retail outlets. The company organized farmers and set up packing centers at producing areas. Vegetables are packed in plastic crates. The company owned pre-cooling trucks which are used to pick up vegetables from packing centers and transport to the warehouse in Colombo and to distribute to their own retail outlets and to other potential buyers like the hotel sector. The price is determined by the company after careful investigation of prevailing market prices. The company found a growing demand and the need to enhance the supply base to meet the demand, but it is costly and in need of heavy investment. Government support through credit

facilities and allowing free import of cooling trucks are expected to expand the business locally as well as globally. The company adopted a model which was successfully implemented by South Korea.

E- marketing

This is also called digital marketing or e-marketing. In this system, buyers place orders on line after selecting the products by looking at samples presented in the apps and the payments are also made on line. Initially e-marketing commenced with purchasing of industrial products from global markets using apps such as "Alibaba". Sri Lanka has a number of apps such as "Govipola.com", "Ikman.com" and "Modgoviya" in addition to personal apps used by individual big farmers. Recently, an online payment system was also introduced to the Govipola app as an improved feature. In addition, a few delivery companies such as Uber, Pickme and Kapruka joined to deliver the products. HARTI is also developing another app called "Supiri pola" aimed at networking individual farmers with buyers. In this proposed system, farmers should be registered first and then they can display their products to potential buyers. Transactions takes place after negotiation between the two parties. However, the digital marketing system is not yet developed but the potential is high due to low cost and international acceptance. One constraint is that some farmers do not have easy access to these systems. However, this is expected to improve in the future. Small scale dedicated WhatsApp groups are also formed to exchange products, planting material, and useful technical and marketing information. This helps to maximize the grower's potential within the grower community.

4.3. Performance of the marketing system

The effects of structure and conduct of the market is referred to as market performance and it is measured by price behavior. In this study, price analysis was undertaken by using monthly producer, wholesale and retail prices of selected vegetables during the last five years (2011-2018). Data were obtained from the Hector Kobbekaduwa Agrarian Research and Training Institute. After discussions with traders at the Dambulla Economic Center (DEC) one main supply chain for vegetables was selected. The selected channel is Nuwara-Eliya → DEC → Anuradhapura for selected up country vegetables and Matale → DEC → Anuradhapura for selected low country vegetables. Accordingly, producer prices are from Nuwara-Eliya for upcountry vegetables, and Matale for low country vegetables. Retail price refers to the retail market at Anuradhapura. Price analysis includes trend analysis, market share analysis, variability analysis and seasonal analysis. Trend analysis was done using the regression technique; market share analysis was

done using the descriptive techniques such as averages and percentages; variability analysis was done using Coefficient of Variation (CV) and seasonal analysis was done using Auto Regressive Moving Average (ARMA).

Trend Analysis

Gross market margins were worked out by subtracting the producer price from retail price and it was regressed with time trend variable. The trend equation is given below:

Y = a + bt

Where Y= Monthly price difference between Retail Price (RP) and Producer Price (PP)

t = Monthly prices from 1 for January 2014 to 60 for December 2018

The regression line was estimated using Ordinary Least Square (OLS) method and results are presented in the Table below.

Table 4.1: Results of the trend analysis

Vegetable	Equation	T value	R^2	F value
Carrot	93.38 + 0.62t*	3.0501	0.37	9.3033
Cabbage	74.86 + 0.35t**	2.0241	0.25	4.0967
Tomato	64.567 + 0.18**	2.0954	0.27	4.3911
Beans	78.69 + 0.16t*	5.4391	0.58	29.5841
Cucumber	46.53 + 0.07t**	2.5518	0.32	6.5120
Bitter gourd	68.68 + 0.24t*	3.1190	0.38	9.7231

*significant at one percent ** significant at five percent

All the regression lines except for beetroot and green chilli are statistically significant based on the F-test and the coefficients of trend variables are significant either one or five percent level based on the t-test showing that there is positive linear trend of the dependent variable. The findings of the regression analysis show an increasing trend in gross margin during the last five years reflecting no increase of marketing efficiency during the period concerned. These results confirm the earlier argument on the absence of channel competition in the fruit and vegetable trading. If there is channel competition, the marketing margin shows a decreasing trend resulting in lowering of operational costs and traders' profits.

Market Share Analysis

The producers' share of consumer prices was computed and the minimum and maximum shares for the selected vegetables are shown in the Table 4.2 given below. Detailed results are shown in the Annex 13. As shown in the Table, the farmer's share becomes lowest in March and April in the year whereas it reaches the maximum levels in December to January and June to July. This period aligns with the supply

pattern. In general, December to January and June to July are off-season for vegetables. The lowest prices were reported as a result of the harvesting with the Maha season. This behavior implies that traders follow the variable mark-up principle. Traders keep higher margins during the harvesting period and keep lower margins during the off-season. This practice favours price stabilization for consumers but farmers are losing on profits. It was also found that the lowest minimum and maximum price fetched was for cucumber, indicating that cucumber farmers are least merit and highest demerit receivers. On the other hand, farmers who grow beans and carrot benefited more than other farmers. Green chilli farmers can get benefits by cultivation during the off-season.

Table 4.2: Minimum and maximum farmer's share (%) of the consumer price

Vegetable	Minimum	Month	Maximum	Month
Beans	48.57	March	60.96	February
Carrot	39.34	March	60.99	June
Beetroot	29.99	April	47.51	December
Cabbage	30.24	March	43.90	July
Tomato	38.34	April	54.04	June
Cucumber	22.85	August	42.55	January
Bitter gourd	35.30	April	53.58	September
Green chilli	30.98	April	59.72	December

(Source: Author computed using price data from HARTI)

Price Variability

Price variability was measured through coefficient of variations: higher the value means higher variability and vice versa. As shown in Table 4.3 tomatoes and green chillies reported high price fluctuations. Similarly, all vegetables concerned have price instability during the period concerned. This means vegetable farmers are facing high price risks.

Table 4.3: Values of the coefficient of variation (%)

Crop	2014	2015	2016	2017	2018
Green beans	21.86	35.25	14.36	18.48	24.69
Carrot	32.66	34.71	34.15	29.81	27.08
Beetroot	32.11	50.80	53.95	38.97	37.70
Cabbage	37.00	43.23	32.33	37.19	31.61
Tomato	50.01	47.26	50.15	19.69	55.67
Cucumber	23.59	34.34	17.91	23.93	13.13
Bitter gourd	33.40	38.95	44.50	26.06	40.19
Green chilli	59.48	65.55	68.29	31.75	52.96

(Source: Author computed using price data from HARTI)

Seasonal Price Variation

Agricultural products are seasonal due to cultivation depending on monsoons. Vegetables are highly seasonal because cultivation is largely under rain-fed conditions. The seasonal price index was computed using ARMA model. The results are shown in the following table. As shown in the table there are two distinct periods in the year when prices are low: March - April and August - September. These two periods coincide with two harvesting seasons. Annex 14 shows the seasonal price variation of vegetables.

Table 4.4: Seasonal price index

Month	Green beans	Carrot	Beetroot	Cabbage	Tomato	Cucumber	Green chilli
January	110	113	147	100	93	127	128
February	90	86	91	75	89	111	73
March	77	69	65	62	62	87	59
April	77	85	92	81	69	93	66
May	104	105	109	100	107	116	77
June	112	134	144	133	133	105	139
July	105	116	120	126	134	88	165
August	97	94	63	98	77	74	93
September	88	82	55	90	75	78	63
October	102	83	69	96	91	98	74
November	116	114	103	112	131	104	114
December	123	119	142	130	138	118	151

(Source: Author computed using data from HARTI)

The magnitude of the seasonal price variation can be captured by computing the variation between minimum and maximum index value. Accordingly, the highest price increase compared to the lowest was more than double for beetroot, cabbage, tomatoes and green chilli (Table 4.5).

Table 4.5: Magnitude of the seasonal price variation

Vegetable	Lowest	Highest	Percentage increase
Green beans	76.67	123.48	161.05
Carrot	68.72	133.61	194.41
Beetroot	54.73	146.62	267.90
Cabbage	61.52	132.60	215.56
Tomato	61.53	138.48	225.05
Cucumber	73.71	126.97	172.26
Green chilli	59.25	164.50	277.63

(Source: Author computed using price data from HARTI)

4.4. Value chain analysis for selected crops

4.4.1. Analysis of farmer survey

Profile of the surveyed farmers

The farmer profiles comprise of demographic factors, education, land ownership, income and expenditure. Mean age of the selected vegetable farmer group and fruit farmer group is 52.9 years and 47.9 years respectively. Median and mode age of the farmers are almost similar reflecting the bell shape curve. Hence, the majority of the vegetable and fruit farmers are in the middle age group. Over 95% of both vegetable and fruit farmers in the sample are heads of their families. The average family size of the majority of selected vegetable farmers (52.5%) is four and for fruit farmers is five. Since labor scarcity is a major problem for the vegetable and fruit farming sectors, availability of family labor was investigated in the survey. Results showed that the majority of them (95%) are having one or two family members in addition to the farmer to help in the farming. When the family size and availability of family members for farming are considered, family farming is a possible option to undertake.

Another issue is family succession, the willingness of another family member to succeed the farmer. As reported, 42.5% of farmer families have at least one family member ready to continue farming. This is a positive factor which facilitates the promotion of vegetable and fruit farming commercially. As expected, the main occupation of all the farm families in the sample is farming. A secondary occupation was reported only in 30% of the selected vegetable farmer group and 25% in the fruit farmer group. Thus, farming is the one and only livelihood for most families. The average monthly income of vegetable and fruit famers was reported as Rs. 59,950 and Rs. 74,347 respectively. Average expenditure of the two groups was reported as Rs. 36,325 and Rs. 46,750 respectively. Income and expenditure analysis shows that the fruit growers are in a better position when compared with the vegetable growers.

(Table 01 of Annex 15 presents the results on farmer profile.)

Cropping pattern

The cropping pattern is the number of crops grown by a farmer either on the same land or in different lands during the cultivation season. If the farmer grows more than one crop, it implies that the farmer understands of the farmer risk minimization. According to the figures given in Table 4.6, the majority of the farmers cultivated more than one crop reflecting the understanding of the risk factors.

Table 4.6: Cropping pattern

Number of crops cultivated	Vegetable farmers (n=40)						Fruit farmers (n=20)					
	2018/2019 Maha		2019 Yala		2019/2020 Maha		2018/2019 Maha		2019 Yala		2019/2020 Maha	
	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%
One	9	22.5	8	20.0	8	20.0	10	50.0	6	30.0	0	0.0
Two	17	42.5	18	45.0	20	50.0	5	25.0	4	20.0	0	0.0
Three	12	30.0	7	17.5	12	30.0	5	25.0	3	15.0	2	10.0
Total	38	95.0	33	82.5	40	100	20	100	13	65.0	2	10.0

(Source: Farmer survey by Author)

Factors affecting the selection of crop by farmers

Crop selection criteria is useful to understand the business mentality of the farmers. Reasons reported by farmers in crop selection of the survey are summarized in the Table 4.7 below. Although an assured market is one of the least priority reasons for vegetable farmers, it is one of the main reasons in crop selection for the fruit famers. Unlike vegetable farmers, a higher price is not the main reason for crop selection by fruit farmers. This reflects fruit farmers are quite business oriented compared to the vegetable farmers. Nevertheless, convenience to grow, experience and suitability are the priority reasons for both farmer groups. Hence, both groups are not market oriented and are less innovative. It is also clear from the results that, as the high price of vegetables is followed by a lowered price in the next season, that the farmer's selection of crops is based on the current market price.

Table 4.7: Distribution of farmers on major reasons for crop selection

Reasons	Maha 2018/19				Yala 2019			
	Vegetable		Fruit		Vegetable		Fruit	
	Num	%	Num	%	Num	%	Num	%
High price	36	90.0	20	100.0	26	65	7	35
Suitability to soil	30	75.0	11	55.0	13	32.5	4	20
Crops grown by other farmers	21	52.5	10	50.0	18	45	5	25
Convenience to grow	21	52.5	12	60.0	19	47.5	9	45
Experience	26	65.0	18	90.0	23	57.5	8	40
Assured market	6	15.0	14	70.0	4	10	2	10
Contract farming	5	12.5	0	0.0	0	0.0	0	0.0
Upon expert's advice	2	5.0	0	0.0	0	0.0	0	0.0
Others	3	7.5	0	0.0	0	0.0	0	0.0

(Source: Farmer survey by Author)

Selection of inputs by farmers

This section presents the sources/purchasing outlets of seeds, fertilizer and agrochemicals. Table 4.8 shows the selected seed outlets. Private traders are dominant in the seed distribution, especially for the vegetable sector due to the use of imported hybrid seeds. Although the Agrarian Service Centers (ASCs) were established to distribute inputs to the famers, their role is now minimal as shown in Table 4.8. This situation leads to the development of a monopoly of the seed distribution in the private sector. As observed, there are only one or a few seed traders in a given locality.

Table 4.8: Source of seed purchased by farmers

Source of seed	Vegetable		Fruit		Total	
	Num	%	Num	%	Num	%
Own	3	7.5	5	25.0	8	13.3
Private trader	35	87.5	6	30.0	41	68.3
ASC	2	5.0	1	5.0	3	5.0
Other farmers	0	0.0	7	35.0	7	11.7
Contractor	2	5.0	0	0.0	2	3.3
Other	0	0.0	1	5.0	1	1.7

(Source: Farmer survey by Author)

Table 4.9 shows the chemical fertilizer shops selected by the farmers. It was found that the purchasing behavior of the farmers of the chemical fertilizer is similar to the results of seed sourcing. The reasons may be that both seeds and fertilizer are sold at one shop. None of the vegetable farmers in the sample use ASC to purchase fertilizer, while only one fruit farmer out of 20 visited ASC for purchasing of fertilizer.

Table 4.9: Sources of chemical fertilizer purchased by farmers

Source of chemical fertilizer	Vegetable		Fruit		Total	
	Num	%	Num	%	Num	%
Private trader	38	95.0	18	90.0	56	93.3
ASC	0	0.0	1	5.0	1	1.7
Other	2	5.0	2	10.0	4	6.7

(Source: Farmer survey by Author)

Table 4.10 depicts the farmers' purchasing behavior of organic fertilizer. Only 29 out of 40 vegetable farmers applied organic fertilizer. Among them, only one farmer used their own organic fertilizer and the majority are dependent on private traders. Regarding fruit cultivation, only 7 farmers out of 20 (35%) applied organic fertilizer. Vegetable and fruit farmers are also largely dependent on private traders for purchasing organic fertilizer.

Table 4.10: Source of organic fertilizer purchased by farmers

Source of organic fertilizer	Vegetable		Fruit		Total	
	Num	%	Num	%	Num	%
Own	1	3.4	1	14.3	2	5.6
Private trader	20	69.0	1	14.3	21	58.3
ASC	3	10.3	0	0.0	3	8.3
Other	5	17.3	5	71.4	10	27.8

(Source: Farmer survey by Author)

Table 4.11 shows the magnitude of agrochemical sources among the farmers. Private traders are the dominant suppliers. The figure is over 90%. The overall results show the dominancy of the private sector in the input market. Key Informant Interviews revealed the high margins maintained by the private sector in input marketing due to this situation. They argued on the prevalence of oligopolistic market structure in input marketing. At retail level, the traders maintain two prices: high discounted price on cash purchase and the display price on credit sales. Since the majority of farmers purchase on credit, they are not in a position to get the benefit of the discount.

Table 4.11: Source of agro chemicals purchased by farmers

Source of agro chemicals	Vegetable		Fruit		Total	
	Num	%	Num	%	Num	%
Private trader	37	92.5	18	90.0	55	91.7
Other	3	7.5	2	10.0	5	8.3

(Source: Farmer survey by Author)

Cost of Production (COP)

Table 4.12 shows the cost of production without costing family inputs/labor. In fact, it is a cash cost incurred by the farmers. As shown in Table 4.12 the structure of COP is different for the selected crops. Material cost is the highest for carrot (62.9%), whereas labor cost is the highest for tomato (75.5%). The reasons for the variability are the duration of the crop, agronomic practices and type of seeds used. Due to this variability, comparison is not appropriate. Nevertheless, comparison among three input groups (material, machinery and labor) for individual crops is useful. For instance, with regard to beetroot, labor constitutes 63.6% of the total cost.

Table 4.12: Cost of production per acre excluding family labor (material, machinery, labor)

Crop	Material		Machinery		Labor		Total
	Rs.	%	Rs.	%	Rs.	%	Rs.
Beetroot	52865	31.0	9238	5.4	108318	63.6	170421
Carrot	190577	62.9	13348	4.4	99036	32.7	302961
Cabbage	52188	40.6	11725	9.1	64519	50.2	128431

Crop	Material		Machinery		Labor		Total
	Rs.	%	Rs.	%	Rs.	%	Rs.
Beans	67063	56.7	0	0.0	51273	43.3	118336
Cucumber	61906	47.4	9077	6.9	59734	45.7	130717
Mango	140459	42.0	5938	1.8	187750	56.2	334147
Green chilli	127473	44.3	11057	3.8	149437	51.9	287967
Tomato	40071	18.6	12667	5.9	162427	75.5	215164
Bitter gourd	107643	71.7	6077	4.0	36338	24.2	150058
Papaya	151425	51.4	5981	2.0	136914	46.5	294320
Banana	89760	64.8	6267	4.5	42560	30.7	138587

(Source: Farmer survey by Author)

Table 4.13 presents cost of production including cost of family owned inputs. Labor comprises the main input provided by the family for which value was computed using market wage rate. Hence, the percentage of labor cost has gone up compared with the cost of production without family input cost.

Table 4.13: Cost of production per acre including family labor (material, machinery, labor)

Crop	Material		Machinery		Labor		Total
	Rs.	%	Rs.	%	Rs.	%	Rs.
Beetroot	52865	27.6	9238	4.8	129549	67.6	191651
Carrot	190577	62.4	13348	4.4	101539	33.2	305464
Cabbage	52188	37.7	11725	8.5	74475	53.8	138388
Beans	67063	50.8	0	0.0	65050	49.2	132114
Cucumber	61906	30.7	9077	4.5	130752	64.8	201735
Mango	140459	37.2	5938	1.6	231250	61.2	377647
Green chilli	127473	35.5	11057	3.1	220714	61.4	359244
Tomato	40071	13.6	12667	4.3	241850	82.1	294588
Bitter gourd	107643	36.3	6077	2.1	182468	61.6	296188
Papaya	151425	30.8	5981	1.2	334057	68.0	491463
Banana	89760	39.0	6267	2.7	134360	58.3	230387
Pineapple	142640	63.4	12300	5.5	70200	31.2	225140

(Source: Farmer survey by Author)

Disposal of production

Table 4.14 shows the disposal of production of each crop. In principle, the quantity sold equals harvested quantity minus sum of quantity retained for seeds, payment in kind, donations, home consumption and wastage. None of the farmers retained a quantity for seeds. No donations were reported for crops like beetroot and carrot because most of families have such crops and therefore the need is less. Nevertheless, the situation is different for beans grown in Welimada area where farmers donate beans to neighbors. High wastage was reported for cucumber, beans, green chilli and tomato which was over 6% of the

production. As reported by farmers, the reasons for high wastage are damage (beans, cucumber, tomatoes) and small size (tomatoes, cucumber, carrot). Since the quantity sold for many vegetables and fruits is over 90%, less than 1% of harvested production is used for home consumption. Cultivation of vegetables and fruits is done for solely commercial purposes. Cultivation for seed purposes was not reported.

Table 4.14: Disposal of production reported by surveyed farmers by type of crops

Crop	Payment in kind		Home consumption		Wastage		Quantity sold		Harvest
	Kg.	%	Kg.	%	Kg.	%	Kg.	%	Kg.
Beetroot			24	0.1	445	2.8	15650	97.1	16119
Carrot			10	0.1	1120	5.6	18825	94.3	19955
Cabbage			44	0.3	535	3.3	15700	96.4	16279
Beans	1430	3.8	43	0.1	2220	6.0	33504	90.1	37197
Cucumber	229	0.5	111	0.2	3382	7.6	40773	91.6	44495
Mango	158	0.6	107	0.4	778	2.8	26867	96.3	27910
Green chilli	103	0.6	41	0.2	1095	6.4	15981	92.8	17220
Tomato	141	0.2	93	0.1	4453	7.2	57423	92.5	62110
Bitter gourd			41	0.1	876	2.9	29698	97.0	30615
Papaya			2925	0.6	14475	3.2	440200	96.2	457600
Banana			1455	1.2	1150	0.9	123255	97.9	125860
Pineapple	10		5	0.0	235	0.8	29390	99.2	29640

(Source: Farmer survey by Author)

4.4.2. Analysis of trader survey

Profile of the traders

As shown in Table 01 of Annex 16, the average age of selected wholesalers and retailers are 50 and 47 respectively. Household size is 4-5 for both groups as reported by nearly 80% of the sample traders. It was also found that at least one family member is available for supporting the business, i.e., as reported, the figures are 71% for wholesalers and 50% for retailers. As expected, the main occupation is the business for all the traders in the sample. Of the wholesalers, the majority (52.6%) were involved in farming as a secondary occupation, whereas the corresponding figure for retailers was only 28.6%. In the case of retailers, only 5 out of 14 reported a secondary occupation. The reported average monthly income was Rs. 792,526 for wholesalers and Rs. 132,535 for retailers.

Type of business involved

An attempt was made to find out the type of business the wholesalers and retailers were carrying out in addition to the main business. As shown in the vertical integration, it is insignificant in number. As given

in Table 4.15, own transportation is limited only to 8.8% of the vegetable wholesalers and 5.8% of fruit wholesalers, while retailing is carried out by only 3.8% of the vegetable wholesalers and 9.6% of fruit wholesalers. However, 21.2% vegetable wholesalers are involved in input supplying.

Table 4.15: Type of business involved (% of sample size)

Activity	Vegetable		Fruits		OFC		Total	
	W	R	W	R	W	R	W	R
Input supplying	21.2	0.0	5.8	0.0	1.9	0.0	28.8	0.0
Collecting of farm products	9.6	3.8	11.5	3.8	1.9	0.0	23.1	7.7
Wholesaling	46.9	1.9	30.8	1.9	1.9	0.0	84.6	3.8
Transporting	8.8	0.0	5.8	0.0	0.0	0.0	9.6	0.0
Retailing	3.8	19.2	9.6	15.4	0.0	0.0	13.5	34.6
Farming	28.8	3.8	7.7	5.8	1.9	0.0	38.5	9.6

(Source: Trader survey by Author)

Structure of the business

As shown in the Table 4.16 individual businesses are dominant in both vegetable and fruit businesses. In the retail business 90% of the vegetable retailers and 78.8% of the fruit retailers own and operate the business. In this context, it is not easy to get credit facilities from banks due to the inability/difficulty to prepare business plans and banks are reluctant to give loans because of the uncertainty. This may be the reason for not implementing innovative marketing activities to reduce the cost and improve marketing. It is also a fact that innovative ideas generally come through partnerships.

Table 4.16: Structure of the businesses (% of sample size)

Type	Vegetable		Fruits	
	W	R	W	R
One person owned	76.9	90.4	61.5	78.8
Group (family) business	23.1	9.6	38.5	21.2

(Source: Trader survey by Author)

Source of buying

Table 4.17 presents the results of the buying sources of wholesalers and retailers. Both vegetable wholesalers and retailers mainly depend on the economic centers. As reported, 46.2% of the vegetable wholesalers and 47.1% of vegetable retailers purchase vegetables from the Economic Centers. The situation with regard to fruit is different. Collectors are the main suppliers to the fruit wholesalers. As reported, 65.7% of the fruit wholesalers purchased fruits from collectors, followed by 19.2% from farmers. The majority of fruit retailers (42.3%) purchase fruit from wholesalers.

Table 4.17: Source of buying (%)

Source of buying	Vegetables		Fruits	
	W	R	W	R
Farmers	26.9	17.3	19.2	13.5
Collectors	25.0	9.3	65.7	1.9
Wholesalers	3.8	7.7	0.0	42.3
"Pola" traders	1.9	18.6	5.8	14.3
Economic Centers	46.2	47.1	9.0	28.0

(Source: Trader survey by Author)

Selling sources

The selling pattern of both wholesalers and retailers are given in Table 4.18. Selling from wholesalers to wholesalers is 34.6%, which is the largest buyer segment of the selected sample. The interviews with wholesalers indicated that the larger wholesalers have their own lorries which come to the markets in the vicinity of the production areas to make purchases, and then to sell to wholesalers in their areas. The sale of products to institutes is insignificant in number. As expected, consumers are the major buyers from the retailers, comprising over 90% of the buyers.

Table 4.18: Source of selling (%)

Source of buying	Vegetables		Fruits		OFC
	W	R	W	R	W
Consumer	1.9	90.4	7.7	92.3	1.9
Retailers	28.8	5.8	9.6	5.8	0.0
Wholesalers	34.6	0.0	13.5	1.9	0.0
Institutes	1.9	0.0	1.9	0.0	1.9
Processors	5.8	3.8	1.9	0.0	0.0

(Source: Trader survey by Author)

Cost of marketing

The costs incurred by traders are given below (Table 4.19). As shown in the table, the transport cost is the highest cost incurred by all types of traders. With regard to costs, as found by the JICA study (2012), the use of small trucks is the main reason for the cost being high, followed by lengthy marketing channels (more than one wholesaler) and the tendency of retailers to travel to wholesale markets, instead of wholesalers distributing to the retailers.

Table 4.19: Cost of marketing (variable cost) Rs/month

Item	Vegetables				Fruits			
	Wholesaler		Retailer		Wholesaler		Retailer	
	Total	Avg Value	Total	Avg Value	Total	Avg Value	Total	Avg Value
Grading					60000	20000.0		
Loading	87500	43750.0	25697	12848.5	183000	36600.0	10560	10560.0
Packing			7200	7200.0				
Storage					8000	8000.0		
Transport	367272.7	122424.2	147600	36900.0	400000	80000.0	46000	23000.0
Unloading	94000	31333.3			162000	32400.0		
Other	533950	31408.8	34000	11333.3	90400	18080.0	14600	14600.0
Total	1082723	43308.9	214497	21449.7	903400	37641.7	71160	17790.0

(Source: Trader survey by Author)

Wastage

Table 4.20 presents the wastage of vegetables reported by traders based on their experience. Cucumber and cabbage have higher wastage percentage while bitter gourd and beans are lower. As reported by traders, the short shelf life is the main reason for higher losses of cucumber and removal of outer leaves used as packing material is the main reason for higher losses of cabbage. Losses of beans is less because it is a fast moving item.

Table 4.20: Wastage of vegetables - commodity wise

Commodity	Quantity purchased (kg)	Quantity sold (kg)	Total losses	% of losses to quantity purchased
Beetroot	3511	3109	402	11.44
Carrot	71733	65019	6714	9.36
Cabbage	3072	2568	504	16.42
Beans	115	105	10	8.70
Green chilli	33.5	28	6	16.42
Tomato	34	29	5	13.89
Bitter gourd	2006	1881	125	6.24
Cucumber	78	64	14	17.69
Raddish	35	31	4	11.43

(Source: Trader survey by Author)

Post-harvest losses of fruits are presented in Table 4.21. The wastage figures of papaya, mango and banana is higher than others and the cause is attributed to the chemicals applied for ripening. Interviews with traders found that collectors harvest all the mango fruits at one and the same time irrespective of

ripeness, including the immature fruits to which they apply chemicals to ripen them. Accordingly post-harvest losses are mainly due to carelessness on quality by market participants.

Table 4.21: Wastage of fruits commodity wise

Commodity	Quantity purchased (kg)	Quantity sold (kg)	Total losses	% of losses to quantity purchased
Mango	128	106	22	16.96
Papaya	7160	5375	1785	24.93
Banana	72800	61014	11786	16.19
Pineapple	4975	4740	235	4.73
Guava	50	45	6	11.00
Melon	40	36	4	10.00

(Source: Trader survey by Author)

Problems reported by traders

Table 4.22 presents the magnitude of the problems faced by both wholesalers and retailers. Lack of facilities in the market is the main problem reported by all traders, i.e., vegetable wholesalers (48%), fruit wholesalers (19%), vegetable retailers (15%) and fruit retailers (8%). Poor quality of the products is also a common problem for wholesalers (36% for vegetable and 13.3% for fruit). The third pressing problem is credit, i.e., access to credit and high interest rates. Over one third of the vegetable wholesalers (37%) reported the problem of high interest rates. The fourth important problem is lack of storage facilities. As reported, 27% of vegetable wholesalers and 15% of fruit wholesalers face this problem. Poor quality of produce and high post-harvest losses together (25%) is the main problem reported by vegetable retailers and those who are mainly attending to cleaning and sorting of products of the supply chain.

Table 4.22: Problems faced by traders (% of sample traders)

Problem	Vegetable		Fruits	
	Wholesaler	Retailer	Wholesaler	Retailer
Lack of regular supply	19.2	5.8	9.6	5.8
Lack of storage facilities	26.9	9.6	15.4	3.8
Inconsistent govt. policies	23.1	9.6	1.9	1.9
Poor quality of products	36.5	13.5	13.5	7.7
High post-harvest losses	13.5	11.5	5.8	3.8
Lack of access to credit	13.5	13.5	5.8	1.9
High interest rate	36.5	13.5	3.8	1.9
Inability to compete with imports	9.6	0.0	1.9	3.8
Inefficiency of govt. support	21.2	9.6	7.7	1.9
Lack of facilities in the market	48.1	15.4	19.2	7.7
Other	3.8	0.0	3.8	0.0

(Source: Trader survey by Author)

4.4.3. Analysis of the results of tracer survey

Results of the tracer survey for selected crops are analyzed in this section. Description of how the survey was done is explained in the methodology section. Analysis includes commodity flow, time flow and value flow. In addition, post-harvest losses were estimated. Losses include weight losses and discarded amounts by cleaning and sorting and unsold quantity.

BEETROOT

The selected channel for beetroot is:

Farmer → Wholesaler, Economic Center, N'Eliya → Wholesaler, Kurunegala → Retailer → Consumer

This is the leading marketing channel at the economic center in Nuwara-Eliya. Movement of the traced bag from the farm to final destination was monitored. The farm was 4km away from the economic center. The bag (37 kg) was loaded at 7.30am on 8th February 2020 and from the farm it took 23 hours to reach final consumer in Kurunegala. Weight loss was one kilogram from Nuwara-Eliya to Kurunegala and the discarded amount was 4 kg due to cleaning and sorting by the retailer. Accordingly, total post-harvest losses in terms quantity amounted to 5kg out of 37kg at the retail level representing 13.51%, while the loss of value was 10.2% of the retail price. Producer margin which was computed by deduction of cost of production from sale value amounted to Rs. 1008.25/37kg representing 26.5% of the retail price. The second highest, 12.9% was reported for a wholesaler. The producer got 43% of the consumer price.

Table 4.23: Tracer survey results of Beetroot

Date: 08/02/2020						
Channel: margin	**Farmer**	**Economic Center**	**Wholesaler**	**Retailer**	**Consumer**	
Location:	Ruwaneliya	N'Eliya	Kurunegala	Kurunegala	Kurunegala	
Distance:		4 km	116 km	50 m	50 m	*120 km*
Duration:	7.30 am	1.20 pm	6.00 pm	5.45 am	6.30 am	*23 hrs*
Quantity:	37 kg	37 kg	36kg	36 kg	32 kg	
Discarded:				4 kg		
Price: (Rs/kg)		60.00	70.00	82.00	140.00	

Value chain analysis for Beetroot

Descriptions	Value (Rs)	Percentage
Cost of production (Rs.15.25 x 37 kg)	564.25	14.8
Producer's margin	1008.25	26.5
Collector's margin	289.71	7.6
Wholesaler's margin	489.96	12.9
Retailer's margin	388.72	10.2
Transport	226.94	6.0

Handling	446.09	11.7
Wastage (5kg)	388.00	10.2
Consumer price	3801.92	100.0

(Source: Tracer survey by Author)

CARROT

The selected channel for carrot is the same as beetroot:

Farmer → Wholesaler, Economic Center, N'Eliya → Wholesaler, Economic Center, Meegoda → Retailer → Consumer

Carrot was purchased by the wholesaler at the Nuwara-Eliya Economic Center. The farm was 12km away from the economic center in Nuwara-Eliya. The bag (58 kg) was loaded at 7.40am on 26th February 2020 from the farm and it took 24 hours to reach the final consumer in Angoda. Weight loss was 1.5kg from Nuwara-Eliya to Meegoda and the wholesaler had to bear the weight loss. The discarded amount was 5kg due to cleaning and sorting by the retailer. Accordingly, the total post-harvest losses in terms quantity amounted to 6.5kg out of 58kg at the retail level representing 12.07%, while the loss of value was 7.6% of the retail price. The producer margin which was computed by deduction of cost of production from sale value amounted to Rs. 4346.52/58kg representing 41.7% of the retail price. The second highest margin, 9.0% was reported for the retailer who bore the quantity loss. The producer got 62% of the consumer price.

Table 4.24: Tracer survey results of Carrot

Date: 26/02/2020						
Channel:	**Farmer**	**Collector**	**Wholesaler**	**Retailer**	**Consumer**	
Location:	Pattipola	N'Eliya (DEC)	Meegoda (DEC)	Angoda	Angoda	
Distance:		12 km	157 km	20 km		*189 km*
Duration:	7.40 am	12.40 pm	4.40 am	7.00 am	8.00 am	*24 hrs*
Quantity:	58 kg	58 kg	56.5 kg	56.5 kg	51.5 kg	
Discarded:				5 kg		
Price: (Rs/kg)		110.00	125.00	140.00	177.18	

Value chain analysis for Carrot

Description	Value (Rs)	Percentage
Cost of production (Rs.32.56 x 58 kg)	1888.48	18.1
Producer's margin	4346.52	41.7
Wholesaler's margin (Economic Center –N'Eliya)	578.84	5.6
Wholesaler's margin (Economic Center –Meegoda)	847.50	8.1
Retailer's margin	935.06	9.0
Transport	515.51	4.9

Handling	521.74	5.0
Wastage	790.00	7.6
Consumer price	10423.50	100.0

(Source: Tracer survey by Author)

CABBAGE

The same channel was selected:

Farmer → Wholesaler, Economic Center, N'Eliya → Wholesaler, Ampara → Retailer → Consumer

However, the locations were different. The farm was 8km away from the Economic Center in Nuwara-Eliya. The traced bag was purchased by a wholesaler in Ampara. The bag (57 kg) was loaded at 7.40 am on 28th February 2020 from the farm and took 23 hours to reach the final consumer in Ampara. Weight loss is 2kg from Nuwara-Eliya to Ampara and the discarded amount was 6kg due to cleaning and sorting by the retailer. Accordingly, total post-harvest losses in terms quantity amounted to 8kg out of 57kg at the retail level representing 14.04%, while the loss of value was 10.8% of the retail price. Producer margin, which was computed by deduction of cost of production from sale income, amounted Rs. 2315.91/57kg representing 31.2% of the retail price. The second highest margin 13.8% was reported for the collector (trader at Economic Center). The producer got 39% of the consumer price.

Table 4.25: Tracer survey results of Cabbage

Date: 28/02/2020						
Channel:	**Farmer**	**Collector**	**Wholesaler**	**Retailer**	**Consumer**	
Location:	Seethaeliya	N'Eliya (DEC)	Ampara	Ampara	Ampara	
Distance:		8km	208km	0km	100m	*216km*
Duration:	7.40am	12.40pm	4.40am	7.00am	8.00am	*23hrs*
Quantity:	57kg	57kg	55kg	55kg	49kg	
Discarded:				6kg		
Price: (Rs/kg)		60.00	85.00	105.00	152.04	

Value chain analysis for Cabbage

Description	Value (Rs)	Percentage
Cost of production (Rs.17.37 x 57 kg)	990.09	13.3
Producer' s margin	2315.91	31.2
Wholesaler's margin (N'Eliya)	1024.86	13.8
Wholesaler's margin (Ampara)	565.44	7.6
Retailer's margin	912.11	12.3
Transport	430.92	5.8
Handling	393.02	5.3
Wastage (8kg)	800.00	10.8
Consumer price	7432.35	100.0

(Source: Tracer survey by Author)

BEANS

This tracer survey was related to the Colombo based commission system. The marketing channel selected was:

Farmer → Commission agent, Colombo → Retailer → Consumer

Under this channel, the farmer directly sent beans to the commission agent in Colombo. Harvesting of beans was started at 8.00am on 05th March 2020 and the beans were loaded into the lorry at 1.00am. The arrival time at the Manning Market, Colombo was 3.00am the following day. The retailer at the Manning Market purchased at it 5.30am and selling started at 7.00am. The total post-harvest losses were 2kg comprising 1kg for weight loss and 1kg for discarded quantity at retail level, representing 4.76% of the quantity. The value of the losses was 7.5% of the consumer (retail) price. The producer margin which was computed by deduction of cost of production from the sale income was Rs. 892.50kg for 42kg representing 18.5% of the retail price. Unlike other vegetables, the highest margin of 32.9% was reported for the retailer. According to the interviews with the retailers, a higher margin is kept for beans due to strong demand. The similar result was found from a study of JICA (2013). The producer price was 39% of the consumer price.

Table 4.26: Tracer survey results of Beans

Date: 05/03/2020					
Channel:	**Farmer**	**Wholesale**	**Retailer**	**Consumer**	
Location:	Kandepuhulpola	Colombo	Colombo	Colombo	
Distance:		190km	0km	50m	*190km*
Duration:	8.00am	3.00am	5.30am	7.00am	*23hrs*
Quantity:	42kg	42kg	41kg	40kg	
Discarded:			1kg		
Price: (Rs/kg)		60.00	70.00	120	

Value chain analysis for Beans

Description	Value (Rs)	Percentage
Cost of production (Rs.28.75 x 42kg)	1207.50	25.1
Producer's margin	892.50	18.5
Wholesaler's margin	350.70	7.3
Retailer's margin	1586.73	32.9
Transport	199.50	4.1
Handling	220.00	4.6
Wastage (5kg)	360.00	7.5
Consumer price	4816.93	100.0

(Source: Tracer survey by Author)

TOMATO

Tracer survey on tomato was related to the Dambulla Economic Center and selected marketing channel was:

Farmer → Commission agent, Economic Center, Dambulla → Wholesaler, Economic Center, Veyangoda → Retailer → Consumer

This is one of the leading marketing channels at DEC in Dambulla. The traced box was purchased from the Economic Center by a wholesaler in Veyangoda. The farm was 30 km away from the Economic Center in Dambulla. The box (18 kg) was loaded at 5.30am on 03th March 2020 from the farm and took 36 hours to reach the final consumer at Kotadeniyawa. Weight losses were only 0.5kg out of 18kg. Discarded amount was 2.5kg due to cleaning and sorting by the retailer. Accordingly, the total post-harvest losses in terms quantity amounted to 3kg out of 18kg at the retail level representing 14.04%, while the loss of value was 9.4% of the retail price. Producer margin which was computed by deduction of the cost of production from the sale income which was Rs. 1375.92/18kg representing 41.0% of the retail price. The second highest margin of 17.0% was reported for the retailer. The producer got 53% of the consumer price.

Table 4.27: Tracer survey results of Tomato

Date: 03/03/2020						
Channel:	**Farmer**	**Commission agent**	**Wholesaler**	**Retailer**	**Consumer**	
Location:	Nikawatawana	Dambulla (DEC)	Veyangoda (DEC)	Kotadeniyawa	Kotadeniyawa	
Distance:		30km	120km	23km		*173km*
Duration:	5.30pm	10.20am	4.00pm	6.00am		*36hrs*
Quantity:		18kg	18kg	17.5kg	15kg	
Discarded:					2.5kg	
Price (Rs/kg)		105.00	110.00	130.00	200.00	

Value chain analysis for Tomato

Description	Value (Rs)	Percentage
Cost of production (Rs.22.56 x 18kg)	406.08	12.1
Producer's margin	1375.92	41.0
Commission agent's margin (Dambulla)	67.14	2.0
Wholesaler's margin (Veyangoda)	212.76	6.3
Retailer's margin	570.30	17.0
Transport	169.86	5.1
Handling	240.08	7.2
Wastage (3.0kg)	315.00	9.3
Consumer price	3357.14	100.0

(Source: Tracer survey by Author)

BITTER GOURD

Tracer survey on bitter gourd was related to the retailer system. The selected marketing channel was:

Farmer → "Pola" Retailer → Consumer

The traced bag (34kg) was purchased by a retailer from Kolonna at the Maurapura "pola". The farm was 5km away from the "pola". The box (34 kg) was loaded at 8.00pm on 05th March 2020 at the farm and took 29 hours to reach the final consumer at Kolonna. Weight losses were 1kg out of 34kg. Discarded amount was 1kg reported due to sorting and clearing by the retailer. Accordingly, total post-harvest loss in terms of quantity amounted to 2kg out of 34kg at the retail level representing 5.89% of quantity and 2% of retail price. Producer margin which was computed by the deduction of the cost of production from the sale income was Rs. 3714.97/34kg representing 46.0% of the retail price. The second highest margin of 24.4% was reported for retailer. The producer got 67% of the consumer price.

Table 4.28: Tracer survey results of Bitter gourd

Date: 05/03/2020				
Channel:	**Farmer**	**Retailer**	**Consumer**	
Location:	Mayurapura	Kolonna		
Distance:	5km	75km		*80km*
Duration:	8.00am	2.00pm	1.00pm	*29hrs*
Quantity:	34kg	33kg	32kg	
Discarded		1kg		
Price: (Rs/kg)		160.00	240.00	

Value chain analysis for Bitter gourd

Description	Value (Rs)	Percentage
Cost of production (Rs.48.00 x 34kg)	1632.00	20.2
Producer's margin	3714.50	46.0
Retailer's margin	1972.72	24.4
Transport	388.96	4.8
Handling	211.82	2.6
Wastage (2kg)	160.00	2.0
Consumer price	8080.00	100.0

(Source: Tracer survey by Author)

CUCUMBER

This tracer survey was related to the Dambulla Economic Center based commission system. The marketing channel selected was:

Farmer → Commission agent, Economic Center, Dambulla → Retailer → Consumer

Under this channel, the farmer directly sent cucumber to the Economic Center in Dambulla. The farm was 65km away from the Economic Center. Traced cucumber bag (38kg) was loaded at 2.30pm on 28th February 2020 and reached the destination (Matale) at 8.00pm on the same day. Retailing commenced on the following day at 8.00am. The total post-harvest loss was 7kg at retail level comprising 1kg for weight loss and 6kg for discarded quantity representing 18.42% of the quantity. Value of the loss was 7.6% of the consumer price. The producer margin which was computed by deduction of cost of production from the sale income was negative, meaning that the producer price (Rs.14.00/kg) was less than the breakeven price (Rs.15.65/kg). Nevertheless, retailer kept a bigger margin of 41.8% of the consumer price. This is the reason for a wider price difference between retail price (Rs. 41.47) and producer price (Rs. 14.00/kg). The producer price was nearly 30% of the consumer price.

Table 4.29: Tracer survey results of Cucumber

Date: 28/02/2020					
Channel:	**Farmer**	**Wholesaler**	**Retailer**	**Consumer**	
Location:	Yatawatta	Dambulla (DEC)	Matale	Matale	
Distance:		65km	25km		*90km*
Duration:	2.30pm	3.40pm	8.00pm	8.00am	*41hrs*
Quantity:	38kg	38kg	37kg	31kg	
Discarded:			6kg		
Price: (Rs/kg)	14	15.00	15.00	45.16	

Value chain analysis for Cucumber

Description	Value (Rs)	Percentage
Cost of production (Rs. 15.65 x38kg)	594.70	42.5
Producer's margin	-272.08	-19.4
Commission agent's margin	76.00	5.4
Retailer's margin	585.07	41.8
Total Wastage (7kg)	119.00	8.5
Transport Cost	164.25	11.7
Handling Cost	272.36	19.5
Consumer price	1400.10	*

(Source: Tracer survey by Author)

*Not equal to hundred

GREEN CHILLI

The marketing channel selected was similar to cucumber:

Farmer → Commission agent, Economic Center, Dambulla → Retailer → Consumer

The farmer sent the green chilli directly to the Economic Center in Dambulla. The farmer is from Sigiriya 28km away from the Economic Center. The traced chilli bag (33.5kg) was loaded at 7.00am on 28th February 2020 and retailed at 7.30am on the following day. Weight loss was only 0.5kg from travelling to Matale from Dambulla (28kg). Discarded quantity was 5kg after cleaning and sorting. Accordingly, the total post-harvest loss was 5.5kg at retail level representing 16.41% of the quantity. Value of the loss was 8.1% of the consumer price. The producer margin which was computed by the deduction of the cost of production from the sale income was Rs.1989.57/33.5kg or 24.9% of the retail price. The biggest margin of 33% was obtained by the retailer. The producer price was nearly 30% of the consumer price.

Table 4.30: Tracer survey results of green chilli

Date: 28/02/2020					
Channel:	**Farmer**	**Wholesaler**	**Retailer**	**Consumer**	
Location:	Sigiriya	Dambulla (DEC)	Matale	Matale	
Distance:		28km	60km	1km	*88km*
Duration:	7.00am	1.45pm	6.30pm	7.30am	*25hrs*
Quantity:		33.5kg	33kg	28kg	
Discarded:			5kg		
Price:(Rs/kg)		125.00	130.00	284.87	

Value chain analysis for green chilli

Description	Value (Rs)	Percentage
Cost of production (Rs. 52.63 x 33.5kg)	1763.11	22.1
Producer's margin	1989.57	24.9
Commission agent's margin	261.34	3.3
Retailer's margin	2630.65	33.0
Transport	181.57	2.3
Handling	499.82	6.3
Wastage (5.5kg)	650.00	8.1
Consumer price	7976.35	100.0

(Source: Tracer survey by Author)

MANGO

Tracer survey on mango was related to the Dambulla Economic Center (DEC). The selected marketing channel was:

Farmer → Commission agent, Economic Center, Dambulla → Retailer → Consumer

This is one of the leading marketing channels at DEC. The farm was 26km away from the Economic Center at Dambulla. The box (28kg) was loaded at 3.30pm on 06th March 2020 from the farm and took 41 hours to reach the final consumer in Trincomlee. Weight losses were one kg out of 28 kg. Discarded amount was

3kg due to cleaning by the retailer. Accordingly, total post-harvest losses in terms quantity amounted to 4kg out of 28kg at the retail level representing 3.57% in quantity, while the loss of value was 10.2% of the retail price. The producer margin which was computed by deduction of the cost of production from the sale income was Rs. 1375.97/18kg representing 41.0% of the retail price. The second highest margin of 16.92% was reported for retailer. The producer got 69% of the consumer price.

Table 4.31: Tracer survey results of Mango

Date: 06/03/2020					
Channel:	**Farmer**	**Wholesaler**	**Retailer**	**Consumer**	
Location:	Wewala	Dambulla (DEC)	Trincomalee	Trincomalee	
Distance:		26km	107km		*133km*
Duration:	3.00pm	11.00am	3.30pm	8.15am	*41hrs*
Quantity:		28kg	27kg	24kg	
Discarded:			3kg		
Price: (Rs/kg)		590.00	600.00	850.00	

Value chain analysis for Mango

Description	Value (Rs)	Percentage
Cost of production (Rs. 144.39 x 28kg)	4042.92	17.2
Producer's margin	12223.12	51.9
Commission agent's margin	385.28	1.6
Retailer's margin	3982.38	16.9
Transport	244.41	1.0
Handling	261.89	1.1
Wastage (4kg)	2390.00	10.2
Consumer price	23530.00	100.0

(Source: Tracer survey by Author)

PINEAPPLE

Tracer survey on pineapple was related to the Colombo based commission system. The selected marketing channel was:

Farmer → Commission agent, Colombo → Retailer → Consumer

This is one of the leading marketing channels at the Colombo market. The farm was 45km away from Colombo. The box reached Colombo Wholesale market at 2.30pm on 07 March 2020. Nevertheless, the pineapples were harvested at 7.30am on previous day. The delivery time from origin to destination was 24 hours. The weight loss was 1kg out of 50kg. The discarded amount was 2kg. Accordingly, the total post-harvest losses in terms quantity amounted to 3kg out of 50kg at retail level representing 6% of the quantity while loss of value was 4.4% of the retail price. The producer margin which was computed by

deduction of cost of production from the sale income was Rs. 2430/50kg representing 32.9% of the retail price. The second highest margin of 17.4% was reported for retailer. The producer got 57% of the consumer price.

Table 4.32: Tracer survey results of Pineapple

Date: 06/03/2020					
Channel:	**Farmer**	**Wholesale**	**Retailer**	**Consumer**	
Location:	Kotadeniyawa	Colombo	Colombo	Colombo	
Distance:		45km	500m		*45km*
Duration:	7.30am	2.30am	6.30am	7.30am	*24hrs*
Quantity:	50kg	50kg	49kg	47kg	
Discarded:			1kg	2kg	
Price: (Rs/kg)		85.00	120.00	150.00	

Value chain analysis for Pineapple

Description	Value (Rs)	Percentage
Cost of production (Rs.36.40 x 50kg)	1820	24.7
Producer's margin	2430.00	32.9
Commission agent's margin	622.50	8.4
Retailer's margin	1282.7	17.4
Transport	237.5	3.2
Handling	665	9.0
Wastage (3kg)	325	4.4
Consumer price	7382.7	100.0

(Source: Tracer survey by Author)

BANANA

Tracer survey on banana was related to the Colombo based commission system. The selected marketing channel was:

Farmer → Periodic market ("Pola") → Retailer → Consumer

This is the leading marketing channel in the Southern Province (SP). The traced banana was sold by the farmer to the wholesaler at Sooriyawewa Pola. From the wholesaler it was purchased by a retailer from Horana who came to the "Pola" for purchasing. Time spent from origin to destination was 44 hours. During this whole period weight loss was 1kg out of 19kg. Discarded amount was 3kg. Accordingly, total post-harvest losses in terms quantity amounted to 4kg out of 19kg at the retail level origin (farm level) representing nearly 21.05% of the quantity while loss of value was 13.2% of the retail price. Producer margin which was computed by deduction of cost of production from sale income was Rs. 227.62/19kg

representing 17.0% of the retail price. The second highest cost of 16.1% was reported for transport. Retailer's margin was 14.6%. The producer got 35% of the consumer price.

Table 4.33: Tracer survey results of Banana

Date: 05/03/2020					
Channel:	**Farmer**	**Wholesale**	**Retailer**	**Consumer**	
Location:	Wiharagama	Sooriyawewa	Horana	Horana	
Distance:		6km	160km	50m	*166km*
Duration:	3.00pm	5.00am	7.45am	10.45am Next day	*44hrs*
Quantity:	19kg	19kg	18kg	15kg	
Discarded:			4kg		
Price: (Rs/kg)		27.77	50.00	80.00	

Value chain analysis for Banana

Description	Value (Rs)	Percentage
Cost of production (Rs. 13.04 x 19 kg)	247.76	18.5
Producer's margin	227.62	17.0
Wholesaler's margin	160.14	11.9
Retailer's margin	196.50	14.6
Transport	215.36	16.1
Handling	116.62	8.7
Wastage (4kg)	177.77	13.2
Consumer price	1341.77	100.0

(Source: Tracer survey by Author)

4.4.3.1. Post-harvest losses

In this study, post-harvest losses include both weight losses (quality) and quantity losses. Both quality and quantity losses attribute to the total post-harvest loss. Table 4.34 presents the summary of the post-harvest losses presented in the previous section. As shown in the table, post-harvest losses ranged from 4.8 for beans to 18.4 percent for cucumber in terms of quantity, while from 2 for bitter gourd to 10.8 percent for cabbage in terms retail price. These results confirm the traders' opinions about post-harvest losses presented in Table 4.20. According to the traders' views, post-harvest losses as a percentage of quantity ranged from 17.8 for cucumber to 6.2 for bitter gourd. Post-harvest losses averaged 12.14 percent of quantity and 7.89 of retail price. JICA (2013) found that wastage varies from 3.3 to 25 percent of the quantity. It can be concluded that post-harvest losses have reduced considerably in recent times due to improvement of post-harvest management subsequent to a high demand for quality products and channel competition, and reduction of time spans in transporting with the improvement of road facilities.

Table 4.34: Estimated post-harvest losses of selected vegetables

Variety	Losses in kg			Percentage of	
	Weight	Discarded	Total	Quantity	Retail price
Beetroot	1.0	4.0	5.0 (37)	13.5	10.2
Carrot	1.5	5.0	6.5 (58)	12.1	7.6
Cabbage	2.0	6.0	8.0 (57)	14.0	10.8
Beans	1.0	1.0	2.0 (42)	4.8	7.5
Tomato	0.5	2.5	3.0(18)	14.1	9.3
Bitter gourd	1.0	1.0	2.0(34)	5.9	2.0
Cucumber	1.0	6.0	7.0 (38)	18.4	7.6
Green chilies	0.5	5.0	5.5 (33.5)	14.4	8.1
Average*				12.14	7.89

*Excluding green chilies, ** Quantity of the traced bag/box is given in parentheses.

(Source: Author's compilation)

Table 4.35 presents a summary of the post-harvest losses of fruits. As shown in the table the highest losses were reported for banana which was 21.5 percent of quantity and 13.2 percent of retail price. On average, post-harvest losses amounted to 10.36 percent of quantity and 9 percent of retail price. The Institute of Post-harvest Technology reported 27.32 percent of quantity losses of fruits in its annual report in 2001. Due to the reasons given in the vegetable section, fruit losses have also declined over time for the same reasons. The same trend can be observed in India. Fruits and vegetable losses decreased to the range of 4-16 percent of the output (OECD, 2018).

Table 4.35: Estimated post-harvest losses of selected fruits

Variety	Losses in kg			Percentage of	
	Weight	Discarded	Total	Quantity	Retail price
Mango	1	3	4 (28)	3.6	9.4
Pineapple	1	1	3 (50)	6.0	4.4
Banana	1	3	4 (19)	21.5	13.2
Average				10.36	9.00

* Quantity of the traced bag/box/bunch is given in parentheses.

(Source: Author's compilation)

CHAPTER FIVE

ORGANIZATION, OPERATION AND PERFORMANCE OF SPICE AND FLORICULTURE MARKETING SYSTEMS

Spice Marketing System

5.1. Organization of the marketing systems in the spice sector

The main marketing channels of selected spice products, i.e., pepper, cinnamon and cardamom are given below. The marketing systems of pepper and cinnamon are fairly complex as they have a number of intermediaries, whereas the supply system of cardamom has less intermediaries and is dominated by farmers and processors.

Pepper

Channel 1

Farmer → Mobile Harvester/ Collector / Local Trader / Trader in Main Towns → Drying People / Exporter / Processor → Retailers → Consumer

Channel 2

Farmer → Mobile Harvester / Collector / Local Trader / Trader in Main Towns → Drying People → Warehousing (Secondary Processing) → Export Market

Cinnamon

Channel 1

Farmer → Collector / Mobile Harvester → Local Trader → Bale Shop Warehousing / Secondary Processing → Exporter

Channel 2

Farmer → Warehousing / Secondary Processing → Exporter

Cardamom

Farmer → Collector / Trader / Processor → Broker → Local Market / Export Market / Value Addition

5.1.1. Organization of the Pepper marketing system

Overview of products, production, exports and imports

The second-most important spice crop next to cinnamon, is pepper. A pepper vine produces three distinct marketable products, *viz,* heavy berries or black pepper, white pepper and light berries. When pepper is harvested before the suitable stage of maturity for heavy berries, the produce is called light berries. Deliberate harvesting is also done in Sri Lanka. Usage of light berries is for extraction of oil and oleoresin.

Sri Lanka contributes 4-5% of global demand for black pepper (*Piper nigrum*). The total extent of pepper in the country is 40,244ha. The major pepper growing districts are Ratnapura (6,566ha), Matale (5,736ha), Badulla (5,729ha), Kandy (4,988ha), Moneragala (4,884ha), Kurunegala (2,960ha) and Hambantota (2048ha) (Annual Performance Report, 2018). The annual production, export, import, domestic consumption, carryover stock and farm-gate prices are given in the Table below.

Table 5.1: Production, export, import, consumption and farm-gate price of pepper for six-year period commencing from 2013

Year	Production (Mt.)	Export (Mt)	Export value (Rs. Mn)	Import (Mt)	Import value (Rs. Mn)	Domestic consumption (Mt) and carryover stock and unreported exports	Farm-gate price (Rs/kg)
2013	28,686	21,329.6	16,478.4	31.3	14.4	7,356.4 (25.6%)	731.0
2014	18,660	7,929.6	9,028.4	367.1	340.1	10,730.4 (57.5%)	1037.6
2015	27,233	16,656.6	19,542.5	79.6	68.9	10,576.4 (38.8%)	1090.3
2016	18,476	7,875.5	10,530.5	599.0	679.7	10,600.5 (57.4%)	1246.2
2017	29,546	13,309.1	12,768.0	1,398.1	1,231.3	16,236.9 (55.0%)	831.9
2018	20,135	13,118.1	12,074.0	3,179.05	1,931.97	7,016.9 (34.9%)	585.8

(Source: EAC Stat Book, 2018 and Annual Performance Report, 2018)

The volume of pepper exported to India shows that the Indian market share, in relation to total exports, had increased from 34.1% to 83% during the period from 2013 to 2017. The sudden increment of the Indian share is associated with the concession given in the SAFTA agreement and light berry exports. On the other hand, Indian importers did not ask for strict quality requirements. This indicates that this country's pepper export market is concentrated mainly in India. The major export share of pepper comprises of light berries, used for extraction. Since Sri Lankan pepper constitutes more pipeline and oil

over other producing countries, the Indian extractors are greatly interested in buying Sri Lankan light berries. Depending on one country for export is not a healthy condition. It is a kind of monopsony market structure where there is only one buyer for pepper light berries. India is in a position to exert pressure on the exports in the absence of any other buyers. However, this situation has slightly changed with the emerging of a large-scale pepper extractor who operates as a BOI project in the Meerigama Free Trade Zone.

A significant reduction of the pepper price was observed since the end of 2018, but a sharp and steady decline was noted after May in 2019 (Annual Performance Report of the Department of Export Agriculture, 2018). The unexpected price reduction caused farmers to withhold their pepper harvest until the price became favorable. However, small farmers were compelled to sell their pepper harvest to meet daily expenses even at a low price. There was an accusation that Vietnamese pepper was imported to Sri Lanka and re-exported after mixing with Sri Lankan pepper to India. This allegation was investigated and no evidence had been found in this regard. The export volume of pepper product-wise for a three-year period commencing from 2015 is given in the Table 5.2 below.

Table 5.2: Export volume of pepper products from 2015 to 2017

Pepper product	Export volume (Mt)		
	2015	2016	2017
Pepper neither crushed nor ground			
Black pepper	10,218.8	1,897.1	4,317.1
Light berries(<450g/l)	1,042.2	2,132.3	3,543.7
Organic pepper	1,803.8	871.5	960.2
White pepper	130.5	131.6	103.3
Pepper crushed	1,215.7	1,278.7	627.3
Pepper ground	149.2	142.8	236.2
Other	2,096.5	1,421.5	3,521.3
Total	16,656.6	7,875.5	13,309.1

(Source: EAC Stat Book, 2018)

Pepper imports have been increased over the years from 2013 to 2017 (Table 5.3). This is mainly due to the establishment of a large extraction unit with BOI assistance in the Meerigama Free Trade Zone. The factory has a capacity of using 20 Mt of light berries per day. The local purchase of light berries is around 1500 Mt through local suppliers and the balance requirement is met with the imported berries, the main importing countries being Vietnam and Indonesia. Until 2017 export of light berries were allowed under TIEP for value addition and re-export. Under this scheme the Meerigama factory has imported 1140 Mt of pepper from Indonesia and Vietnam.

Table 5.3: Pepper imports from 2013 to 2017

2013		2014		2015		2016		2017	
Quantity (Mt)	Value (Rs.mn)	Quantity (Mt)	Value (Rs.mn)	Quantity (Mt)	Value (Rs.mn)	Quantity (Mt)	Value (Rs.mn)	Quantity (Mt)	Value (Rs.mn)
31.3	14.4	367.1	340.1	79.6	68.9	599.0	679.7	1,398.1	1,231.3

(Source: EAC Stat Book, 2018)

Market Structure

The heavy berry trade has taken place with the participation of a number of farmers, collectors, traders and exporters, and hence a perfect market situation can be observed. All the buyers stick to prevailing prices in the market. The light berry trade is vested with a few exporters and industrialists and they constitute a dominant majority of the marketing system. There is a consensus among the traders so that the market price does not change significantly at a given time. However, there is competition at field level to supply light berries since a large number of collectors operate at the same time. This does not affect the oligopolistic marketing structure since each trader has his own set of collectors. The traders advance money for harvesting on some occasions and recover it at the time of buying (Seneviratne, 2001). The market forces are not operating in the white pepper trade as the production quantity is negligible. The main traders are in the habit of buying white pepper and providing it to the retail market. The organic pepper trade is manipulated by two main exporters in a substantial manner, with a few exporters exerting a smaller influence. In this monopoly market structure, the exporters are in a position to fix prices and manipulate the trade as they wish.

5.1.2. Organization of the Cinnamon marketing system

An overview of the cinnamon industry

As per the 2017 figures, the total extent of the cinnamon plantations in the country was 32,964ha and the production of the same year was 22,341Mt (EAC Stat Book, 2018). Productivity of cinnamon is 501kg/ha whereas research yield is 1,500kg/ha (EAC Stat Book, 2018), showing that the cinnamon sector is operating far below the standard and that there is room for further development. The sluggish development of the cinnamon sector is reflected through cultivation and production figures (Table 5.4).

Table 5.4: Extent and production of cinnamon from 2013 to 2017

Year	2013	2014	2015	2016	2017
Extent (ha)	**31,551**	**31,666**	**31,927**	**32,282**	**32,964**
Production (Mt)	17,500	17,600	17,707	18,945	22,341

(Source: EAC Stat Book, 2018)

Over the five-year period, the increment of the cinnamon extent was 1,413ha. During the same period the increment of the production was 4,841Mt. The poor maintenance status may have attributed to the poor performance of the cinnamon sector over the five-year period concerned. Better market prices may have most probably contributed towards better maintained fields, thereby achieving better yields in 2017. The southern province is the main cinnamon growing area while Ratnapura and Kalutara are other important growing areas.

Cinnamon exports

The main export product of cinnamon is quills. Cinnamon quills include quill cut pieces, quillings, featherings, chips crushed cinnamon and ground cinnamon. The various products mentioned here are yielded in the process of quill making and all of them have an export value. The export volume and value of cinnamon according to the products are given in Table below.

Table 5.5: Export volume and value of cinnamon product-wise from 2013 to 2017

Commodity	Unit	2013	2014	2015	2016	2017
Cinnamon quills	Volume (Mt)	13,799.2	13,686.4	13,548.8	14,692.7	16,617.0
	Value (Rs. Mn)	17,129.2	17,274.2	17,958.6	23,177.0	30,872.8
Cinnamon leaf oil	Volume (Mt)	265.1	248.0	264.7	226.4	309.0
	Value (Rs. Mn)	479.7	485.8	704.0	905.9	976.4
Cinnamon bark oil	Volume (Mt)	16.8	17.0	14.4	27.3	40.5
	Value (Rs. Mn)	323.5	499.5	436.2	890.1	1492.6
Total	Volume (Mt)	14,081.1	13,951.4	13,827.8	14,946.4	16,966.6
	Value (Rs. Mn)	17,932.4	18,259.5	19,098.8	24,973.0	33,341.8

(Source: EAC Stat Book, 2018)

From 2013 to 2017, the export volume of all the products, *viz.,* quills, leaf oil and bark oil have increased by 20.5% whereas the corresponding value increase was 85%. Depreciation of the rupee as against the US Dollar was found to be the reason for the increase of value. Of the quills exported, the organic share was 31.4% within the period of reference. This is a good trend because organic products have a high demand in the international market. The major destinations of cinnamon are: Mexico, USA, Peru, Colombia, Ecuador, Guatemala, Bolivia, Chile and Spain. Cinnamon leaf oil was exported mainly to USA, India, UK, Spain and France, while destinations of cinnamon bark oil were USA, Canada, France, Germany and UK.

Market Structure

The supply chain of cinnamon starts with cinnamon growers. The second segment of the supply chain is peelers who do the peeling. Peeling is a skilled job which has to be done with devotion. Invariably, half of

the production cost is attributed to the peeling cost. The moving of cinnamon through the supply chain was examined and is described as follows. Peeled cinnamon was sold to door-step collectors or local traders mostly without grading. Then these bundles were sold to traders in towns where grading and treating with sulfur fumes for enhancing appearance, destroying pathogens and preparation for export, were done. Finally, the graded and treated cinnamon bales were sold to exporters. The major players in the supply chain are large traders who are stationed in towns and have the capacity to handle bulk quantities. The time-flow from cinnamon peeling to export takes three months in general. Though cinnamon is not a perishable product, its quality deteriorates after three months with a dulling in appearance.

It was also found that cinnamon products move from one player to another without delay. In order to pay the peeler's share, the weekly production was sold usually on Fridays. Due to the bulky nature of cinnamon, storage is difficult. Therefore, the collectors and peelers were keen to sell their products to balers in the towns. The balers too have the same storage problems. They also took steps to dispose the goods without delay. Insufficient drying at the peeling point results in the necessity to continue the drying process and a weight reduction at each selling-point. This was the reason why a certain portion (3%) from the weight was reduced for moisture by each player. It was observed that a loyalty scenario was established by farmers with particular traders. Lending of money before the harvesting and pay back of the debt when selling produce to the same traders showed the strong relationship between the two parties. There were other traders as well who have established goodwill with producers. Those producers are inclined to deal with identified traders expecting higher prices. The linkage between the two parties was also strong. There were some other farmers who were price conscious. The prevailing prices from different sources, such as contacting fellow-farmers, through telephone calls and going through newspaper price lists which was published every Friday in the 'Dinamina', were compared before taking a decision on whom to sell. This category of farmers usually graded their products and possessed a bargaining power. The linkage between this sort of farmers and the traders is comparatively weak.

Supply chain of the cinnamon oil industry

The study examined the supply chain of the cinnamon oil industry in the Galle district. The supply chain of the cinnamon oil industry is relatively short. There were two cinnamon oil industries, *viz.,* cinnamon leaf oil and cinnamon bark oil. Cinnamon leaves are a byproduct resulting from the lopping of branches used for peeling. Leaf matter is either used as raw material for oil extraction or as leaf manure for cinnamon cultivation. The raw material for bark oil extraction comprises of quilling, featherings and chips,

all of them are off-grades of the cinnamon processing exercise. Cinnamon bark oil traders were the distillation unit owners who have direct links with the exporters.

Players of the supply chain

The details of the main players of the supply chain are as follows:

Cinnamon growers

The number of cinnamon growers and their cultivation extent is given (Table 5.6) for the study area of Galle and Matara districts.

Table 5.6: Number of holdings under cinnamon in Galle and Matara districts

District	Size class (acres)				Total number of holdings
	<2 acres	2-<5 acres	5-<10 acres	10+ acres	
Galle	33,617	1,934	330	99	35,980
Matara	24,789	1,631	279	43	26,742
Total	58,406	3,565	609	142	62,722

(Source: EAC Stat Book, 2018)

Out of the total holdings 93.2% belonged to less than 2 acre category indicating that most of the cinnamon growers in Galle and Matara district are smallholders.

Peelers

The estimated total number of peelers in the country are approximately 30,000, and of them 90% are concentrated in the Galle and Matara districts (Ceylon Cinnamon, 2013). They migrate to other growing areas from these two districts to undertake cinnamon peeling. Most of the peelers are cinnamon growers as well. In the cinnamon value chain they are recognized as skilled workers or professionals. Their specific skills determine the quality of the product. Their work includes cutting the branches, removing the bark, drying and preparing quills for presenting as a marketable product. This part of the supply chain is vertically integrated by big plantations, which employ workers on a regular basis. A positive trend was noted in that central processing centers are emerging for quality and hygienic peeling employing peelers who are paid on a monthly basis.

Traders/balers

Traders and balers collect cinnamon regionally from smallholders and further processes (drying) the cinnamon, grades it and transports it to warehouses in Colombo. Traders/balers are important intermediaries, who are competent to sort the quills according to quality specifications. They pay the smallholder producers in cash, according to the grades of products.

5.1.3. Organization of the Cardamom marketing system

An overview of the cardamon industry

Cardamom comes to the market from two sources, *viz.,* the produce coming from cultivated private lands from Kandy, Matale, Nuwara-Eliya and Ratnapura districts, and the illegally harvested produce coming from crown lands in Kandy and Matale districts. At present, a major share of cardamom comes to the market from crown lands of the Knuckles Conservation Region. Cardamom of this area is harvested immaturely by the individuals with fear, for if they are caught they are subject to prosecution by officers of the Forest Department. The majority of cardamom farmers practice immature harvesting. The study revealed that a substantial quantity of cardamom was sold before the appropriate maturity of five months due to damage caused to panicles and bushes by monkeys, the long distance from the residence to the farm, the tendency to follow of fellow-farmers, step-wise harvesting of immature pods to meet daily expenses and readily available market.

Market Structure

The study attempted to trace players in the value chain of cardamom. The players of the cardamom trade included growers, collectors, processors, collectors employed by the processors, traders and industrialists, etc. The processor was the most important intermediary person in the supply channel since curing was an essential step before marketing was done. Usually the processor played a dual role as the curer and marketer of cured products. Cardamom harvest moves from growers and illegal harvesters to processors for curing. The farmers and illegal harvesters brought their produce directly to processing centers if the distance was within their reach. In the supply chain intermediaries also had a role to play. The processors themselves had employed collectors to collect and transport raw material on their behalf to processing centers giving a commission which ranged from Rs 20-50/kg depending on the state of maturity of the pods. The share increased with increasing maturity. It was observed that one processor had practiced farm-gate collection without an involvement of middlemen. There were some collectors who collected raw material and sold to processors at their own discretion. Some farmers used to sell the cardamom harvest to a particular trader owing to a longstanding relationship irrespective of the price advantages. Those farmers sought financial assistance, when a need arose, from their linked traders, with an undertaking to sell their future harvest to him in return. In the absence of a linked-trader, collectors brought their harvest to a processor and bargained for higher prices.

The cured product moving from processor to consumer took place mainly through a broker. The broker linked the processor and the cardamom trader. He sold products to traders who repacked and released

consumer-packs to retail markets. In addition, the large-scale food processors like biscuit companies sought the assistance of a broker to fulfill their requirement. The linkage between the broker and the processor seemed weak. Trading took place between the two parties through direct cash payments. The processors themselves did not show any interest in examining how products moved from them to final consumers. In the absence of such interest, the forward and backward linkages were weak between the processor and the consumer.

5.2. Operation of the marketing systems

5.2.1. Operation of the Pepper marketing system

Pricing

Light berry marketing is seasonal. Light berries can be marketed from early February to end of May. The flowering season starts from November and is completed by the end of December. Therefore, berries of different maturity levels come to the market due to the practice of indiscriminate harvesting. In comparison to the heavy berry prices, light berry prices show a rise and fall within a harvesting period. When light berries are very tender a low price is fixed. When the maturity advances, the price is also increased accordingly and the maximum price is fixed at 4½-5½ month maturity stage. Deliberate price fixing by exporters and local industrialists can be seen in the light berry trade. Heavy berry prices are fixed according to the supply and demand process. International pepper prices influence local price fixing. The local demand does not exert a significant influence on the pepper prices as it is less than 30%. Organic pepper prices are usually Rs. 30-40 more than the heavy berry prices for green pepper, determined by two main exporters. The prices are far below the international prices. This can be linked to the monopoly market structure of this trade. White pepper prices are usually 60% more than the heavy berry prices. However, according to demand there are instances where higher prices are offered.

Players involved in the trade

All the spice dealers are engaged in the heavy berry trade throughout the year. A few village level collectors are also involved in collecting heavy berries on a full-time basis and selling the produce either to traders in small towns or in the main towns. There were instances where an established linkage exists between a trader and producers. When there is no such linkage, the producers tend to sell their produce to traders who offer the higher prices. In contrast, all the spice traders in the main and small towns and collectors are engaged in the light berry trade. Since the light berry harvesting period lasts for a short time, a number of buyers come to play a role in this trade, including non-spice traders. The profit margin

of a kg of raw produce of light berries is between cents 50 to one rupee at each level in the trade channel. Due to the bulky nature of raw light berries produce, the business is said to be lucrative and profitable.

Mobile traders come with a gang of harvesters, take pepper plantations on lease in the peak harvesting period, either of light berries or heavy berries. There are some individuals who collect the raw produce in bulk either from farmers or traders and transport to areas where sunlight is bright for drying purposes. The dried products are sold to traders or exporters. Vietnam and Indonesia were the main importing countries

Volatility of pepper prices

Pepper prices change frequently. It has been found that the production in other countries, healthy environmental conditions for production, inclement weather conditions like prolonged drought period and excessive rains and currency depreciation and appreciation, are some of the determinants of pepper prices. Organic pepper prices are usually 30% more than that of conventional pepper products, i.e, heavy berries. The organic trade is in the hands of two exporters. In the absence of a number of buyers of organic products, competitive prices cannot be expected. However, if this monopolistic marketing structure is broken, the there is potential to reap 50% more on price. The effect of price volatility is less pronounced for organic pepper. White pepper is also not frequently subject to price volatility. Usually the price for white pepper doubles as it is demanded by leading star-hotels locally.

5.2.2. Operation of the Cinnamon marketing system

Pricing of cinnamon products

Every part of the cinnamon tree: bark, leaf, stick and even bark-scraping have a market value. It was observed that pricing of cinnamon was a complex exercise since pricing has a strong positive relationship with the peeling cost. Seneviratne (2003) found that regular workers were paid a nominal daily wage. This also was dependent on the opportunity of the laborer to work uninterrupted throughout the year. Then the owner had more authority to exert a pressure on the laborers in determining wages. One-third of the income was received by the peeler. Some peelers demanded a share of 40% of the income. Some other peelers received one-third of the income plus ten rupees more. The minimum quantity of processed cinnamon should be five kg to become eligible for a share.

The peeling cost fixing procedure was found to be changed slightly at present. Fixing peeling cost was a complicated exercise because no uniformity and transparency was observed in the process. According to the present study, the peeling cost relied upon a number of factors as follows:

- The peeling cost for alba grade (the most valued cinnamon grade) was always 50% of the value of the quantity peeled.
- If the peeler had to travel long distance, stay and undertake peeling, the cost was 50% of the income whereas if he operated from his living place it was 40%.
- If the cultivation was not maintained properly, the peeling cost was fixed at 50% since harvesting and peeling were difficult.
- If the peeler was a regular worker in the estate, the peeling cost was always 40% of the income irrespective of the grade.
- When the cinnamon price become favorable the peeler's share reduced to 40% since the peeler has more work and more income. In some cases, a further reduction to 30% was observed.

There were instances where the peeling cost was determined according to a mutual agreement between the peeler and the grower: the peeler's share was 33% of the income plus Rs. 30-40/kg, the peeler's share was usually 45% but it can be adjusted from time to time according to cinnamon prices and out of total income derived from marketing the peeled product, 15% was disregarded for calculation purposes, and the balance was shared equally between the grower and the peeler.

Price determination

The study researched the different ways of determining prices for quills and oil products.

Determination on the type of cinnamon quills made

The Sri Lanka standard Institute (SLSI) has identified 13 cinnamon grades such as alba, C5 (extra special), C5 (special), C5, C4, C3, M5 (special), M5, M4, H1, H2 (special), H2 and H3 according to the diameter of the quill and nature of its surface (either smooth or rough) (Sri Lanka Standard 81:2010). The diameter of a quill increases when moved from C grades to H grades. Cinnamon grades with low diameter and smooth surface such as alba and C5 special fetched higher prices, whereas the grades with higher diameter are paid lower prices. The low diameter grades are called fine cinnamon and it can be produced only from well-maintained cultivations and the harvesting frequency should adhere to six months intervals. The H and M grades originate from poorly maintained cultivations. When the peeler is not skillful enough he is unable to make fine grades.

The prevailing price difference of the existing grades is also a price determinant. However, the difference became narrower due to unknown reasons and the price fixing became difficult. The owner of the cultivation and the peeler generally conduct negotiations on the subject of the grade to be produced,

after considering the prevailing market prices of different grades. If the cultivation is not maintained properly the bargaining power of the owner is low and the standpoint of the peeler becomes strong and he becomes the decision-maker. Self-peelers were at liberty to decide on the grade to be produced according to the maintenance status of the cultivation and the prevailing market prices.

Behavior of the market forces in determining price

The sole authority on price-fixing was vested with the exporters. No direct dialogue or interaction happened between traders and exporters. The prices fixed by the exporters were passed down to traders and to the farmer level and they followed the pricing decision. Lack of transparency in pricing was a weakness found with the cinnamon trade. Right from the collector level to the exporter level, the trader at each level kept a Rs. 10-20 margin for all the grades of quills except the alba grade. However, the alba and C5 special grades were not freely moving items in the market. Instead, these grades have specified buyers. Alba grade producing areas were identified as Mulatiyana and Deyyandara areas of the Matara district according to their skills of the peeling exercise. The margin kept for this grade was Rs. 50. During peak production period stocks moves fast and collectors become satisfied with the low margin which was as low as Rs. 10. This margin can be varied from Rs. 20-50 if the production was in short supply.

Cut-cinnamon and powdered cinnamon fetched higher margins compared to cinnamon quills. An emerging market for cut-cinnamon was observed indicating positive future prospects. The main quills buyer which is Mexico moved away from bale cinnamon and prefers cut-cinnamon. This form of cinnamon earns more than Rs. 100/kg than quills. Cinnamon powder also has a good marketing scope since Rs. 200 more can be realized from a kg. However, cinnamon powder is not a freely moving item in the market. There is always a predetermined buyer for cinnamon powder. The transactions take place on mutual trust as there is room for adulteration. Local demand exists for cinnamon powder for blending with tea and selling as cinnamon tea consumer packs.

Lack of transparency in the marketing process

It is a common accusation that trade malpractices are taking place and that the marketing process is not transparent in cinnamon. This factor was also investigated in the study. The door-step collectors used manual weighing machines which were not standardized. The accuracy of them is questionable. Traders in town areas used electronic weighing scales. Their weighing was limited to the closest kg and grams were disregarded causing a loss to the grower. All traders reduced 3% of the total weight called ‘tara bara’ to compensate for moisture content in the quills. This percentage was further increased if damp

quills were detected. The traditional weight reduction method is being continued for even shorter quills of 21 inches though their drying quality is relatively higher.

Price determination for cinnamon leaf oil

Cinnamon oil extraction takes place mainly in the Galle District. According to the statistics maintained at the district office of the Department of Export Agriculture (DEA) the number of leaf extraction units in the district is 200. These extracting units are not functioning constantly due to raw material scarcity and operations start with the harvesting season. A gross calculation of the income derived from these units was attempted based on the discussions with the extraction unit owners. The quantity of lopped cinnamon leaves (raw material used for extraction) yielded from an acre was approximately 3,500kg. The cost for purchasing this quantity was Rs. 6,000. A boiler capacity was 350kg and during one-slot of operation five bottles of leaf oil could be obtained. Accordingly, 50 bottles can be distilled from the leaves harvested from an acre.

The Cost of Production (COP) for the distillation process including transport, fuel wood and labor cost etc., was Rs. 1,200. The current price of a leaf oil bottle is Rs. 1,450 and the profit is Rs. 250. If the euginol content of oil exceeded 80%, Rs. 2,200-3,000 can be earned from a bottle. The income was not constant as there was an off-season of three to four months a year. It was found that oil content reduced during rainy seasons when the gap between harvesting and distillation was high, in poorly maintained cultivations and when the shade factor of the cultivation was excessive. The oil prices and quill prices had a positive relationship. When quill prices were low oil prices also become low. The cheap substitute for cinnamon leaf oil is clove leaf oil, which is abundant in Indonesia and supplied at a lower cost to the global market. Indonesia is one of Sri Lanka's competitors.

Price determination for cinnamon bark oil

Cinnamon bark oil is a high value product. There were two grades of oil determined by the cinamaldehyde content. If it was between 74-82%, Rs. 70,000-80,000/kg can be obtained. When the cinamaldehyde content was below 60%, the price of oil ranged between Rs. 25,000 and Rs. 30,000. The bark pieces were used for high value oil production whereas inferior grades such as featherings and quillings were used for distilling low value bark oil. The approximate price of bark pieces was Rs. 600/kg while Rs.150/kg was the price of low grade bark products. The traditional bark oil distillers in the Galle district are continuing their industry. Due to the high capital requirement, new industrialists entering into the trade are few. Similarly, the trade is handled by a handful of exporters, all of whom were oil distillers, who determined prices. The oil was exported to linked buyers.

The price fluctuation in the short-run was less pronounced in comparison to the other cinnamon products. The profit realized selling high-grade oil was said to be Rs. 20,000 a bottle. However, marketing constraints and reduction of raw material prices resulted in the stocks being kept for a long period of time causing a further loss. As in the case of cinnamon leaf oil, the bark oil also has a positive relationship with the raw material price.

5.2.3. Operation of Cardamom marketing system

When cardamom prices are compared from the period of 2000 to 2011, the farm-gate prices were always higher than the auction prices. This indicates the superiority of Sri Lanka's cardamom over other sources. This can be attributed to availability of non-infested cardamom and the practice of harvesting cardamom pods at appropriate maturity (EAC Stat Book, 2018). However, this healthy situation was reversed from 2012 onwards, where international prices were higher than the farm-gate and auction prices. Cardamom prices within the last six years commencing from 2013 to 2018 are given in Table below.

Table 5.7: Prices of cardamom (Rs./kg)

Year	Farm-gate	Auction	International
2013	1,233.93	1,330.13	1,591.14
2014	1,400.89	1,457.68	1,904.25
2015	1,046.11	1,257.89	1,822.37
2016	1,053.14	1,246.63	1,220.53
2017	975.38	1,145.02	1,366.09
2018	2,778.36	2,618.11	3,180.52

(Source: EAC Stat Book, 2018)

Cardamom production, exports and imports figures are given in Table 5.8 below. It shows that cardamom exports have exceeded its production from 2015 to 2018. Similarly, cardamom imports also have increased substantially from 2016 to 2018. Further, cardamom exports have increased from 2015 to 2018. An extraordinary increase occurred in 2016 and 2017.

Table 5.8: Production, exports and imports of cardamom (Mt) from 2013 t0 2018

Year	Production	Exports	Imports
2013	50.0	41.0	42.1
2014	87.0	8.3	40.5
2015	91.0	119.9	58.8
2016	120.0	779.4	570.1
2017	113.0	839.2	321.9
2018	71.0	108.0	34.0

(Source: EAC Stat Book, 2018)

Table 5.8 shows that international cardamom prices were always higher than the farm-gate and auction prices. The reasons for price reduction of cardamom can be explained as follows:

- With the outbreak of cardamom thrips, cardamom quality was lowered, and hence could not meet with international standards.
- Import of sub-standard cardamom at a lower prices and re-export of the same as Sri Lankan cardamom.
- As a result of the declaration of traditional cardamom growing area as a World Heritage, the production decreased considerably. With the reduction of raw material, the processors did not focus sufficient interest in adhering to recommended processing techniques, because the product irrespective of quality could be sold without much effort.

Price fixing for cardamom harvest (raw pods)

Harvest of cardamom is a mixture of pods of immature, mature and thrips-attacked. Therefore, price fixing was a difficult task. Long standing experience of the processors/collectors helped to determine the prices of raw cardamom by going through a visual inspection. Pressing of randomly selected pods from a lot between the thumb and a finger is another method of judging maturity. Squeezing and crushing of pods indicated low maturity. Prices of immature pods ranged from Rs. 500-700, depending on the maturity. When the mature pods were bought, the prices are fixed between Rs. 800-1,000. Low prices are paid when the lot is mixed with a high proportion of immature or semi-matured pods.

Control of thrips is a difficult exercise. Insecticide application is the only recommended method for controlling the pest. Failure to adopt collective application by all the cardamom growers, free breeding of the pest in the cardamom of crown lands, seasonal variation of the pest population, difficulty in spraying insecticides into the inner region of leaf petiole, are reasons for the unsuccessful control of the cardamom thrips.

The proportion of the thrips-infested pods in a lot can vary from 20% to 80%. If the control measures are correctly applied, a 20% control limit can be achieved. Farmer experiences revealed that in uncontrolled fields of cardamom, 80% of the pods were subject to attack whereas the infestation rate reduced to 50% during rainy season. Interviews with cardamom processors and dealers revealed that the price of thrips-attacked immature pods started with Rs. 500 and it increased up to Rs. 700 until it reached the appropriate maturity of five months. The thrips-infested pods were always used for grinding purposes with the skin intact. When raw material was taken in bulk by a collector, a price was fixed for the lot. The lot was cured

separately and the dry weight assessed. If the fresh pod to dry pod ratio was lower than the anticipated ratio, an additional payment was paid to the collector after curing. This act showed a good trade relationship between the supplier of raw material and the processor.

5.3. Performance of the marketing system

5.3.1. Performance of the Pepper marketing system

Strengths

There is a ready market for pepper. Any quantity either in raw form or dried form can be sold at any time. Sri Lankan pepper has gained a reputation in the international market for its inherent high quality. The two main harvesting seasons can be seen according to the bimodal rain pattern. However, cropping seasons vary slightly across the growing regions. Therefore, finding pepper all year-around is not difficult. The harvesting seasons of Sri Lanka are different from other producing countries; this is an advantage for selling pepper products as it helps to face market competition.

Pepper is trained on to gliricidia live support trees and its leaf matter is a good manure and the farmers used to apply this source to meet nutritional requirement of the pepper vine. Generally, no agrochemicals are used in the production process. This is an advantage which enables Sri Lanka to compete with other producing countries which rely mostly on inputs like inorganic fertilizer and agrochemicals.

Pepper can be stored for at least two years without quality deterioration once properly dried. This storability enables farmers to keep the products until prices are favorable.

High piperine content of the pepper invariably has elevated Sri Lanka's pepper to the first place of the global market. This may be due to the characteristics of local varieties and the agro climatic suitability.

Weaknesses

A supply driven marketing system is being continued for Sri Lanka's pepper marketing. Most countries are not ready to buy this country's pepper since it is not upto the standards that buyers expect. As has been seen in a previous section, a substantial quantity of pepper is being exported to India. India does reprocessing, blending and value addition of Sri Lankan pepper and earns profits out of Sri Lankan pepper.

The main weakness of the pepper sector is poor quality. Indiscriminate and premature harvesting, failure to dry adequately, selling without grading and sorting, are the contributory factors for poor quality. The maintenance status of the pepper cultivations is also unsatisfactory. This has caused low yield levels and resulted in a poor quality product.

Sri Lanka's pepper industry is being continued as a cottage industry by small scale farmers. No quality improvement can be expected from them to match with the international market. Large scale processing plants in the main producing areas is the feasible solution.

The competitors include Vietnam, India, Indonesia, Brazil and Malaysia. China, Cambodia and Madagascar are also emerging competitors. Unless the quality of Sri Lankan pepper is improved, marketing will be a problem under the state of high competition.

Traditional growing, processing and marketing procedures are being continued and have to be changed to be on par with the demand of the overseas consumers.

Opportunities and challenges in the pepper sector

Sri Lankan pepper has gained a reputation in the international market for its superior quality. Growing of pepper in an environmental friendly manner with no or minimum usage of agro-chemicals and inorganic fertilizer make it feasible for approaching international market.

In spite of all these healthy conditions Sri Lanka is still lagging behind due to unavailability of quality product in large volume with consistent supply owing to cottage level processing of pepper. Solution for this challenge is to initiate large-scale processing facilities in the country.

5.3.2. Performance of the Cinnamon marketing system

Manipulation of trade

It was seen that two large-scale exporters in Matara district started to manipulate the cinnamon trade by large scale purchasing and stocking. They had begun a number of collecting centers in the main cinnamon growing areas. For example, one exporter had opened collecting centers at Makandura, Akuressa, Kamburupitiya and Devinuwara, etc. This sort of act will have the following consequences:

- The small and medium scale traders are threatened due to their inability to purchase produce at a competitive price and the short supply of produce.
- It was said that these big traders had refrained from buying produce for a certain period of time causing a sudden drop of prices so that supply and demand forces will not continue. However, keeping of cinnamon stocks is not advisable as it results in quality deterioration.
- Export of cinnamon at lower prices prevents other traders from coming into the trade and closing down of small scale businesses.

It was found that collection of cinnamon at small and medium scale centers gradually declined with the opening up of collecting centers by large scale cinnamon traders. Farmers are also of the view that they were compelled to approach large scale traders as they were considering better prices.

Production of a few grades

The cinnamon market was flooded with an over-supply of a few grades such as C4 and C5, etc. The production of a few grades will invariably cause price reduction due to excessive supply over demand. It is doubtful that the current production procedure of quills is efficient as it follows the traditional technology. Overdependence on peelers results in failure of timely harvesting and peeling and production of higher grade cinnamon.

5.3.3. Performance of the Cardamom marketing system

Strengths

Cardamom has a ready market. The intrinsic quality of cardamom from Sri Lanka has given it a favorable reputation locally and internationally. The cardamom industry faced two threats, *viz*., thrips attack and drastic reduction of the cultivated area along with the harvest due to acquiring traditional cultivations as crown lands. The stakeholders in the cardamom industry tried to overcome these obstacles by finding alternative solutions. Thrips infested pods were used for grinding purposes and oil extraction was used to mask the brown discoloration of the pods. Another measure was to continue harvesting illegally without maintaining the plants. These two measures were positive steps to sustain the cardamom industry.

The competition among the handful of processors (buyers of raw pods) contributed to sustaining higher prices for the benefit of the growers. Price determination of cardamom according to the quality is also a good practice to discourage farmers from doing immature harvesting.

Rather than selling for the retail market, cured products were sold for value addition purposes. However, due to lack of transparency in the supply chain, the details of the value addition could not be found.

Trade malpractices were minimal in the cardamom trade. No hidden weight reductions are found and a fair price was paid according to the quality rather than quantity.

Weaknesses

The cardamom trade was being operating actively in the Huluganga and Panvila areas of the Kandy district. Farmers from distant places such in Matale and Ratnapura transport their produce to the Kandy markets incurring huge transport costs.

Inadequacy of cardamom in the country was not adequately addressed by the relevant authorities. Inadequacy was associated with the depletion of cultivable lands. The authorities failed to explore alternative growing areas where the thrips attack was absent. It was found that such areas were present in Kegalle and Ratnapura districts. Similarly, alternative cropping systems were also not tried to offset the reduction of harvest. Intensive cultivation in the hill country plantations is suggested as a feasible solution.

The extraction industry seemed to be a neglected one. The industrialists are facing the constraint of raw material supply. However, no attention is given by authorities to solve the problem. The problem is acute, because, high initial capital is spent on the industry and recovery of the cost became an unbearable loss.

Lack of transparency in the value chain was another weakness of the cardamom industry. This weakness prevented a comprehensive understanding of the trade in order to recommend measures for improving the industry.

Opportunities for cardamom

Higher elevation, cool climate and perennial water sources are the essential conditions for enhancing flavor and aroma attributes of cardamom produce. It is difficult to grow cardamom in the ideal locations due to the prevailing thrips problem.

Growing of cardamom under protected conditions (inside net-houses) on a large-scale, preferably in association with the plantation companies, is a feasible solution to the challenge of supplying of raw materials for processing.

Floriculture Marketing Systems

5.4. Organization of the marketing systems of floriculture

Following are the main market channels of floriculture products.

Channel 1

Upcountry Indoor Cut Flower Farmer → Local Market/Export Market

Channel 2

Upcountry Outdoor Cut Flower Farmer → Collector → Wholesale Trader → Florists / Consumers

Channel 3

Upcountry Pot Plant Producer → Wholesale Buyer → Wayside Selling / Exhibition → Consumer

Channel 4

Low Country Pot Plant Producer → Exhibitions / Direct Selling → Consumer

Channel 5

Supplier of Seeds / Foliage → Low Country Pot Plant / Foliage Producer → Large Nurseries (Preparation for Export) / Export Market

Market Structure

Cut flowers

The cut-flower sector can be categorized into three sectors, *viz*., export oriented cultivation, cultivation for specialized local markets and harvesting of outdoor flowers for catering for general purposes. The temperate cut flower growing is confined to the up-country region. Nuwara-Eliya, Boralande, Welimada and Diyatalawa are the predominant growing areas. The major flower species grown in the region includes carnation, roses, gerbera, chrysanthemum, lilies, gypsophila and limonium, etc. The temperate cut flower business is handled by a handful of entrepreneurs who operated independently for serving their customers abroad. However, the selling of flowers locally is also done. The high initial capital, dependence on imported germplasm, high cost of fertilizer and agrochemicals, the need of expert knowledge and

limited land resources restricted newcomers from entering into the business. The perishable nature of flowers, stringent quality control, quarantine issues, high freight fares and difficulty of cargo reservation when required are also other limiting factors. The scale of operations also matters as it determines the access to the industry. The minimum requirement of flowers for a single shipment is 5,000, which should be packed in cardboard boxes. A similar consignment has to be dispatched every other day to sustain the supply.

The above description indicates that the temperate cut flower enterprise meant for the export market shows characteristics of oligopolistic market structure. Since individual businessmen aimed at predetermining their own markets, the competition among fellow-businessmen is low. However, they have to face international competition with regard to quality and price with countries like the Netherlands and Thailand.

Up country outdoor flowers

The up country outdoor flowers were sold outside the production area to wholesalers in the main cities such as Kandy, Colombo, Galle, Jaffna and Trincomalee. The wholesalers in the main towns distributed flowers to retailers, florists and consumers. The supply chain was well cleared. Every flower collector in the up country has a specific set of consumers in order to minimize marketing constraints. Payments for flowers are made once a month, highlighting the mutual understanding between the buyers and sellers.

Upcountry ornamental plants

It was said that nearly 200 producers are scattered in Nuwara-Eliya and Badulla districts. Plants were raised in net houses in order to protect them from the wind and sun. Pest and disease problems were also said to be minimum in the net houses. Though production was confined to the cooler areas of the up country, consumers lived mostly outside the district. The wholesale buyers, who come from different regions of the country, purchased the produce in bulk. The bargaining power of the wholesalers was high since the producers were constrained for selling their plants. The wholesalers either maintained the production unit for keeping plants or acted as mobile sellers. The other mode of selling was through exhibitions where buyers and sellers met.

Low country foliage and pot plants

The production units of these plants were in Colombo, Gampaha, Kurunegala and Kalutara districts. Most of them started as small units for local plant sales. However, the ambition of these small entrepreneurs was to infiltrate the overseas market. Each unit has a supply base of raw materials such as seeds (e.g. palm

seeds) and cuttings on a regular basis. The suppliers of raw materials visited different areas for raw material collection and supplying. When the nursery was established for export oriented plant production, only raw materials were bought for propagation from the reliable suppliers. If the nursery was aimed at a local market buying plants even from different sources for further growing was also observed.

5.5. Operation of the marketing system

Price fixing for cut-flowers produced in net houses

Sri Lanka's cut-flower export is very low, 0.6% of world demand (Krisnaraja, 2018). At present the entire production supplies the local market. Price fixing was done according to the quality of flowers. For instance, a small flower of roses was Rs 40, while for a larger flower with a long stalk the price increased to Rs. 100. Red and white flower prices were higher than that of other colors. A small gerbera flower was Rs 30 whereas the standard size was Rs. 45. A greater demand existed for white color flowers. Prices were negotiable and the decision was with the producer and the buyer. The prices of flowers did not fluctuate and has remained unchanged for a long time.

Price fixing for out-door growing flowers

When it comes to the upcountry out-door flower business, either plants were grown or found in common places without being cultured resulting in low prices. For example, a flower of asthamenia was priced at Rs. 5 whereas a multi-color flower of the same variety was fixed at Rs. 8. A daisy flower was always Rs. 5. It was noted that prices had not changed over a decade although demand-supply situations changed from time to time. On some occasions, the price range of the same species was fixed at a low sum and varied according to quality. For instance, the price range of an anthurium flower was Rs. 33 and Rs. 43. The gerbera flower price varied from Rs. 22 to Rs. 25. Roses were between Rs. 20 and Rs. 30. The low range of prices were fixed for selling of flowers in the local market for day-to-day requirements.

A high number of out-door flower collectors (approximately 100) were engaged in the business and most of them have specific buyers all over the country. Supplying was done by means of trains, buses and courier services. The transport charges also varied with the mode of transportation. When the service of a courier firm was obtained, a box was charged at Rs. 450. Usually, Rs. 300 was charged for a box in buses while Rs. 260 was charged for a box of 10kg for dispatch to Colombo via trains. This cost was further increased to Galle at Rs. 400. The transport cost has to be borne by the suppliers. The suppliers received

payments once a month. A high demand for flowers exist for wedding ceremonies, religious and cultural festivals, etc.

Price fixing for up country ornamental plants

Ornamental plants start with seeds includes zennia, petunia, lilianthus and chrysanthemum, etc. Locally produced seeds and imported seeds were purchased from Nuwara-Eliya markets to establish plant nurseries. Seeds were usually imported from Thailand and the price of a 10g packet is around Rs. 2,500. Bicolour and multicolour plants have a high demand. Plants propagated from seeds took three months to grow and their prices are between Rs. 25 and Rs. 30. Plants belonging to new introductions such as new carnation species fetched higher prices. January to April is a good period for plant sales. The Nuwara-Eliya and Bandarawela April festival season, church festivals, etc., are occasions where prices were fixed at double the usual selling price. The exhibitions conducted annually at Keppetipola, Mirahawatte, Maumelle and Diyatalawa provided opportunities for selling plants.

Price fixing for ornamental plants

Anthurium was a widely grown species. Prices of plants propagated from stem cuttings ranged from Rs. 400 to Rs. 800 depending on the size and the age of the plant. When imported mother plants were directly potted, its value was as high as Rs. 2,500. Bangkok anthurium plants have a high demand because of their novelty. The price fixing mechanism was not clear for pot plants. The growers were the members of societies created either by the Department of National Botanic Gardens or the Department of Agriculture. The members gathered with the participation of the department officers monthly and discussed price-setting for different plant species. The agreed prices were followed at exhibitions where most of the members participated. Generally, individual selling prices were higher than that of exhibition selling prices.

Price fixing for foliage and pot plants

A large number of production units of these plants that were propagated were species having export potential, under protected and controlled conditions, for the export market. Some of the producers have foreign partnerships. There were other medium scale entrepreneurs who also aimed at the export market though the local market share was high. Continuous supply, adherence to the sanitary and phytosanitary regulations, maintaining of the quality standards set by the importers, were parameters required for the export market.

The conventional pot plant marketing took place based on a longstanding relationship between the producers and importers. However, with the opening of web-based order taking, the main importers had come to Sri Lanka and visited a number of nurseries for price comparison. If they were satisfied with the prices and quality of the plants they were inclined to buy from these medium-scale nurseries, compromising the existing markets of large-scale producers and posing a threat to their existence. The exporters refrained from revealing prices of exported products owing to the fear of fellow-exporters/competitors knowing the pricing information and therefore price structures could not be obtained from the exporters during the study.

5.6. Performance of the marketing system

Market Performance

Strengths

Dedication, curiosity of finding information, inclination of buying newly introduced plant species, interpersonal links with fellow-entrepreneurs were the strengths possessed by the entrepreneurs of the floriculture industry. The strengths such as efficient transportation, client network, strong buyer-seller linkages, better infrastructure facilities have been observed with respect to the temperate flower trade. Usually, cultivation was confined to a vast area in a protected net house from which 2,000-3,000 flowers of different species can be harvested twice a week. The transport cost has been kept low by using public means. Night trains and night buses helped to dispatch flower baskets or boxes within 5-6 hours to the intended destinations including Jaffna, Anuradhapura, Galle and Colombo without being subjected to heat which is experienced in day time. Jasmine, marigold and chrysanthemum species (*kaval kapuru*) were the flowers in regular demand from Hindu temples in Jaffna and Trincomalee. The daily operation of Jaffna and Trincomalee bound buses from Nuwara-Eliya and Diyatalawa helped to deliver flower boxes to the temples which required flowers.

Fixed orders were also taken from Colombo, Galle and Jaffna florists with prior arrangements to supply an agreed number of flowers of required species. These orders were usually referred to as ‘standing orders’. Even though requirements changed, the agreements were not violated from both sides, namely, the suppliers and the buyers. When the production was inadequate to meet the agreed terms, the balance was fulfilled by purchasing flowers from their counterparts. Courier services were also used to save transport time in the case of urgent needs. It was observed that the producers of flowers for export

purposes had better infrastructure facilities such as cool rooms and micro-irrigation systems and had a capacity to import and breed plant species.

Weaknesses

Among the weaknesses observed, the following are noteworthy. Prolonged rainy periods caused the decaying of flowers and low production. In contrast, on auspicious days the flower requirement was excessively high so that supplying of agreed numbers was difficult. In order to meet the requirement, the florists/decorators resorted to importing flowers with the permission of the Director General of the National Botanic Gardens Department. Assessing the current local production, such requests were granted. Unauthorized imports were said to upset the local market and there was a risk of introducing new pathogens from importing countries since quarantine involvement was nil.

Lack of opportunities for selling ornamental and pot plants was the main weakness of the trade. The plant production units were scattered, isolated and in remote areas. The consumers belonged to the middle-income group and they were mostly confined to town areas. Meeting of producers and consumers was also found to be a big constraint. Exhibitions, festivals and fairs were the main meeting points. However, these arrangements were not adequate as production was continuous. The Department of National Botanic Gardens tried its best to ease this problem by arranging exhibitions and allowing its premises for plant sales. However, the department was not in a position to look into the grievances of a large number of growers.

The use of outdated technology was highlighted by the plant growers as another drawback. It has been shown that the existing technology was not adequate to cater to the production of export quality plants in the dynamic world. Therefore, assistance of foreign experts was asked by the growers to update the existing technology and knowledge.

CHAPTER SIX

AGRICULTURAL EXPORTS

In developing nations, trade, export promotions, export-oriented growth, new marketing strategies for capturing the market share and Foreign Direct Investment (FDI) play a vital role in contributing to the economic development by bridging the gap between imports and exports, and thereby decreasing the negative trade balance. Political stability, strict policies, and proper mechanisms to promote trade are considered to be of great importance in this regard. Thus, if Sri Lanka were to achieve better growth in the economy through trade, it should adopt innovative marketing strategies in capturing the export market. The public-private partnership would greatly contribute in this endeavor. Hence, it is worthwhile to understand the baseline as to where Sri Lanka stands as a country in terms of international trade. Although a competitive exchange rate, low interest rates and a conducive trade policy environment are necessary for export expansion, the question arises as regards the extent to which these factors have been successful in achieving the goal of international trade.

As economic growth is a primary aim of any country in the world, the agriculture industry's contribution to total exports plays a significant role in trade and development. Expanding agricultural exports is one of the most promising means of increasing rural income and thereby increasing the living standards of the people. Although Sri Lanka's exports are a small proportion of the total world trade, with regard to foreign exchange earnings and contribution to GDP, such export income would be substantial in an environment of improved trade in the local context. Therefore, policies that seek to stimulate agricultural exports are not irrational even when world conditions are unfavorable, particularly where few alternatives exist (Sanjuán-López and Dawson, 2010). As the agricultural exports are a diagnostic tool that help signal whether there is a conducive policy environment for agricultural trade and the economy goes though the right path of export earnings though agricultural exports, poor performance in agricultural export trade could be an indicator that there are weaknesses that either limit the productivity of companies and farmers or negatively affect the ability to project their capabilities in the global market. Therefore, this chapter attempts to assess the performance of agricultural exports in Sri Lanka while examining trade policy instruments such as trade agreements, trade barriers, exchange volatility, etc.

6.1. Performance of agricultural exports

As shown by Figure 6.1, exports of goods and services as a percentage of GDP was 34.7% in 1978 and declined sharply until 1986. However, it gained a momentum again and increased up to 39% in 2000. In the year 2019, the value recorded was 23%.

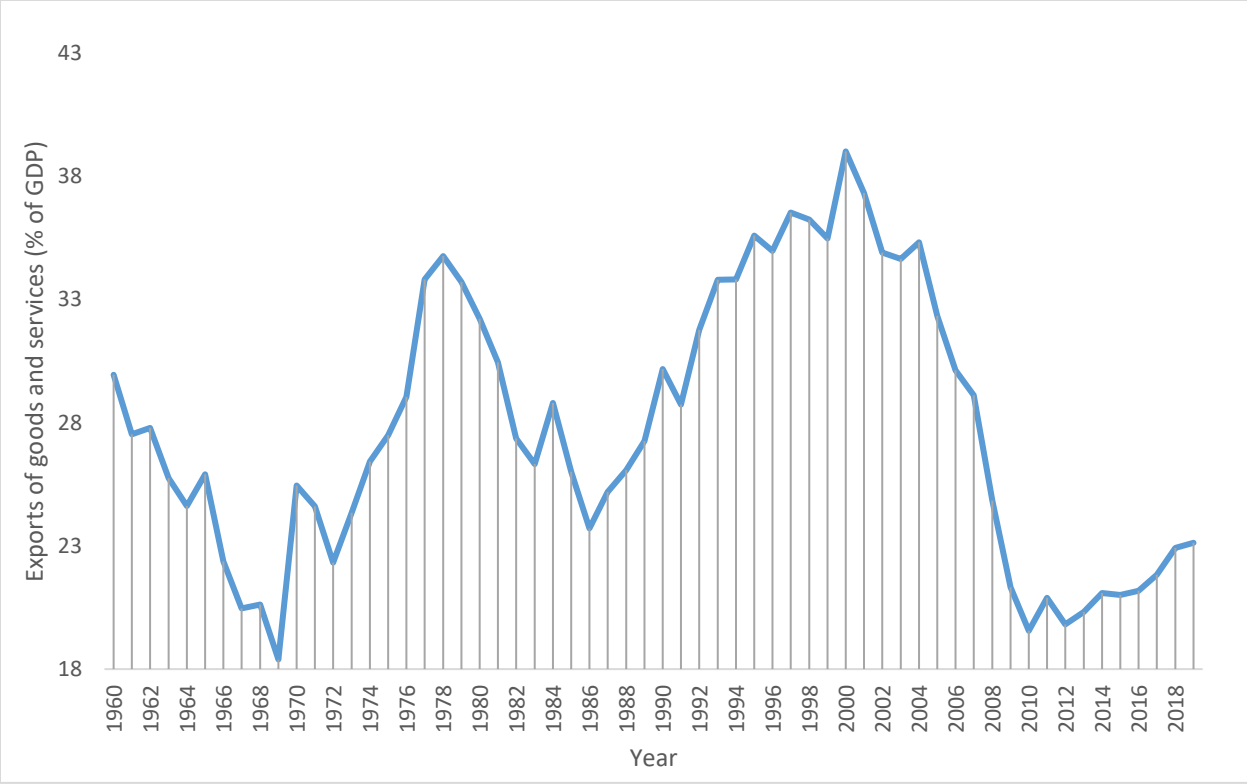

Figure 6.1: Exports of Goods and Services as a percentage of GDP

(Source: Sri Lanka trade statistics, WITS, World Bank)

With the introduction of economic liberalization policies, the government intended to increase growth in the economy through foreign trade. Until 1977, Sri Lanka maintained its economy as an import substitution policy where imports were heavily restricted. However, as a result of a liberal economic regime after 1977, imports sharply increased exceeding the exports. The import share in Sri Lanka's GDP recorded as 54.79% in 1980 and second highest percentage (49.62%) recorded in 2000, while it was 29.24% in 2019.

Overall, the two figures highlight the fact that the percentage share in exports and imports in GDP of Sri Lanka has declined. On the other hand, changes in political regimes and internal conflicts have changed the imports and exports base drastically.

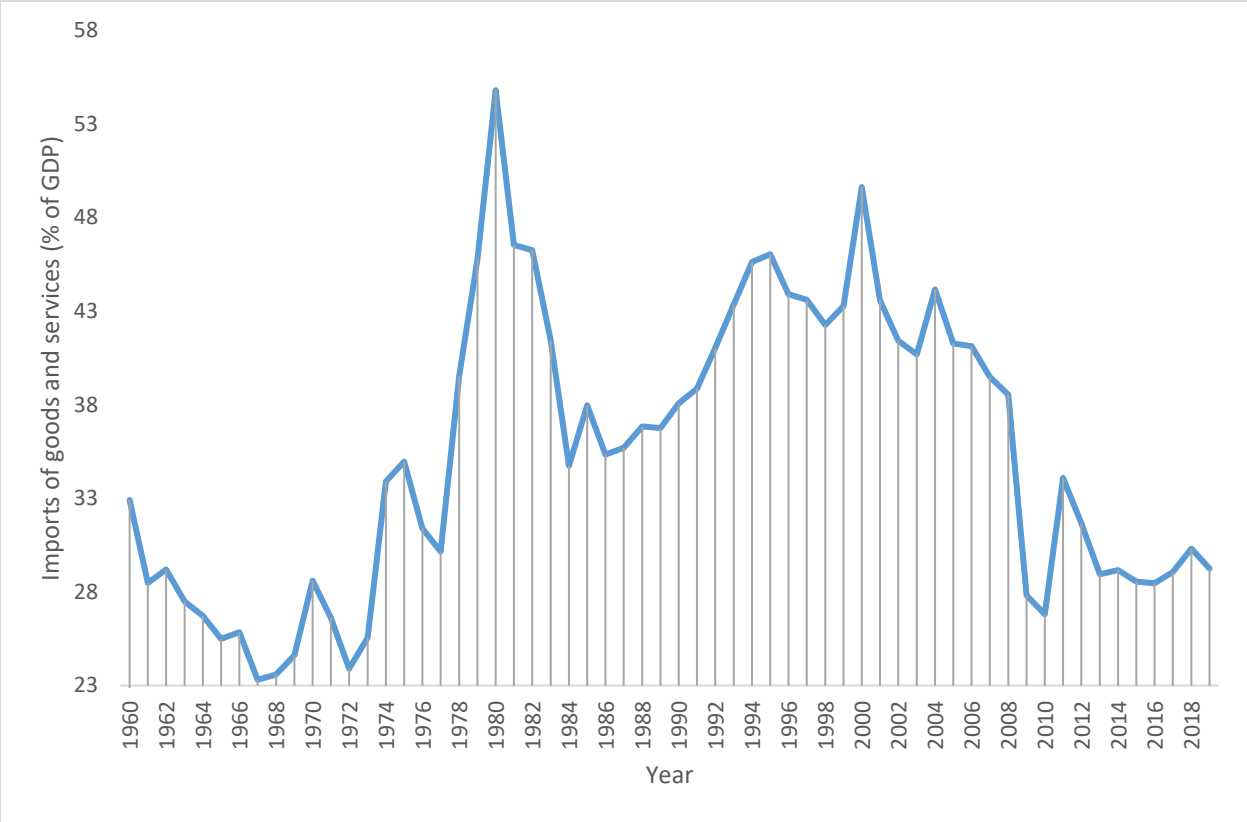

Figure 6.2: Imports of Goods and Services as a percentage of GDP

(Source: Sri Lanka trade statistics, WITS, World Bank)

Before the 1970s, for example, agricultural exports have accounted for more than 70% to 80% of the total exports, while industrial exports were stagnated around 15%. For example, in 1977 the value of agricultural exports accounted for more than 79% of total exports, while in 2017 it accounted for only 22.6%. The agricultural raw material exports of Sri Lanka have been dropped sharply since 1972. It was about 26% in 1972 and 2.6% in 2015. However, the agricultural raw material imports have remained very low. The tradable sector, that is Imports and Exports as a percentage of GDP, declined from nearly 80% to 45% from 2005 to 2015.

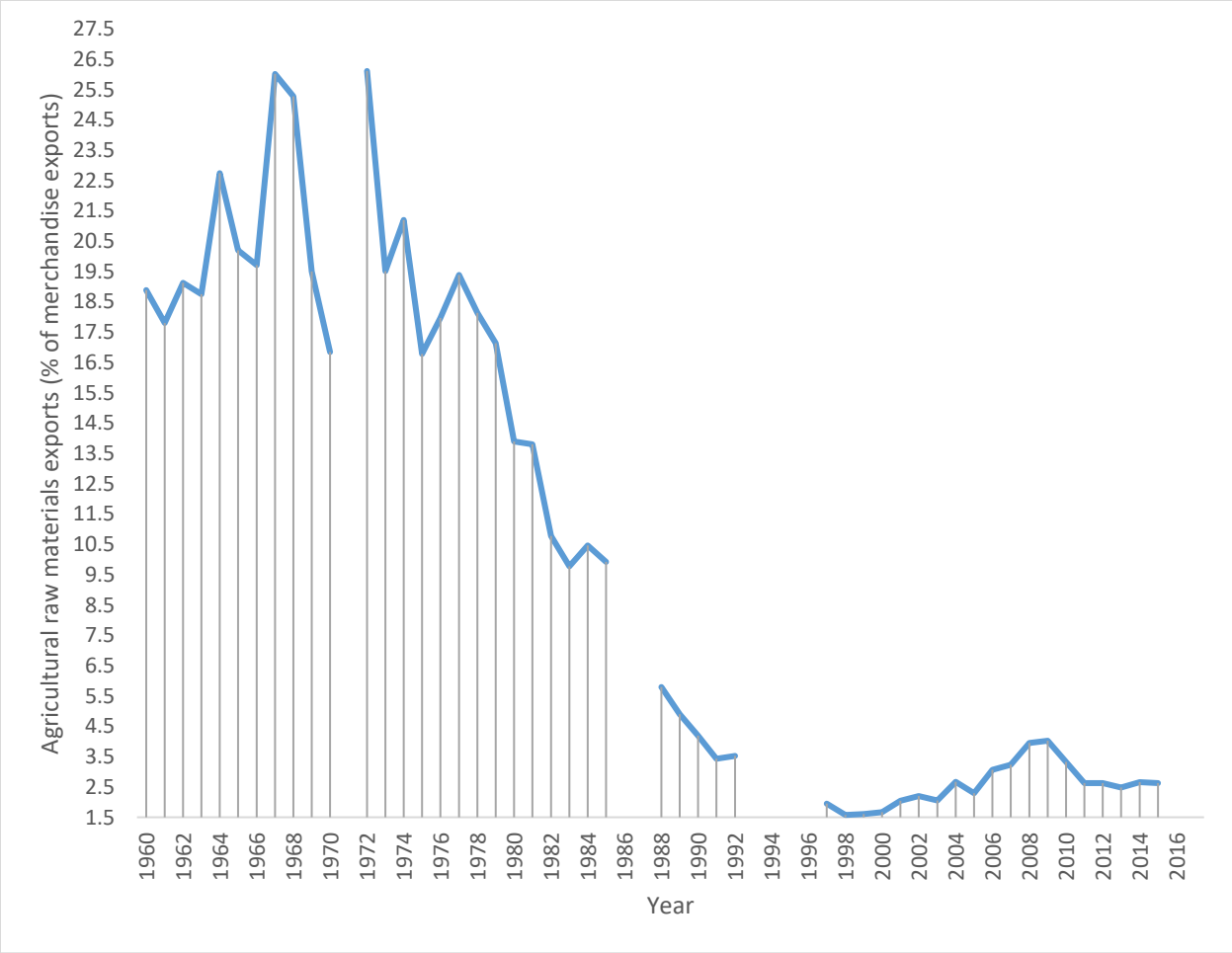

Figure 6.3: Agricultural Raw Material Exports as a percentage of merchandise exports

(Source: Sri Lanka trade statistics, WITS, World Bank)

Exports continue to be concentrated on two traditional products, namely, garments and tea, which account for more than half of the total exports. No major export item has been developed since the 1990s. The export sector shows a lack of diversification in terms of markets as well. Europe and the USA continue to account for over half of total exports. Further, approximately 70% of tea exports are to the Middle East and Commonwealth of Independent States, where demand is sensitive to oil prices which have been transformed by shale technology.

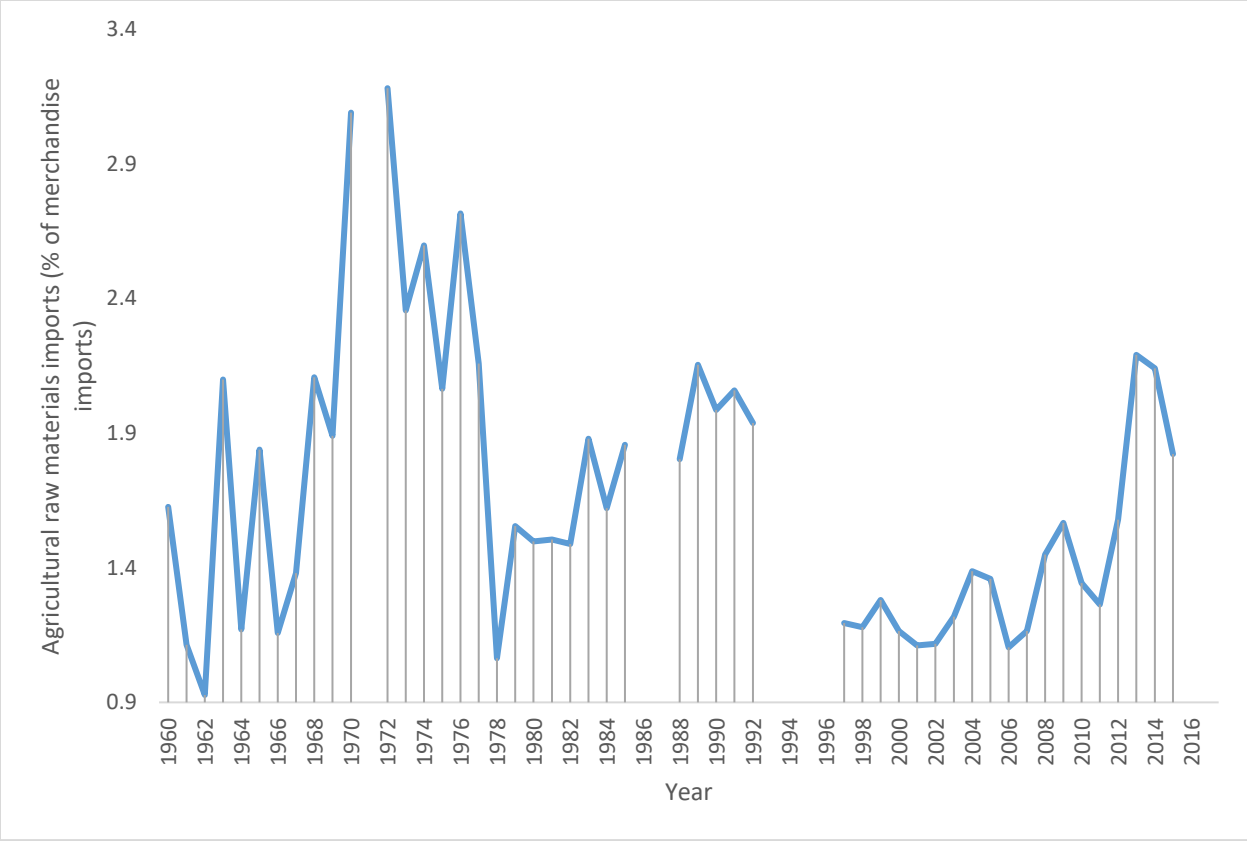

Figure 6.4: Agricultural Raw Material Imports as a percentage of merchandise imports

(Source: Sri Lanka trade statistics, WITS, World Bank)

Tea records the highest contribution to export earnings followed by coconut products, spices and sea food. The share of tea in export earnings is 12.3% while rubber, coconut and spices account for 8.2% of the total exports. The agriculture sector contributes nearly 22% of foreign exchange earnings and the relative contribution from the tea sector is substantial.

The contribution of export earnings from fruits has also been gaining momentum, and it has been growing rapidly becoming the second highest export income earner in Sri Lanka, while the earnings from rubber and rubber based products are becoming the third in the agriculture sector.

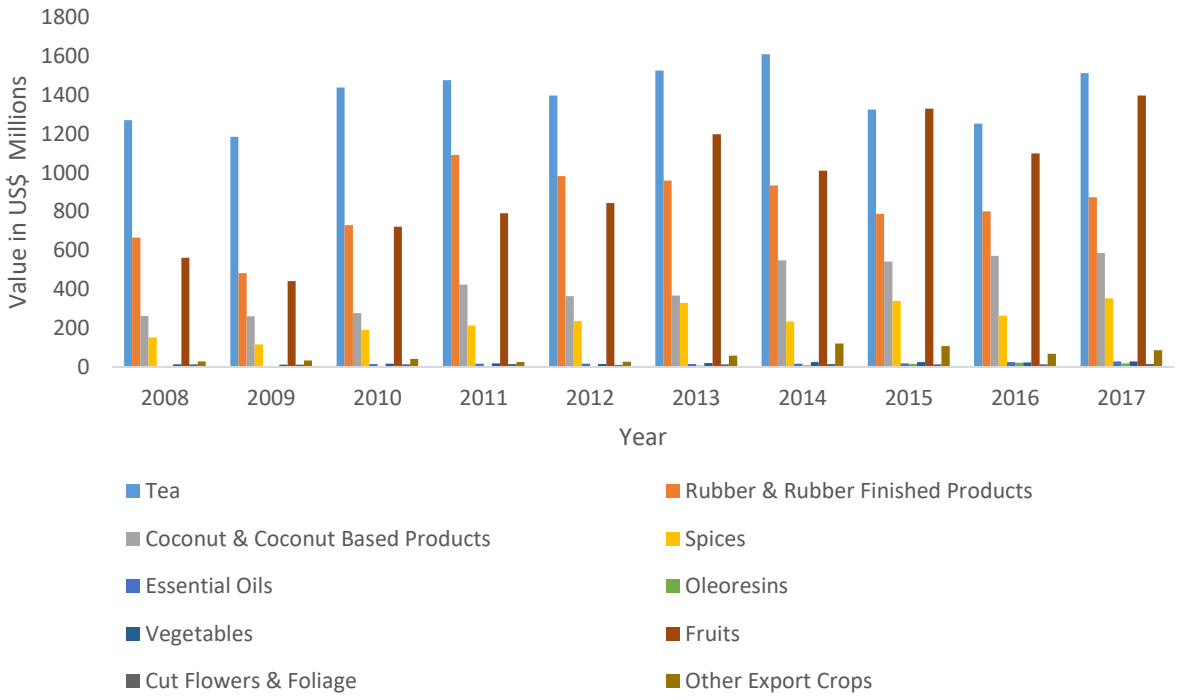

Figure 6.5: Export earnings from agricultural sector

(Source: EDB, 2018)

Growth statistics show that the tea sector is stagnating with around 1% growth while the highest growth rates have been recorded from oleoresins and other essential oil exports. Overall rubber and rubber finished products, coconut and coconut based products, and other export crops recorded 4%, 10% and 12% average growth respectively from 2008 to 2017. It is surprising to see that natural rubber and synthetic rubber have shown a negative growth with respect to export earnings while rubber finished products have gained. This is an indication that the demand for finished products is rising. There is much potential for rubber finished products. Among the coconut based products, kernel products have earned much foreign exchange, having a growth rate of 14%. As the export growth is recognized as the main determinant of the production and employment growth of an economy, the country is expected to promote and explore its export potential with more finished products and value-added products as it is evident that these products earn higher foreign exchange. When focusing attention on vegetables, cut flower and foliage, there should be a special focus in trying to increase the growth in export earnings especially from the cut flower and the foliage sector as the growth is very low (2%).

6.1 Table: Annual Growth Rates in Exports of Major Product Sectors

Product	2008-2017 % Avg. Growth
Tea	**1**
Rubber & rubber finished products	**4**
Natural rubber	-20
Synthetic rubber	-67
Rubber finished products	6
Coconut & coconut-based **products**	**10**
Coconut kernel products	14
Coconut fiber products	6
Coconut shell products	9
Other export crops	**12**
Spices & essential oil	11
Spices	10
Essential Oils	22
Oleoresins	46
Vegetables	9
Fruits	15
Cut flowers & foliage	2
Other export crops	15

(Source: EDB, 2018)

The country's trade is greatly affected by the political stability and its trade policies. If policy changes from periodically, the growth potential of exports and their earning are influenced negatively and it may lead to shrinking of exports, thereby decreasing the economy's growth potential. This scenario is clearly visible from Figure 6.2 when looking at the oscillations in the export earnings of the tea industry. For example, from 2008 to the latter part of the 2014, the country was governed by one party, with it being changed in 2015. As a result of this political shift, the export earnings of the tea sector have reduced greatly. It is also visible that the impact to the economy from the war has also has reduced export earnings to a great extent. It also could be seen that the growth in export earnings is cyclical.

Apart from Sri Lanka's three major export crops (tea, rubber and coconut) spices, fruits and vegetables, floricultural products, etc., are also considered to be contributing to economic growth through their potential to earn foreign exchange. It is noteworthy that their contribution to export earnings has been increasing rapidly.

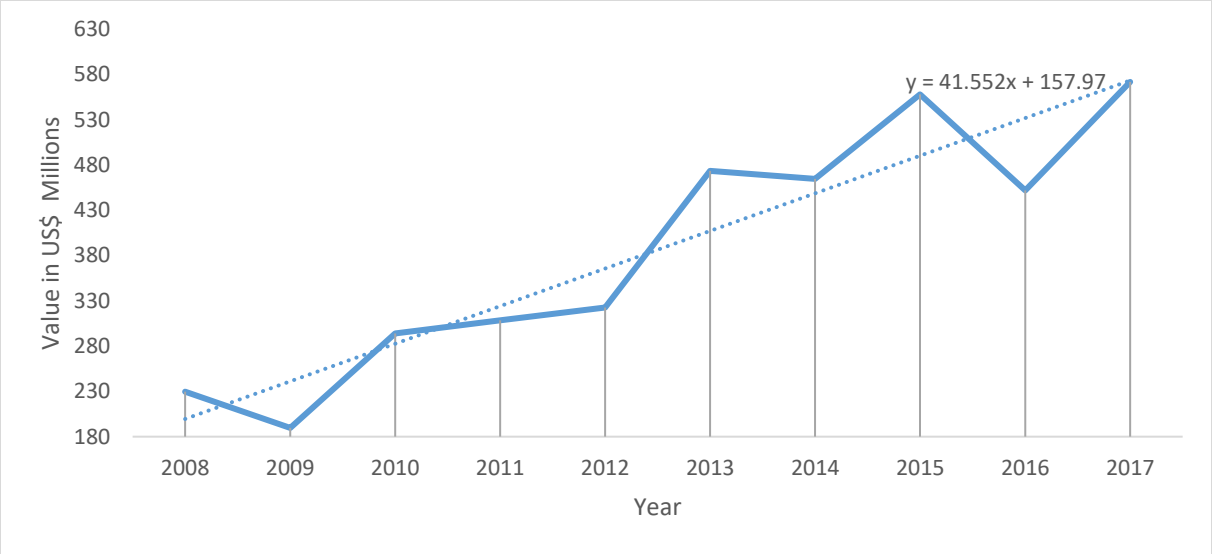

Figure 6.6: Export Performance by Other Export Crops

(Source: EDB, 2018)

According to the IPS (2017), the export of spices and allied products constitutes nearly 56% of the entire agricultural products excluding tea, rubber and coconuts. It further highlights that Sri Lanka exports approximately 85% of true cinnamon to the international market and is the largest cinnamon exporter in the world. The export of pepper and cardamom contributes a significant proportion in the export volume of agro products. However, the potential of these crops has not yet fully been harnessed to meet the needs and to increase their share in the international market (IPS, 2017). According to O'Brien et al., (2018), the largest exports are cinnamon and pepper among the spices, and while both are showing a growth momentum, cinnamon is growing faster. They further emphasize that cardamom and cloves occupy a smaller slot with regard to spice exports. Interestingly, cardamom exports are growing although the growth of clove exports are not satisfactory. Most of the fruit exports are smaller in scale but is growing very fast. Others, including vegetables, seafood, and floriculture, have low volumes and varying growth rates. The Figure 6.4 below further proves the fact that earnings from fruits are growing very fast whereas export earnings from spices are also growing.

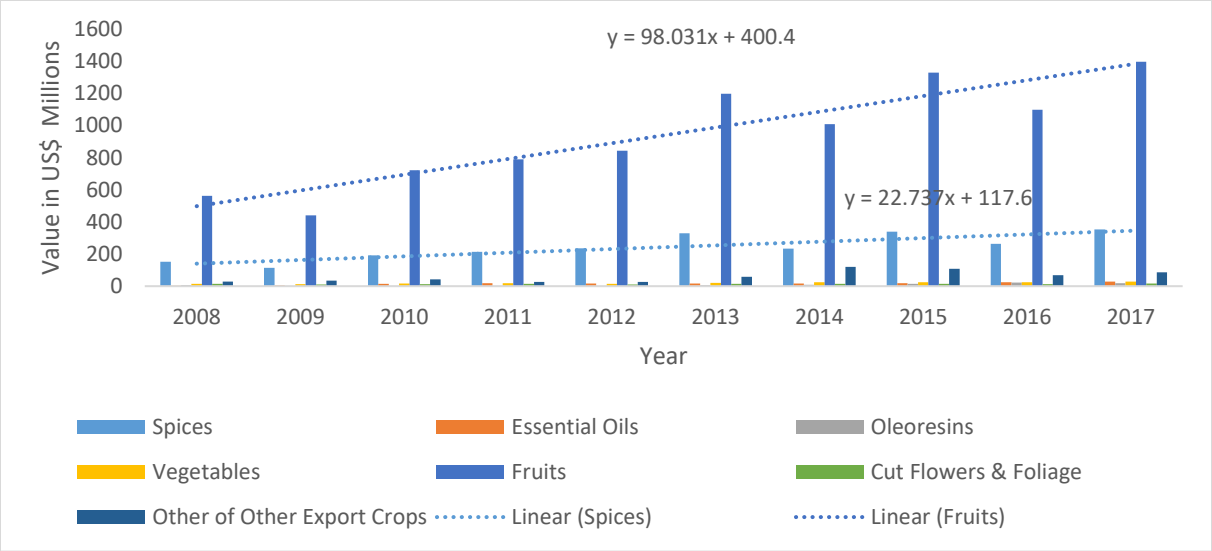

Figure 6.7: Disaggregated View of Export Performance by Other Export Crops

(Source: EDB, 2018)

Sri Lanka was within the top five exporters for cinnamon, cloves, nutmeg and mace occupying 36.8%, 4.6% and 8.0% of the global market, respectively in 2011. However, the global market share for Sri Lankan pepper in 2011 was 1.7% placing the country in 11th position (Panchalingam et al., 2013). Of the disaggregated export earnings of spices, cinnamon is the number one foreign exchange earner. The value of exports of cinnamon has been increasing from 2008 to 2017.

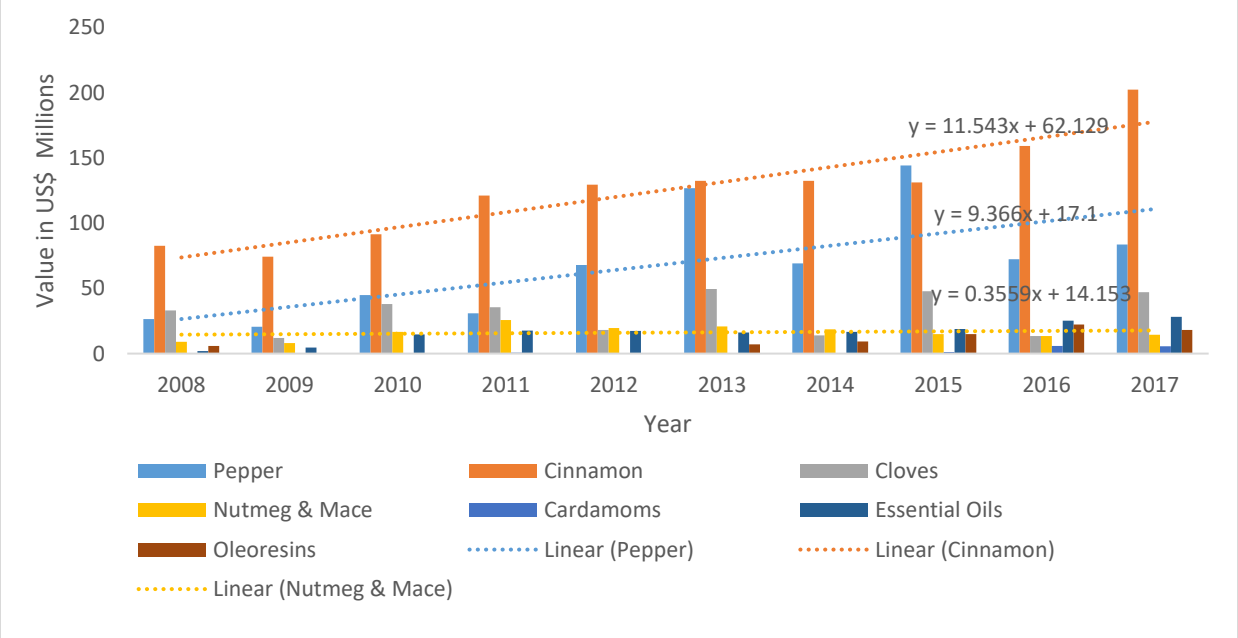

Figure 6.8: Disaggregated View of Export Performance of Spices

(Source: EDB, 2018)

Sri Lanka has always been renowned for producing exceptionally good spices. The spice sector constitutes an important sub-sector of the Sri Lankan economy, contributing 9% to agricultural GDP and to agricultural exports (Central Bank of Sri Lanka, 2015). For the past ten years from 2008 to 2017, the average annual turnover from spice exports increased from Rs. 11,724 million in 2006 to Rs. 61,558 million in 2015 which is equivalent to 1.5% of total export and 9% of agricultural exports. This value exceeds 50% when the three major export crops, that is, tea, rubber and coconut are excluded (Central Bank of Sri Lanka, 2015).

Earnings from agricultural exports have not experienced a healthy growth in the past decade. The major problem is the low volume growth in exports and limited value addition. However, all the major agricultural exports, except rubber, have shown positive growth during 2010-15; export earnings have increased in value terms, with the share of agricultural exports against the total exports hovering around 25% during 2010-15. Diversifying export commodities and adding value to exports is important. However, Sri Lanka's agricultural exports are still limited to a few traditional products and others such as spices, vegetables and fruits, with a certain degree of processing.

Although Sri Lanka’s policy framework is conducive for exporting, exports remain limited. Export products and markets have not been diversified and the penetration of world markets by Sri Lankan trade names, trade promotion, and certification measures has been very slow (Weerahewa, 2017). According to the government document, “Vision 2025”, the anti-export bias in Sri Lanka’s trade policy has reduced the export share of GDP. Sri Lanka’s share of global exports reduced from 0.09% in 2000 to 0.06% in 2016, while its exports as a share of GDP declined from 33.3% in 2000 to 12.7% in 2016. Export composition is stagnant and dependent on a few low complexity products. Export markets are to be undiversified with respect to markets and products.

Sri Lankan pepper exports faced a huge crisis during recent years due to the import of pepper for re-export. In addition, the export volume and export earnings have been fluctuating rigorously. A sharp declined in volume and earnings could be seen after 2015 after a new government came into power.

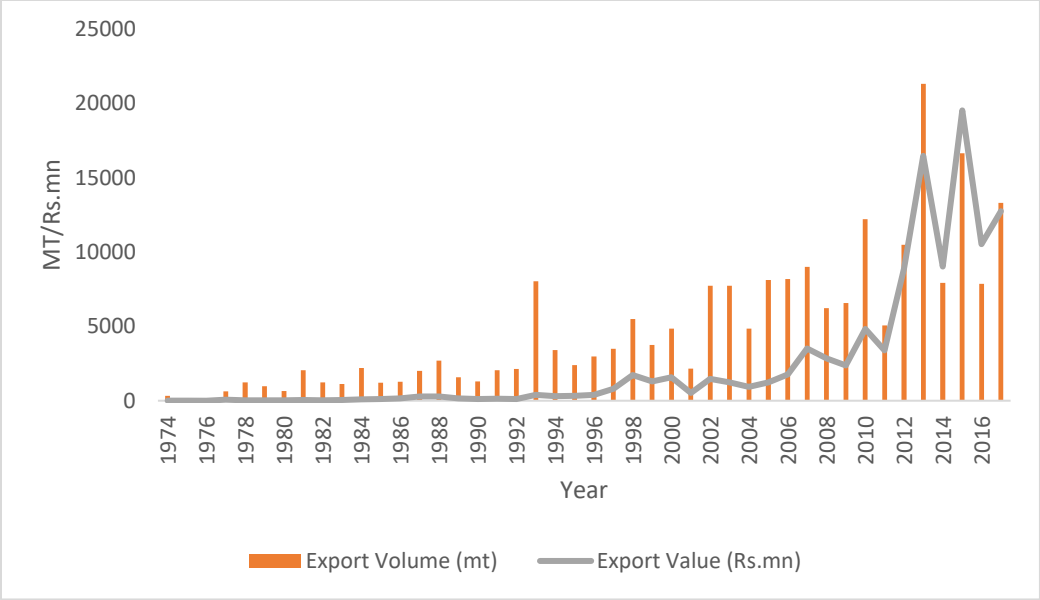

Figure 6.9: Export of pepper 1974 to 2017 July

(Source: EDB, 2018)

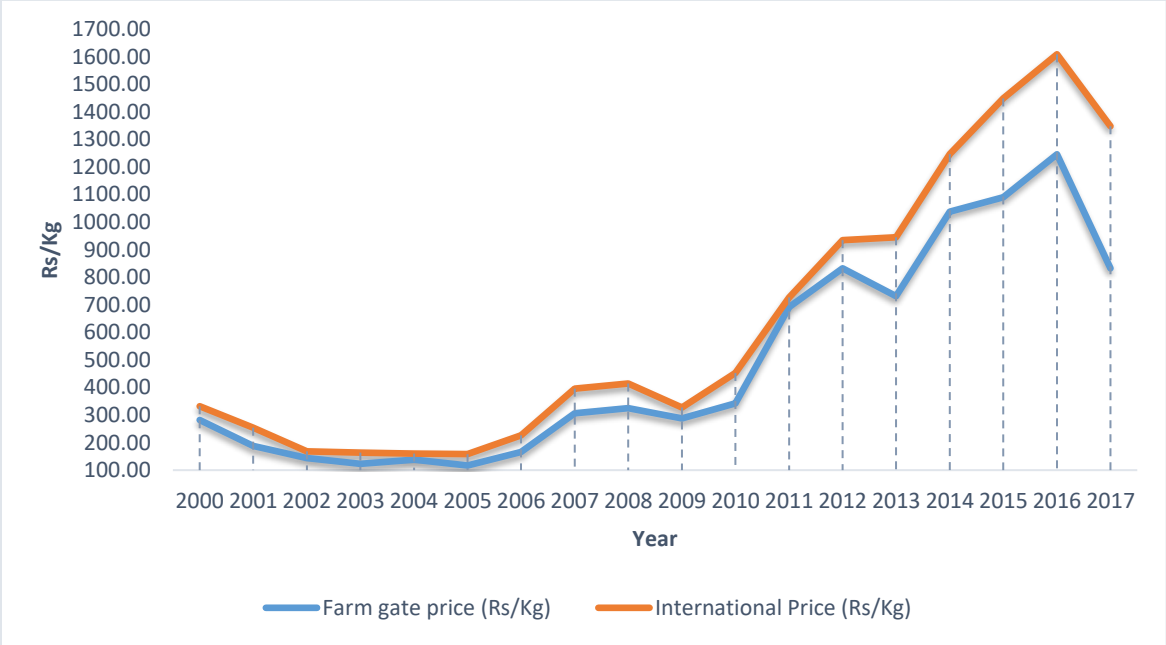

Figure 6.10: Annual Average Farm Gate & International Prices of Pepper (2000-2017)

(Source: EDB, 2018)

Commanding a premium price in the world market should be one of the strategies that should be adopted by any country. In commanding a premium price in the world market, organic pepper production can be considered as one strategy. Converting as much land as possible into organic cultivation would provide opportunities to earn a premium price at the world market. Another way of commanding a better price

for pepper is to export it under the fair trade logo, as fair trade is an institutional arrangement designed to help producers in developing countries achieve better trading conditions. Members of the fair trade movement advocate the payment of higher prices to exporters, as well as improved social and environmental standards. Another way of commanding a premium price is to export as a Rainforest Alliance Certified product. The diagram below further shows how value can be added to pepper. However, measures should be taken to invest in machinery, obtaining certifications and branding the pepper products.

The gap between the farm gate price of pepper and the international market price has increased from 2012 to 2017 which is favorable. However, the farm gate price and the world market price has declined after 2016 which is not favorable because farmers have not received a better price due to re-export of pepper. The supply of pepper in the country went up and domestic producers did not receive a better price.

The volume of exports and the value of exports of nutmeg are highly varied. The reason may be the change in the demand conditions in the world market. Therefore, as a country, Sri Lanka should try to maintain a commendable position in the world market. It should also try to earn a premium price. This could be achieved through value addition to the raw product. Value addition to nutmeg can be done in numerous ways. For example, as done in India, nutmeg could be used to produce wine, jam, pickle, squash and syrup. Nutmeg is mainly used for culinary purposes, usually in ground or grated form, to flavor curries and other food products, confectioneries and bakery products. It is also used in preparation of beverages and drinks. Nutmeg is also used as an ingredient in Ayurvedic and Chinese medicine due to its medicinal properties.

Clove also plays a significant role in the export of agriculture products and the largest volume of export was recorded in the year 2010. However, the growth in exports is not substantial thereafter. Since 2015, the export of cardamom has increased although its export value declined after 2016. Until 2015, the cardamom exports remained stagnated. It is also seen that the Sri Lanka's citronella exports have also been stagnating until 2014 after which the export value sharply increased. One of the major reasons for low export performance is heavy dependence on a few markets. Among the other factors, the small scale unorganized farmer base, the high competition from emerging producers such as Myanmar (low cost high volume producer) and high productivity from Vietnam are contributory factors for poor performance. On the other hand, the dumping of low quality produce in Sri Lanka has created a threat for Sri Lankan producers. As a result, it has reduced the local price and destroyed Sri Lanka's reputation. Apart from

these factors, concerns exist on whether Sri Lanka has adopted proper sanitary and phytosanitary measures and quality, traceability, certification needs which are high in premium markets.

Table 6.1: Major Export Destinations of Selected Export Crops (2013-2017)

Crop	Major Export Destinations	Crop	Major Export Destinations
Cinnamon	Mexico, Peru, USA, India	Pepper	India, Pakistan, Egypt, Singapore
Clove	India, UAE, Saudi Arabia, Pakistan	Nutmeg	Vietnam, India, Pakistan, UAE
Ginger	Germany, Canada, UK	Turmeric	Canada, USA, France
Arecanut	India, Indonesia, Pakistan	Betel	Pakistan, France, UK
Cardamom	Indian, Singapore, Australia, Canada	Mace	India, Germany, UK, Qatar
Oleoresin	USA, Germany, India		

(Source: Author's compilation)

The table shows the export destinations of some selected crops and oleoresins. Major buyers of most of the crops are India and Pakistan among the SAARC countries. Apart from the SAARC countries, Mexico, UAE, Germany, USA, Singapore, Canada, France, Vietnam, Indonesia, Saudi Arabia, Qatar, Peru and Egypt are the major buyers. Specifically, Mexico and Peru are the main buyers of cinnamon while the major buyer of pepper, clove, arecanut, cardamom, mace is India. Pakistan imports most of the betel leaves while oleoresins are imported mainly by USA and Germany. Major buyers of ginger, nutmeg and turmeric are Germany, Vietnam and Canada respectively.

The major food imports of Sri Lanka included wheat, sugar and dairy products. In order of importance, India, the United Arab Emirates, the Russian Federation, the United States, and Germany were the major export destinations during 2005–2014, and the People's Republic of China, India, Malaysia, the United States, Germany, and Pakistan were the major import sources. High dependence on imports to meet the domestic food requirement and inadequate diversification of the export basket are some key challenges faced by Sri Lanka (Weerahewa, 2017). Moreover, the spices subsector is facing several challenges and threats related to marketing. The value added in the value chain is very low, and the produce deteriorates as it changes many hands from farmer to consumer. The international spice trade's export procurement systems are changing, and world trade agreements are increasing requirements for food quality and safety. These factors have created a new demand pattern with greater focus on continuing supply of high-quality, safe, value-added products with improved processing technology and packaging. In terms of agricultural exports, earnings have not experienced a healthy growth in the past decade, and exports continue to be limited to a few traditional products and others such as spices, vegetables, and fruits, with a limited degree of processing being carried out (Thibbotuwawa, 2019).

Two of the major products that are categorized under spices are essential oils and oleoresins. They also have gained momentum in export earnings in Sri Lanka. The export earnings from essential oils and oleoresins are growing steadily.

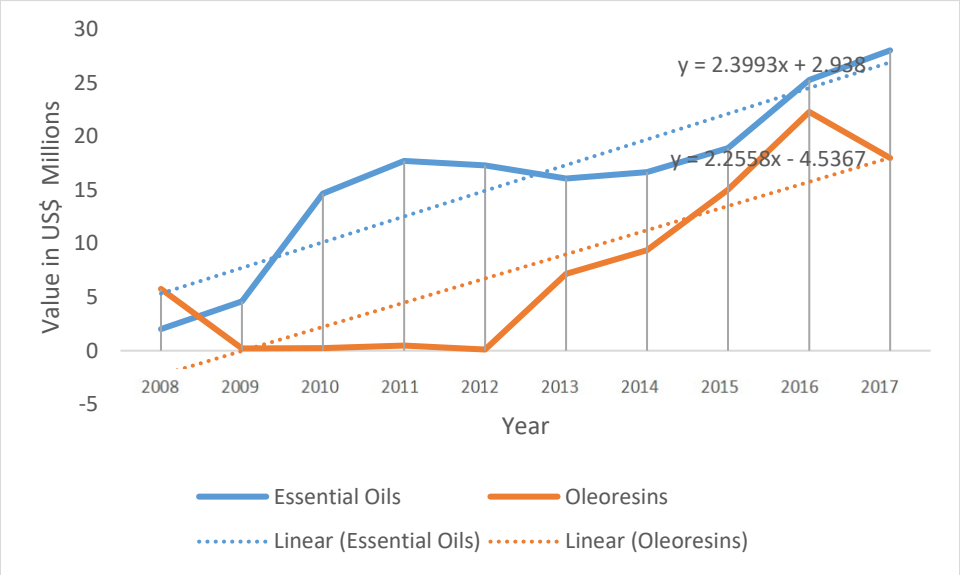

Figure 6.11: Export Performance by essential oils and oleoresins

(Source: EDB, 2018)

During the period of 2008-2017, growth in the export earnings of spices and essential oil is positive and the average growth is 11%. Growth in oleoresins export earnings is 42% while growth in cardamoms, essential oils, and pepper is 32%, 22% and 17% respectively. However, growth in cinnamon is not satisfactory with a growth rate of 9%, although it is one of the biggest exports in Sri Lanka. The overall growth in spices is 10%.

Table 6.2: Annual Growth Rates in Exports of Spices

Spices & Essential Oil	% Avg. Growth
Pepper	17
Cinnamon	9
Cloves	2
Nutmeg & mace	4
Cardamoms	32
Subtotal-spices	**10**
Essential oils	22
Oleoresins	46
Total-spices, essential oils & oleoresins	**11**

(Source: EDB, 2018)

The Sri Lankan fruit and vegetable sector is one of the emerging sectors in Sri Lanka and it has impacted on the export earnings substantially although the contribution cannot be tallied with that of plantation crops. In promoting fruit and vegetable exports, the government has taken action in Sri Lanka in many ways. For example, fruit and vegetable export earnings have increased remarkably with the *Mahinda Chinthana* government agricultural development policy as well as the expansion of the global demand for horticultural products owing to healthy dietary patterns (Perera et al., 2015). Despite the remarkable growth of fresh fruit and vegetable export earnings, only a few items dominate the export basket and export destinations are fragmented to limited markets (Perera et al., 2015). Therefore, export earnings are susceptible for high volatility and the development of this sector is unpredictable. Sri Lankan fruits exports are dominated mainly by banana, garcenia, pineapple, melon and papaya. The demand for Sri Lanka's bananas has been growing more rapidly than other fruits with an increase in exports earnings over the years. However, with policy shifts when the government of Sri Lanka changed in 2015, a healthy growth in exports of fruits has been reduced. Some improvement in export earnings has been noted after 2016.

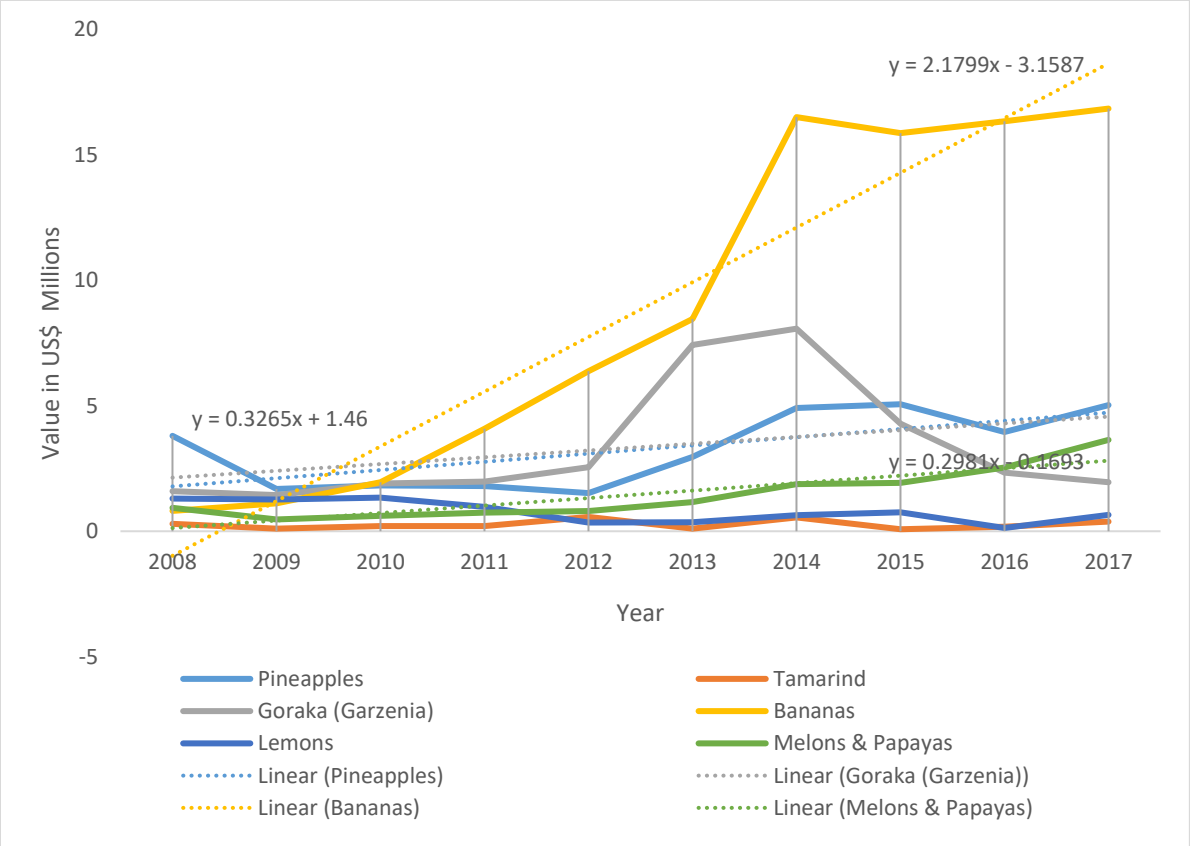

Figure 6.12: Export Performance of Fruit Sector

(Source: EDB, 2018)

When observing the average rate of growth in export earnings of fruits, banana has recorded the highest growth followed by melon and papaya, pineapple and garcenia. However, the growth in lemon exports has been recorded as negative. Overall, the average growth rate of export earnings of fruit has been limited to 15%.

6.3 Table: Annual Growth Rates in Exports of Fruit

Product	% Avg. Growth
Fruit	
Pineapple	10
Tamarind	2
Goraka (garcenia)	9
Bananas	37
Lemons	-16
Melons & papaya	20
Other fruit	8
Sub Total-fruit	**15**

(Source: EDB, 2018)

The Figure 6.12 shows the value of export earnings from vegetables in Sri Lanka and besides the named vegetables in Figure 6.12, the category of other vegetables (bell pepper, salad cucumber) shows a higher growth in export earnings. The value of exports has been on the rise. Comparatively, among the vegetables, manioc exports have been rising. O'Brien et al., (2018) have shown that manioc (cassava) and tomatoes have high feasibility possibilities for exports although cassava and gherkin have comparatively smaller global markets. They further revealed that the cassava market is shrinking and Sri Lankan vegetables exports are low but growing very fast.

6.4 Table: Annual Growth Rates in Exports of Vegetables

Vegetables	% Avg. Growth	Vegetables	% Avg. Growth
Onion	8	Manioc	8
Tomato	25	Kiriala	-6
Garlic	9	Chilli	9
Carrot	34	Turmeric	14
Potato	-26	Ginger	5
Sweet potato	41	Mushroom	21
Gherkin	5	Other vegetables	9
Subtotal- vegetables	**9**	**Subtotal- vegetables**	**9**

(Source: EDB, 2018)

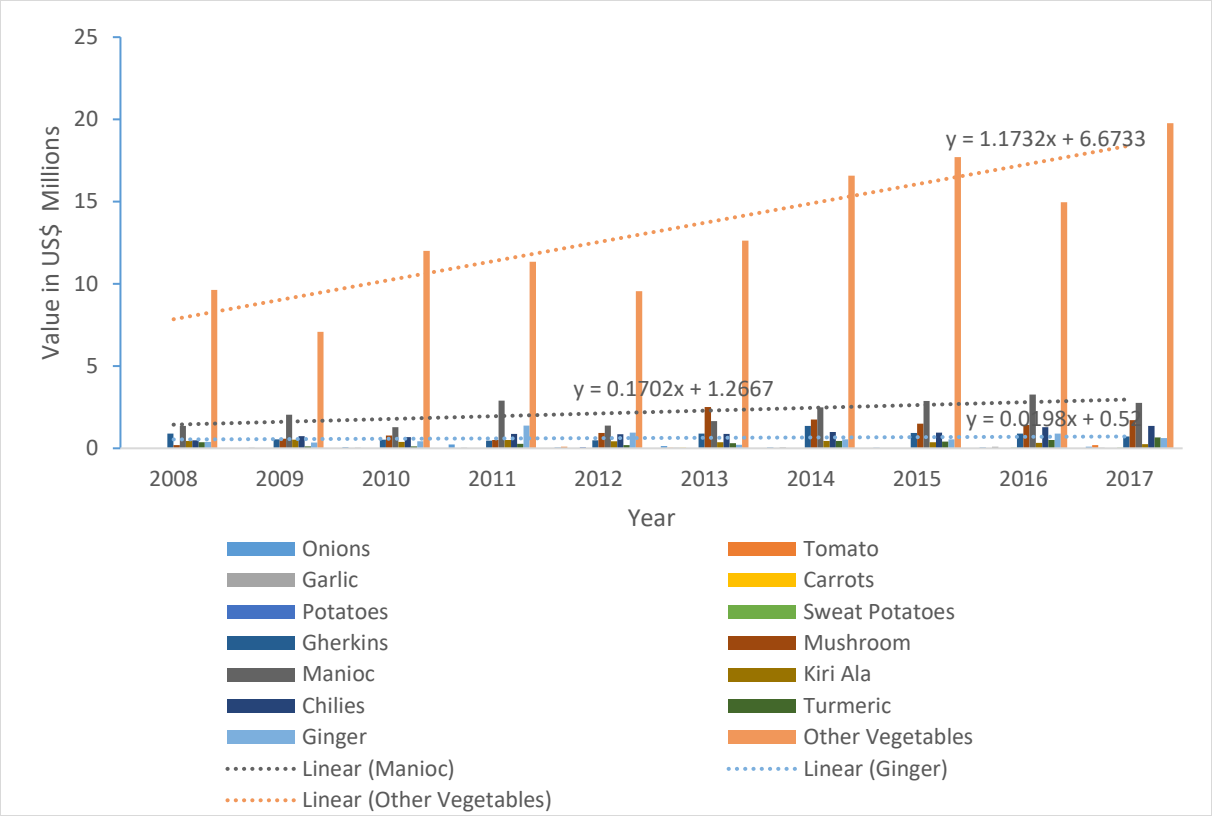

Figure 6.13: Export Performance by Vegetable Sector

(Source: EDB, 2018)

The vegetable export sector concentrates mainly on a few product categories in which export earnings from sweet potato, carrot, tomato and mushroom showed higher growth rates comparatively (41%, 34%, 25%, and 21% respectively). Exports of Kiriala and potato recorded negative growth rates in export earnings.

The export earnings and global demand for cut flowers and foliage plants have been growing steadily for the period of 2008-2017. According to Padmini and Kodagoda (2017), most of the growers and vendors in the floriculture industry target the local market as they feel that they earn higher profit margins from local sales. On the other hand, they have some difficulties such as lack of air freight, financial assistance and lack of new varieties for the export market in the industry. Therefore, timely action is needed to promote the industry. The Figure 6.13 reveals that the Sri Lankan floriculture export earnings are dominated by foliage plants whereas the cut flower exports are shrinking. This is clearly indicated in Table 6.3 where the export growth in the cut flower industry shows negative while the growth in exports of foliage products is also very low (2%).

Table 6.3: Annual Growth Rates in Exports of Cut Flowers & Foliage

Cut Flowers & Foliage	% Avg. Growth
Cut flowers	-22
Foliage	2
Subtotal-cut flowers & foliage	**2**

(Source: EDB, 2018)

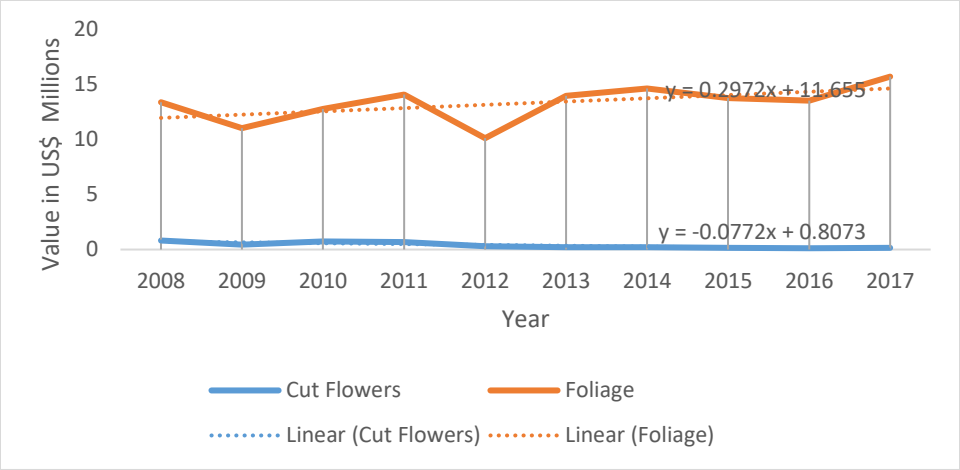

Figure 6.14: Export Performance by Floriculture Sector

(Source: EDB, 2018)

Betel leaves and areca nuts play a major role in the Sri Lankan export market and betel leaves contributes around Rs. 400-500 million annually (Herath, 2015). Betel leaves have brought in a substantial amount of foreign exchange to Sri Lanka although the export earnings have fluctuated over the years. India, Bangladesh, Indonesia, Thailand, Sri Lanka and Myanmar, together are responsible for fulfilling almost the entire demand for areca nut. Growth in export earnings of the areca nut market is considerable and substantial until the year 2015 where major political change occurred in Sri Lanka. During the year 2015/16, there was sharp decline in export earnings from areca nuts (Figure 6.14).

Table 6.4: Annual Growth Rates of Betel Leaves, Cashew Nuts, Oil Seed, Coffee, Areca Nuts, Black Gram, Cowpea, Green Gram, Lentils Etc.

Other of Other Export Crops	% Avg. Growth	Other of Other Export Crops	% Avg. Growth
Betel leaves	10	Black gram	1
Cashew nuts	-4	Cowpea	79
Oil seed	17	Green gram	38
Coffee	2	Lentils	-7
Areca nuts	44	Other export crops	17
Subtotal- other export crops	**15**	**Subtotal-other export crops**	**15**
Total-other export crops	**12**	**Total-other export crops**	**12**

(Source: EDB, 2018)

It is also clear from the Table 6.4 that Sri Lanka's areca nut market has grown substantially although the highest growth in export earnings was shown in cowpea exports (79%). However, growth in export earnings of cashew nuts and lentils is negative.

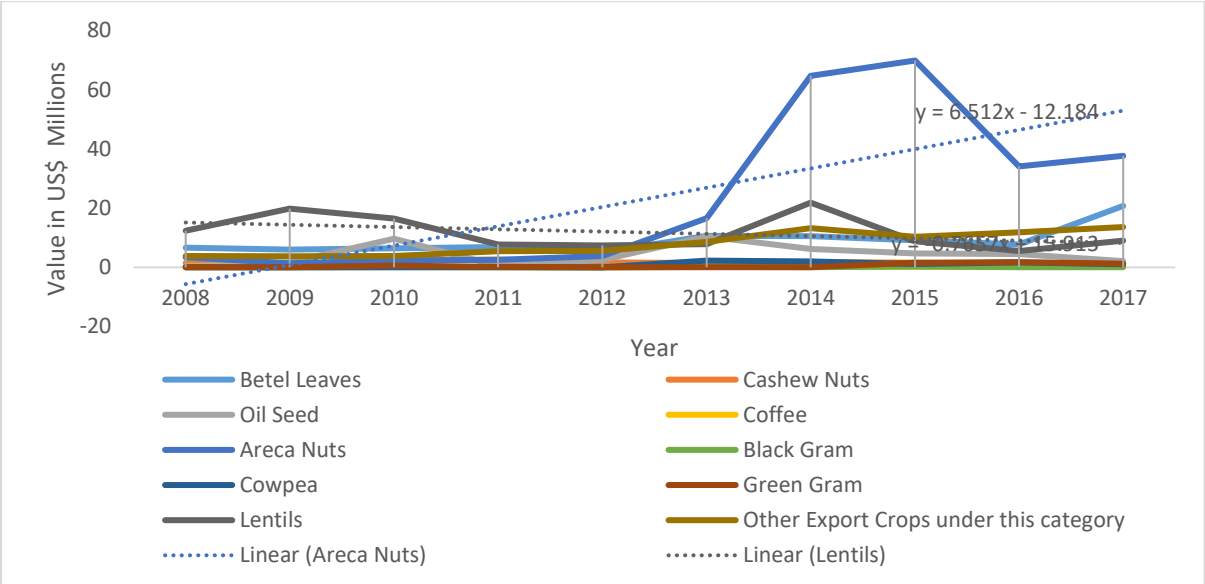

Figure 6.15: Export Performance by other export crops

(Source: EDB, 2018)

6.2. Policy framework for agricultural exports

Sri Lanka was ruled by many foreign nations and after receiving independence from British rule, open non-interventionist free market policies were adopted until 1959. Since 1960 until 1977, Sri Lankan trade was solely based on closed economic free import substitution policies (Bandara and Jayasooriya, 2007). With the change in the government in 1977 and United National Party (UNP) becoming the ruling party, the country started to adopt a totally different policy by opening its economy to the world on the basis that it would achieve economic prosperity. The introduced policy was an export oriented outward looking policy. The economic liberalization reforms sustained for the ensuing three decades dramatically transformed the economic landscape of Sri Lanka. The export structure of the economy underwent a remarkable shift from land-intensive, plantation exports to labor-intensive manufacturing, ending the economy's historic dependence on three primary export commodities (tea, rubber, and coconut products). Inspite of the official commitment to moving toward further integrating Sri Lanka into the world economy, in practice the development strategy began to reemphasize the role of the state in 'guiding the markets' with a view to redressing perceived untoward effects of economic globalization. Public enterprise reform was explicitly ruled out, while conspicuously avoiding any reference to trade

policy reforms. Before 1977, the Import Substitution Policy characterized by high tariffs, import and exchange control and price control by the government, industrial licensing, overarching presence of state enterprises, centrally planned strategies (Nicholas et al, 2005) were imposed. Policy changes relevant to agriculture were less drastic than those introduced for industry. However, it did not create macroeconomic dynamism within the country and social problems such as unemployment, underemployment and poverty became worse. With the introduction of liberalization policies in 1977, the government liberalized its economic transaction through the reduction of direct state control, the expansion of economic businesses available to the private sector for its operation and the change in the focus of economic activity from an inward to an outward orientation. The outward oriented liberal economic regime was characterized by removal of trade barriers like quotas and tariffs, reduction of foreign exchange control, abolition of many price controls, incentives given to exports, etc. One strategy that badly affected the agriculture sector under the open economic condition was liberalization of imports. As a result of liberalization of agricultural imports creating an environment for import competition, the output levels in minor export agricultural crops declined over the valuation of the exchange rate. On the other hand, the rise in imports of minor export agricultural crops corresponded to a decline in the level of domestic production. In addition, the contribution to the GDP by the agricultural sector declined rapidly over the years. Another problem created is the shift of consumers from rice consumption to wheat flour consumption enabled by the liberalizing framework and the decline in relative terms of paddy prices.

Athukorala (2017) discusses an important issue related to the Import Substitution Policy and export oriented outward looking policy. The issue in the contemporary trade and industrial policy debate is whether an import-substitution phase is a precondition for an economy's successful transition to export orientation. Some argue that the previous policy which is a closed economic policy should have existed if the country were to develop. The argument to a certain extent would be realistic when the economies of developed countries are looked at closely. It could be seen that they have opened their economies to the outer world once they became developed to a certain extent. However, Athukorala (2017) further argues that, related to this issue, the composition of the structure of manufacturing production at the time Sri Lanka embarked on liberalization reforms and the commodity composition of manufacturing exports during the subsequent years, fails to suggest any direct link between emerging export patterns and the structure of production inherited from the import-substitution era.

6.3. Impact of trade agreements on agricultural exports

Free trade agreements and their impact on the economy

Economic growth and international trade are inter-related phenomena by which a country expects to improve the welfare status of its citizens. Each and every elected government of the country attempts to improve the international trade through negotiation and agreements by removing cross-border restrictions among the countries. The most important factor related to countries earnings in foreign exchange is to increase the export volume with more value-added products. Imports also play a significant role in increasing the welfare of the country. However, sometimes the government may interfere with the free market mechanism by imposing taxes on imports and exports. Data on imports and exports suggest that Sri Lanka's imports are greater than exports for many years creating a negative trade balance. The government engagement in international trade is mainly reflected in its commitment to sign trade agreements with neighboring countries. The country has signed different agreements such as the South Asian Preferential Trading Arrangement (SAPTA) in 1993, the Indo Lanka Free Trade Agreement in 2000, the South Asian Free Trade Area (SAFTA) in 2004 and the Asia Pacific Trade Agreement (APTA) in 2005.

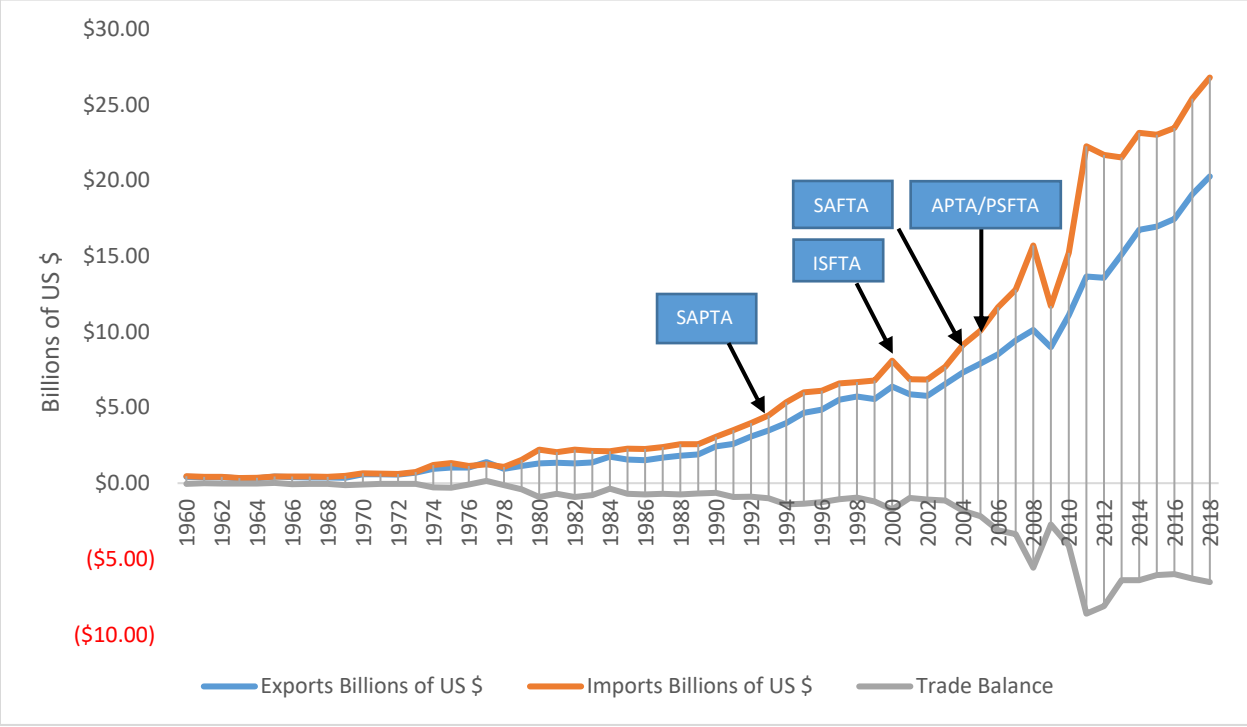

Figure 6.16: Imports, Exports and Trade Balance

(Source: Sri Lanka trade statistics, WITS, World Bank)

It is vital to assess the impact on the country's trade balance after signing the trade agreements. After 1977 when the economic liberalization policies were introduced to Sri Lanka, Figure 6.15 suggests that it

has started to widen the gap between import and exports. Economic liberalization policies adopted in Sri Lanka have created a conducive environment for imports whereas it has not harvested much benefits from exports in comparison to imports. Even having signed the free trade agreements like SAFTA, APTA, ISFTA, etc., this trend has continued and the gap between the import and exports have further widened.

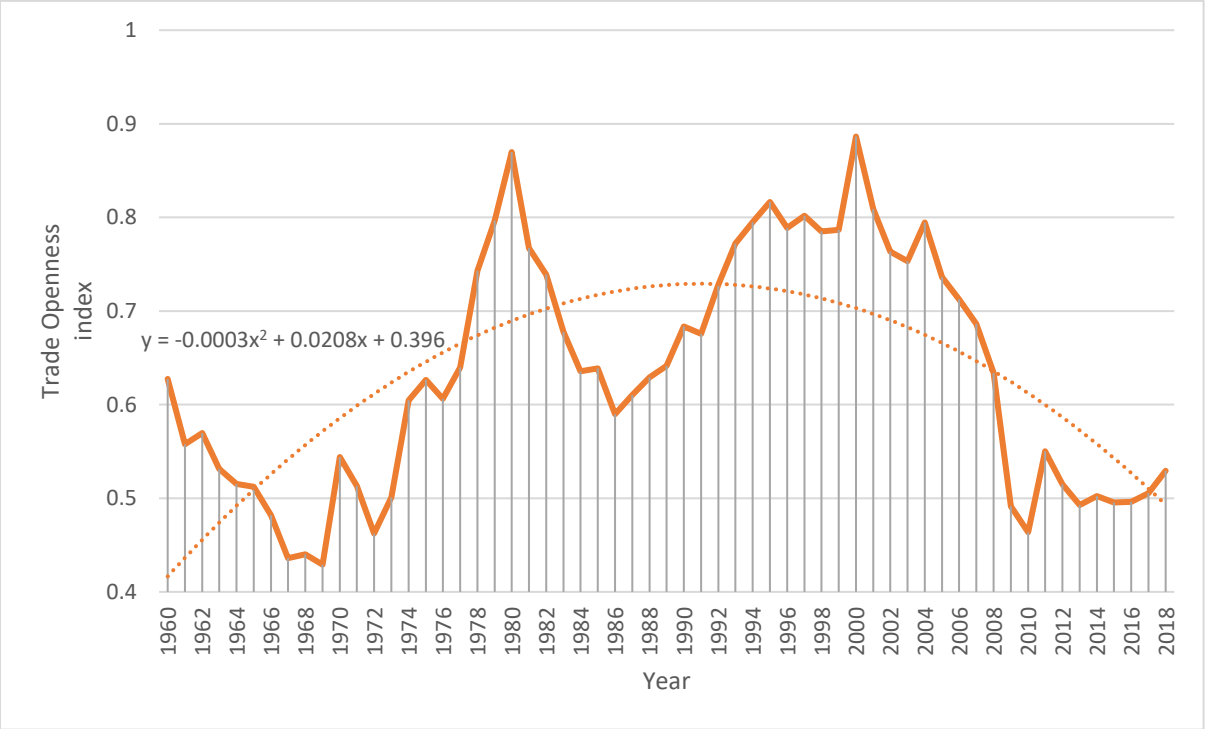

Figure 6.17: Trade Openness Index

(Source: Sri Lanka trade statistics, WITS, World Bank)

The Pakistan-Sri Lanka Free Trade Agreement (PSFTA) was signed in 2002 and came into effect in 2005. Sri Lanka was given immediate duty-free market access to 206 product lines whereas Pakistan received duty-free market access to 102 products. With this agreement Sri Lankan exports grew from 47 million USD in 2004 to 105 million 2018. Our main export to Pakistan is betel leaves followed by copra.

Table 6.5: Import and Export of Goods under the Trade Agreements in Year 2017

Agreement	No. of Tariff Lines (Imports)	CIF Value (Rs.)	No. of Tarif lines (Exports)	FOB Value (Rs.)
ISFTA	801	43,273,460,701	571	72,108,154,358
PSFTA	28	2,325,479,261	184	9,320,117,069
SAFTA	56	1,295,587,788	59	8,879,541,135
APTA	97	3,720,309,700	357	24,431,014,200
SAPTA	23	30,538,029	19	714,511,950
Total		**50,645,375,479**	**Total**	**115,453,338,712**

(Source: Annual Report 2017, Ministry of Finance)

Table 6.6: Import and Export of Goods under the Trade Agreements in Year2020

Agreement	No. of Products Subject to Tariff Concessions	Jan-June 2020	
		Import Value (CIF / Rs. Million)	Export Value (FOB/ Rs. Million)
ISFTA	4,883	21,863	52,338
PSFTA	5,724	1,338	7,461
SAFTA	5,465	724	5,401
APTA	715	2,723	28,539
	16,787	26,648	93,739

(Source: Fiscal Management Report 2020–21, Ministry of Finance)

The adoption of liberal economic policies, such as private sector development, export networks and encouragement of FDI led to immediate improvements in the foreign trade openness of the country. Trade Openness which was 63.4% in 1977, nearly reached 87% by 1980 while exports which were 33.81% of GDP in 1977, increased significantly to 39% by 2000. Imports were 30.15% of GDP in 1977 and increased to 54.79% in GDP in a mere two years after opening of the economy. In 2018, Sri Lanka's Trade Openness was 53%.

According to WTO (2016), Sri Lanka continues to provide long-standing reciprocal preferences pursuant to two bilateral agreements with India and Pakistan, and two regional trade agreements – the Asia-Pacific Trade Agreement (APTA), and the South Asian Free Trade Area (SAFTA) Agreement. Sri Lanka receives GSP benefits from a number of countries and participates in the Global System of Trade Preferences among Developing Countries (GSTP). Developments during the review period included the launch of free trade negotiations with China in September 2014, and deepening of the bilateral relationship with India through the launch of negotiations on a new Indo–Sri Lanka Economic and Technology Cooperation Agreement. Trade under reciprocal preferential agreements for Sri Lanka is minimal, amounting to 3.4% of 2014 imports; this is in part attributed to overlapping trade concessions with the same trading partners through different preferential regimes.

Hirantha (2004) points out that SAARC members' trade is heavily concentrated on only a fraction of potential markets in the region. This has resulted in virtually ignoring the opportunities for trade expansion with other member nations. He further noted that under all trade policy options [SAFTA, South Asian Customs Union, Multilateral Trade Liberalization, Sri Lanka Bangladesh FTA, Indo Lanka FTA (full trade liberalization scenario), Indo Lanka FTA (with negative list)], the manufacturing sector will benefit more than the agricultural sector. Adding further to the finding, Hirantha (2004) showed that welfare under multilateral trade liberalization is much higher than under the other policy scenarios and the author emphasized that multilateral trade liberalization is the best policy option for the Sri Lankan economy, and

regionalism should be served as the first best trade policy option under the multilateral trading system. Srinivasan (1994) and Srinivasan and Canonero (1995) agree with the fact that multilateral trade liberalization on a global basis would yield higher return for the region compared to preferential trade arrangements within the region. Small economies in the region would gain much more from preferential trade liberalization than larger economies. According to his empirical investigation, SAFTA can be formed without causing significant trade diversion effects, or without bringing serious harm to outside members of the RTA. The trade creation effect is highest in the case of the SAFTA. Pigato et.al (1997) found SAFTA to be "highly desirable" and proposed that this would result in significant welfare gains, especially for small countries. Rajapakse and Arunatilake (1997) also agreed that Sri Lanka would gain from SAFTA. However, Siriwardana (2001) argues that Sri Lanka may experience some welfare gains from bilateral trade liberalization with Asian trading partners. Siriwardana (2004) noted that trade agreements have resulted in enhanced imports from India at much cheaper prices, but growth in exports is likely to be insufficient to pay for the increase in imports. Mukherji (2000) critically comments that SAARC members do not even meet the twin criterion of having adequate demand in receiving countries and adequate supply capabilities in the supply countries. Moreover, SAFTA trade negotiations up to the third round have accommodated only a meagre range of products having trade potential for concession, whereas full free trade in South Asia under SAFTA may perhaps be disadvantageous to smaller countries in the region. Tennakoon (2001) concluded that SAFTA would generate significant benefits for Sri Lanka and India, but would have adverse welfare effects for the other SAARC members. In contrast, Perera (2009) was of the opinion that multilateral trade liberalization is the best trade policy outcome for Sri Lanka. In terms of welfare gain, the South Asian Customs union is one of the best solutions. Dushini et al. (2001) was also of view that the impact on trade would be negative, and their findings confirm the fact that SAFTA has no discernible impact on Sri Lanka's trade in South Asia.

Gunaruwan and Alwis (2014) find that the SAFTA has not been effective in significantly promoting trade between the two countries. Also, it is evidenced that Sri Lanka has not been able to secure benefits as expected from the SAFTA. Sri Lankan exports to India have been lagging behind except for some potential shown in the SAFTA-Neutral category (though the positive SAFTA concessions were in the favored category), while Indian exports have increasingly and significantly penetrated into the Sri Lankan economy. Panagariya (2002) also was of the opinion that forming a South Asian FTA would probably prove harmful overall, with a low-tariff country such as Sri Lanka benefiting and high tariff country such as India losing. Siriwardana (2003) shows that trade liberalization is beneficial to South Asian countries in terms of GDP and welfare. The extent of the benefits varies among the members with Sri Lanka appearing to reap

the most in both scenarios. Siriwardana (2004) was of opinion that both Sri Lanka and India would experience some welfare gains from ILFTA. The extension of such a trade agreement to all SAARC nations may create significant welfare improvements in Sri Lanka. Bhagwati (1993) finds that it is more beneficial for countries to enter into preferential trade arrangements with geographically proximate nations rather than with distant ones, because the former would more likely be trade-creating and lead to a larger improvement in welfare in the multilateral system. Progress towards free trade is slow because every country has a veto mechanism and fashioning trade-offs takes time. Sri Lanka is always trying to expand its role in international trade through various FTAs and the recently renegotiated GSP+ concessions is an example. However, the positive effects of these engagements are likely to be sub-optimal if Sri Lankan firms are limited in capacity to respond to global demand.

The tariff regime remained relatively unchanged, with applied rates declining slightly from an average of 11.5% in 2010 to 10.3% in 2016. MFN tariffs are quite varied; over 50% of tariff lines are duty-free, about 20% of tariff lines have a 15% duty, and 23% have a duty of 30%. About 4% of tariff lines have non-ad valorem rates, these include alternate and specific duties; specific duties mainly concern agricultural products. On average, there is significantly higher tariff protection in the agricultural sector (24%) compared to the industrial sector (7.5%). Sri Lanka maintains considerable flexibility with respect to tariffs as only 37.5% of tariff lines are bound and the average rate for bound tariffs is 34%, thus reducing somewhat the predictability of the tariff regime. Sri Lanka has amended its tariffs during the review period to reduce the number of tariff bands from four to three, which has also had an impact on the number of applied tariffs exceeding the bound rates. This has deteriorated since the last review with the MFN rate exceeding the bound rate on 132 lines in 2016, up from 103 lines in 2010; this situation mainly affects tobacco products, alcoholic beverages, textiles, carpets and switches (WTO, 2016). The WTO (2016) further highlights that Sri Lanka has in place a large number of additional levies and charges that are applied in addition to the tariffs on a wide variety of products; these include the Export Development Board Levy (Cess), Excise Duty, Value Added Tax (VAT), Ports and Airports Development Levy, Nation Building Tax, port handling charges and the Special Commodity Levy. The Excise Duty, VAT, and Nation Building Tax apply to both imported and domestic goods while the others are charged on imported goods. The charges can be high, and significantly increase the cost of importing, in some cases exceeding 100% of the C.I.F. value. Furthermore, many have been modified several times during the review period, thus adding unpredictability for importers.

Free trade and agriculture

Sri Lanka was the first nation to embrace the economic liberalization policies within the South Asian region. The gains expected from the societal point of view are increased food supply, reduction in prices, enhanced export earnings and food security. However, it is questionable, whether Sri Lanka has reaped the benefits of free trade to the extent that the country expected. It is also a fact that amidst the free trade policies, trade restrictions have been in effect, especially on agricultural products in the hope of protecting domestic producers. However, since this liberalization was fairly unilateral, Sri Lanka did not gain increased market access in importing countries and consequently no diversification of agricultural exports took place. Lower productivity and competitiveness and the import surge that followed speedy liberalization resulted in higher import diversification and lower export concentration (Samarathunga, 2009).

In the case of impact of trade liberalization on the agriculture sector in Sri Lanka, the agricultural policy perspective is noteworthy. According to the available agricultural policy available on the web site of the Ministry of Agriculture, the priority given for export in the agricultural sector is negligible. It is also a fact that the agriculture policy framework suffered from the weakness of being sub-sector specific concentrating on individual products or resources, rather than on broad development needs or goals of the sector as a whole (Thibbotuwawa and Hirimuthugodage, 2015). They further stressed that Sri Lanka, even after 67 years of independence, does not have a sustainable agricultural policy. Sri Lanka has less demand driven technology development to cater to transformed markets and niche markets. In the case of Agricultural Export in Sri Lanka, the amount of food exports from total domestic food production is a mere 4% (Thibbotuwawa and Hirimuthugodage, 2015). As a percentage of total exports, agricultural export earnings is stagnating around 22-24% of all export earnings (Ministry of Development Strategies and International Trade, 2017). Over the past few decades, the composition of Sri Lanka's exports has changed from agricultural goods to manufacture, with agriculture's share of total exports shrinking from 79% in 1980 to 23% in 1998 (Siriwardana, 2000).

With regard to exports, Athukorala (1995) shows that Foreign Direct Investments (FDIs) play a major role in export oriented industrialization in developing countries by taking the case of Sri Lanka as a new export country. According to Samarathunga and Thibbotuwawa (2007), the South Asian Economies (SAEs), similar to other developing countries, had been taxing agricultural activities directly through tax policies and indirectly through economy-wide policies. However, compared to other South Asian countries, Sri Lanka, despite various distortions in the agricultural markets, had the most liberal trade regime for

agriculture (Athukorala, 2000). The first notable attempts to liberalize the agricultural sector were the removal of export taxes on plantation crops, import licenses on rice, chilli, onion and potato and granting permission for private traders to import rice in the mid-1990s (Weerahewa, 2009). Growth of agricultural exports from developing countries depends predominantly on the world market factors over which they have no control. Some studies show that there is little or no evidence suggesting that trade liberalization induces accelerated agricultural production growth, whereas other analyses provide empirical evidence confirming the link between trade openness and agricultural production growth when trade liberalization is introduced (Andersen and Babula, 2008). Moreover, some researchers point out that trade liberalization and agricultural productivity may feed on each other.

With regard to NTMs, the commonly cited problems faced by agricultural exporters to China revolves around high Sanitary and Phytosanitary (SPS) requirements compared to other export markets, and the lack of mutual recognition of standards and certificates. For example, tea exports to China are subject to rare-earth content testing, which is unique to China and not a requirement in other markets. Moreover, the exact particulars of this standard are not clear. It is also revealed that testing for rare-earth content is problematic as the available testing facilities in Sri Lanka are insufficient – the current facilities can only specify if rare-earth content is present or not in tea, but the levels of rare-earth cannot be determined as per Chinese requirements. Moreover, China does not recognize the tests and certificates provided by Sri Lanka, while testing in China is considered to be time-consuming and complex. Issues relating to quarantine and testing/certification are reported across other agricultural export categories as major impediments, as well as lack of transparency with regard to the food safety regulations. The frequency of test reports and the levels/limits required in China are considered to be greater than in any other markets. The lack of necessary testing facilities in Sri Lanka to meet testing and certification requirements applicable to China is also highlighted as a major concern (www.ips.lk). Another challenge faced by the export agricultural sector in Sri Lanka is inadequate supply/production and inconsistency in supply due to a large number of small farmers, unavailability of accurate information on producer base, difficulty in predicting raw material supply and maintaining product quality and traceability. The marketing channel is very long and therefore, traceability is very difficult. The commitment of exporters for maintaining quality is also very low. On the other hand, no premium is paid for producers for quality products. The regulatory policy mechanism on quality is very low in Sri Lanka. There is a dearth of quality infrastructure. It is also evident that there are many collectors and traders and hence competition is very high. Therefore, producers and collectors act individually based on personal relations and they trade in aggregate bulk purchases from hand to hand. Their forward and backward linkages are informal. Moreover, currently

more than 70% of these exports are sent to developing countries with relatively low profits due to low quality, no market mechanism to pay for high quality, lack of traceability, sending of large amounts of raw materials to other countries and low value addition. It has also been noted that Sri Lanka has inadequate market promotion overseas and less investment and efforts in promotion from both public and private sectors. One of the more important factors with regard to exporters is that they have poor knowledge of niche markets. Value addition is largely done by a few exporters and only a few factories produce high-tech value-added products. In the case of export of agricultural products, the farmers, processors and other stakeholders have minimal knowledge on market mechanisms as there is inadequate market intelligence. This country has poor market intelligence for new market links, niche markets, prices, technology, potential markets, SPS, testing requirements, export procedures, logistics, and raw material supplies. Most importantly the public private partnership is extremely inadequate.

6.4. Economic Impact of trade barriers on agricultural exports

In order to promote domestic production and to reduce competition, quantitative restrictions were imposed on domestically produced agricultural commodities. Sri Lanka's agricultural trade is now governed predominantly by a progressive tariff regime. While tariffs on agricultural commodities are currently bound at a higher percentage, applied tariff rates are well below the bound rate. However, ad hoc duty waivers and exemptions still exist for some agricultural commodities and have had distortionary effects on agricultural commodity markets and domestic production. In recent years, Sri Lanka's openness to international trade and investment has declined sharply due to increased protectionism and inward-orientation. Thenuwara (2003) argues that liberalization of agriculture by way of lower tariff barriers may not result in productive gains in the sector, but that serious losses may occur arising from political economy dimensions. The continuing phenomenon of falling global commodity prices may result in endogenous generation of price competition in the agriculture sector, that may replace any exogenous tariff reductions intended for ensuring price competition, provided non-tariff barriers are removed. Thenuwara (2003) further added that the liberalization policy could be a plan for imposing certain levels of tariff, non-tariff and para-tariff barriers. Non-tariff barriers preclude any imports coming into a country and could grant absolute protection to domestic products, while tariff and para-tariff barriers cannot grant absolute protection. Absolute protection cultivates inefficiencies indefinitely.

Additionally, the dispersion of para-tariffs leads to prices that distort production and consumption patterns. Higher rates of protection on final products than on inputs used in their production has created

an anti-export bias, since producers have strong incentives to sell goods domestically. This is particularly worrying for the agricultural sector, where high protection of import-competing crops along with fertilizer subsidies have created strong disincentives for crop and export diversification. On the one hand, the protection afforded to agriculture encourages expansion of production of import-competing crops (rice, maize), and, on the other hand, the introduction of high export taxes ('cesses') on raw materials such as tea, rubber, cinnamon, coconut and spices, with the notion that this would increase value addition of exports, discourages the production of exportable products. Trade barriers also make it difficult for firms to access world-class inputs at competitive prices, thus reducing the ability of firms to compete and integrate into Global Value Chains (GVCs) and Regional Value Chains (RVCs) (World Bank, 2017).

6.5. Impact of tariff, para-tariff and non-tariff barriers on agricultural exports

An extra fee or tax imposed on a good in addition to the *tariff* on the country's *tariff* schedule is called a para-tariff. A nontariff barrier is a way to restrict trade using trade barriers in a form other than a tariff. Nontariff barriers include quotas, embargoes, sanctions and levies.

When looking at the changes in tariff rates from time to time, it could be assumed that the impact of tariffs and also other duties and barriers would have a significant impact on trade. Import tariffs also reduce the profitability of exporting commodities. Jayasinghe and Fry-Mckibbin (2019) using the gravity model approach in their study on Sri Lankan exports, find that the impact of tariffs is negative on Sri Lanka's exports.

In particular, tariffs tend to disrupt global supply chains and subsequently has a huge impact on the domestic economy especially reducing confidence in trade and investments. Because import tariffs raise the cost of imports, such tariffs increase domestic demand for domestically produced goods and services that compete with those imports. However, these domestic industries are less efficient and more costly because in most cases, they are also subject to tariffs. In addition, the economy overall is less efficient, because more production occurs in these less-efficient industries. This reduces productivity. Higher tariffs can lead to higher input costs for domestic producers. Tariffs meant to protect specific sectors of the economy may at the same time hurt domestic producers in other industries by raising their input costs. In the macroeconomic sense, increases in tariff can also lead to increases in unemployment, inequality and real exchange rate appreciation. Furthermore, a raise in tariffs increases the real GDP in Sri Lanka while by stimulating export agricultural sectors (Somaratne, 2000). The author, however, shows that greater growth benefits can be secured with across-the-board tariff liberalization in all import competing

sectors, rather than sector specific tariff liberalization. Further, both partial and across-the-board tariff liberalization increases the level of aggregate employment in the economy, reduces the aggregate price level, and thereby improves the aggregate real household consumption. Moreover, tariff liberalization stimulates trade, leading to higher imports and exports and improves the balance of trade. According to the Lerner Theorem, the reduction of tariffs leads to a reduction of taxes on exports. It is also a fact that the trade openness, investment, interest rate free Trade Agreements are significant factors that are positively related to agricultural sector growth. Removal of tariffs on agricultural commodities induces a substantial reduction in the domestic prices. Simultaneously, this reduction of domestic prices induces an increase of agricultural exports because farmers can choose new markets for selling their products as domestic markets become less attractive. These factors increase trade openness and production and can significantly increase Sri Lanka's GDP in the agricultural sector (De Silva et al., 2014). According to Weerahewa (2006), trade liberalization, through lowering of tariffs, reduces the price of imported goods and reduces the poverty levels as the consumption expenditure of the poor reduces. On the other hand, trade liberalization, through reductions of export taxes, increases the farm gate price of goods that are produced by the poor, and it will also be pro-poor. Periodically, the Sri Lankan government changes its tariff system either to promote international trade or to promote domestic industries. With the change in the government regimes, these policy changes are frequent. For example, in the period of 2016-17, para tariffs of 1200 items were removed to facilitate outward looking pro-growth trade regimes.

According to Pursell and Ahsan (2011), Sri Lanka holds the world record for complexity of its tariff system where there are three main taxes, namely, customs duties, indirect taxes such as VAT, and excise duties. In addition to customs duties, the Sri Lankan tariff schedule includes nine other import taxes (para-tariffs), namely, the Ports and Airport Development Levy (PAL), Customs Surcharge (SUR), Commodity Export Subsidy Scheme (CESS), Regional Infrastructure Development Levy (RIDL), Value Added Tax (VAT), Social Responsibility Levy (SRL), Nation Building Tax (NBT), Excise Duties, and Small Commodity Levy (SCL).

In addition to customs duties, imports into Sri Lanka are subject to a number of other charges or para-tariffs (Galappattige et al., 2015). They further show that Sri Lanka uses para-tariffs rather than customs duties to increase or maintain existing production levels as well as to overcome tariff reduction/elimination under FTAs/PTAs breaching the spirit of these agreements. At the same time a CESS is imposed on a large number of products such as vegetables, fruits, processed and unprocessed food, bags, rubber and plastic goods and textiles and applied as ad valorem. Introduction of para-tariffs have

effectively doubled the protection rates from an MFN average of 13% to average total nominal protection rate of 28% in 2013, making domestic producers less efficient and less competitive.

It is a fact that the trade balance of Sri Lanka has been negative for numerous decades denoting that the country is a net importer. With regard to food, Sri Lanka is dependent on imports as a net food exporter. Furthermore, imported inputs are required for several domestic industries. However, food importers (70.4%) as well as food exporters (69.7%) face many problems and they have reported burdensome trade barriers according to the ITC (2011). The ITC (2011) has carried out a detailed study on Non-Tariff Measures (NTMs) especially referred to as technical requirement and conformity assessments. In most cases, NTMs were reported to be applied by the largest markets in the European Union and the United States of America and also by Sri Lanka's largest regional partner India. The report of ITC (2011) highlights that exporters in the fresh food sector and companies exporting processed agricultural commodities have to face the highest barriers. The major impediment to trade, especially the import trade, are: (i) number of changes (ii) taxes and (iii) para-tariff measures. Apart from them, Procedural Obstacles (POs) and Trade Related Business Environments (TBEs) also matter in restricting trade in Sri Lanka. Sri Lankan companies especially with regard to food and related industries face a huge number of domestic problems with reference to the partner countries in trade. These are POs and TBEs and also export related NTMs such as certification requirements in Sri Lanka. Among the POs, delays followed by the inconsistent classification of products, informal payments and unusually high fees and charges, were the most common obstacles (ITC, 2011). The problem of procedures stems from limited access to information and a lack of export expertise with companies. On the other hand, there are many POs related to domestic authorities, ministries and other facilities involved in the process of providing certificates and custom clearance.

The tea sector in Sri Lanka contributes substantially towards earning foreign exchange. The sector consists of small producers and exporters as well as large producers and exporters. In the case of small producers, they find it difficult to comply with Sanitary and Phyto Sanitary (SPS) regulations mandated by the authorities in Sri Lanka and the importing countries due to additional charges and technical measures in the form of export inspection. Raw and processed agricultural exports other than tea, face a problem of product specific SPS and technical regulations (ITC, 2011). The major reason is the lack of adequate testing and certification facilities in Sri Lanka. Insufficient testing facilities and increased costs through the CESS are issues faced by the traders, and producers risk losing the Sri Lankan market share to other international competitors as a result. Other issues such as low implementation of the electronic customs system and excise and redundant physical checking of cargo are also obstacles to trade faced by Sri Lankan

traders domestically. Internationally, sometimes, these traders face the problem of private standards set by major buyers in the large markets which do not fall within the purview of trade agreements. However, most common NTMs applied by importing partners are technical measures (ITC, 2011). The ITC (2011) further highlights that 80.6% of fresh food companies, 75.7% of companies producing processed agricultural commodities (this is somewhat expected as agricultural products include food and feed and their control is essential for ensuring the health and wellbeing of consumers and protection of the environment), 70.6% of textiles and clothing companies, 60% of companies producing chemicals, plastic and rubber based products and 66.5% of other manufacturers are affected by NTMs.

Most common non-tariff measures on exports and imports could be listed as:

- Technical requirement imposed by importing countries
- Demonstrating those requirements by exporting companies
- More cases of conformity assessment rather than technical requirements when importing
- NTMs applied to exports by Sri Lanka itself
- Charges applied by Sri Lanka in addition to regular duties when importing
- Problems with Rules of Origin (RoO) for Sri Lankan exporters (11%)
- Unfavorable terms of reference or financial measures for Sri Lankan exporters and importers (10% and 9% respectively)
- Non-technical pre-shipment inspection for importers (8%)
- Quantitative restrictions (7%)

Most NTM cases are from EU, USA, India, UAE, Japan, Mexico, Australia and Pakistan while smaller markets like Hong Kong, SAR, Syria, Arab Republic and Turkey also contribute to cumbersome NTMs.
POs and TBEs affect exports and the Customs Department has the most number of obstacles. In addition, the Forest Authority and Port Authorities have obstacles when exporting. In the case of imports, the Customs Department plays a significant role in placing obstacles. There are almost 246 obstacles from customs levies when importing, whereas the Port Authorities and Department of Import and Export Control have 27 and 7 obstacles respectively. Most importantly, there are 123 obstacles from agencies which could not be specified according to ITC (2011). With respect to partner countries the EU has the most POs and TBEs affecting the exports, followed by the USA, India, Mexico, Pakistan, and UAE. With respect to imports China is reported to be cumbersome with POs and TBEs. Following are some of the other POs and TBEs:

- Delays

- Hold-ups due to lack of electronic custom system
- Slow inspection procedures without the use of modern X-ray equipment
- Inconsistent classification of products
- Inconsistent or arbitrary behavior of officials
- Unusually high fees and charges
- Informal payments (domestic informal payments represent an alarming share of over 12% of all PO/TBE cases.
- Infrastructure challenges (limited facilities, technical constraints, low security levels, etc.)
- Limited testing and certification facilities.

(ITC, 2011)

As tea is one of the most important agricultural exports from Sri Lanka, it is noteworthy to recognize specific NTMs in the tea trade. With respect to tea exports, difficult technical regulations, terms of payments and price control measures from partner countries are found to be problematic. Sri Lanka also applies the following NTMs in the tea trade: export quality assurance requirements and capacities, export taxes (CESS) and measures on goods imported for processing and further exports.

ESCAP (2015) in its study on Sri Lanka shows that Sri Lanka's coverage ratio is approaching one that has nearly all imports by value being subject to at least one NTM. Sri Lanka has the highest frequency index and coverage ratio. They are 56.9 and 88.6 respectively. With regard to Technical Barriers to Trade (TBT), the coverage ratio which measures the value of trade is higher in Sri Lanka (88%).

In the case of Sri Lankan agricultural exports such as coconut, cinnamon, cloves and nutmeg, the traders have to comply with strict technical requirements applied by various countries which import from Sri Lanka. Where export of organic products from Sri Lanka to the EU is concerned, EU buyers need to obtain a special import authorization for organic products which is costly and time consuming for EU buyers. As Sri Lanka has not been classified by the EU as an equivalent country in terms of the organic regime, EU buyers are motivated to buy from EU or EU equivalent countries. Therefore, Sri Lankan exporters of organic foods depend on a few authorized buyers, and hence traders cannot broaden their market share. The solution is to obtain certification from an authorized body recognized by the European Commission. However, the cost of certification is rather high for small scale producers. On the other hand, Sri Lankan agricultural companies exporting to India face difficulties in RoO and certificates of origin. According to agricultural exporters reported in ITC (2011), the export inspection processes are very time consuming and it badly affects perishables. Sometimes goods are likely to be damaged when they are checked in the

open air by untrained officers. It is problematic for exporters as a high number of documents are demanded by the relevant authorities. Payments are done manually rather than with electronic systems which ultimately lead to malpractices. Agricultural exporters face POs and TBEs (especially cumbersome procedures) in: Customs and Port Authorities, related ministries, EDB, the Inland Revenue Department, National Plant Quarantine Service, the Coconut Development Authority, the Department of Forest Conservation, Airport Authorities and Ceylon Port Controls.

Investments, trade and export promotion

Export oriented industrialization is directly linked with Foreign Direct Investment (FDI) in a developing country like Sri Lanka. According to Athukorala (1995), this could be done based on industrial advancement, stage of entrepreneurial development, changes in the process of internationalization of production and nature and timing of policy shifts. If the policy is to promote investment in the country, the government should create a conducive climate for export oriented production. For this, the removal of quantitative restrictions on import trade, considerable relaxation of controls on capital profit repatriation and real currency depreciation and a wide range of export promotion shows with flexible operational procedures, are necessary. Once the investments are promoted, it is expected that the companies experience benefits of scale economies, low cost of production as a result of cheaper and better inputs and increased efficiency of domestic producers as a result of increased competition from foreign producers (Nicholas et al, 2005).

In the area of agriculture, the private sector engagement and investments are limited. The main constraints that they face are high transaction cost, inefficacies in resource allocation, limited access to productive lands, inadequate supply of quality planting materials, etc. In promoting production through investments, Athukorala (1995) proposes four product categories, *viz,* resource based manufacturing, labor intensive consumer goods, component production and an assembly and technologically mature final product. There is strong evidence to suggest that improved performance of domestic manufacturing through greater export orientation has brought about significant improvement in output and total factor productivity growth, employment generation and terms of trade gains. The Sri Lankan experience also highlights the complementary role of investment liberalization for exploiting the potential gains from trade liberalization. An export-led growth strategy is needed as the main pillar of national development policy while guarding against possible policy back-sliding emanating from the new-found enthusiasm for state activism (Athukorala, 2006). Poor FDI performance has reinforced poor trade outcomes given the strong trade-investment nexus.

Most importantly, there is a need to ensure coherence and coordination between investment policy and trade policy with a clear indication of future policy direction—one of the goals of the new trade policy framework. Firms and exporters will gain access to world-class inputs at competitive prices, and thus be able to reach new markets. Since trade and investment complement each other, trade liberalization will also bring FDI, which, in turn, will bring skills, technology, and foreign capital as well as access to GVCs and new markets.

6.6. Impact of exchange rate volatility on trade

The exchange rate regime and foreign policy is an important measure of the macroeconomic management in endeavoring to achieve economic development through improving the performance of exports of the country. Many scholars focus attention to the study of the impact of the exchange rate volatility on export growth. Over the past few decades the Sri Lankan exchange rate has changed enormously. Thus, it discourages imports as import prices rise. The exchange rate volatility is defined as the risk associated with unexpected movements in the exchange rate and Weliwita et al. (1999) shows that high volatility has significantly hindered the export performance in Sri Lanka. Exchange rate volatility tends to deter exports of tea, industrial goods, minor agricultural goods, gems and total exports in the long run, and in the short run also, it has a significant negative impact on exports (Jayasinghe and Fry-Mckibbin, 2019; Ekanayake and Chatrna, 2010). The empirical evidence has proved that exchange rate fluctuation impedes rather than enhances international trade. This trend is often associated with the risk of negative behavior of exporters as exchange rate uncertainty depresses the Sri Lankan export volumes.

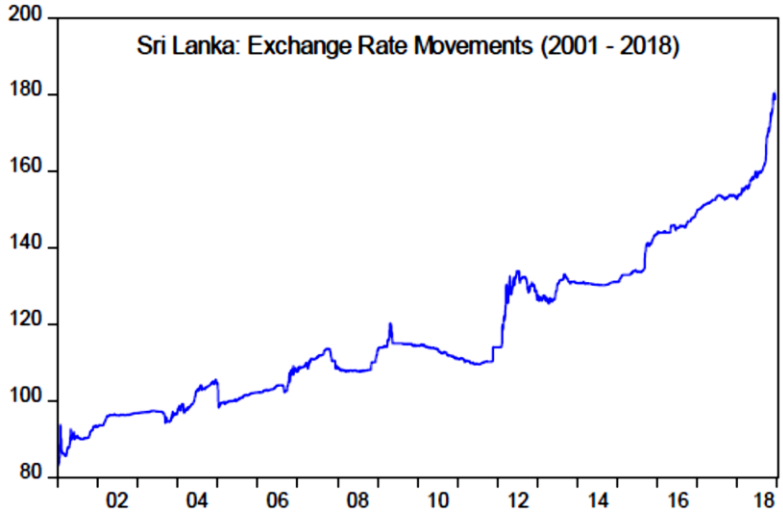

Figure 6.18: Exchange rate movements in Sri Lanka (2001-2018)

(Source: Wanaguru and Perera, 2019)

Therefore, Sri Lanka should employ tight monetary policies to tackle this situation. Economic policies to stabilize the exchange rate should be adopted so that alongside with the deflated rupee, the country's exports should realize its potential. When a fixed exchange rate policy is adopted, since there will be low risk, risk averse exporters will start exporting more. The government of Sri Lanka did take some measures to improve export performance by eliminating para-tariffs and enhancing market access to exports. The Central Bank of Sri Lanka's shift to more flexible exchange rate policies also helped to decelerate the erosion of competitiveness. However, it did not lead to a large stimulus for exports and was inadequate to attract private FDI inflows (Jayasooriya and Weerakoon, 2019).

Trade diversion and trade creation – Insights from free trade

Trade creation is simply defined as net increase in imports. More broadly, an increase in imports from participating countries from each other because buyers in each country would switch from high cost domestic products to the cheaper imports from partner sources resulting in a net increase in imports, is termed as trade creation. Conversely, imports from partners who substitute low cost imports from non-members is called trade diversion. In the case of the customs union, it is likely to lead to an increase in Sri Lanka's intra-regional imports with a trade creating effect (Rahman et al, 1981). The authors further show that the customs union will cause a decrease in Sri Lanka's total imports. To have no trade diversion effect, the intra-regional trade should be promoted. If regional blocs generate a trade diversion effect, it will deteriorate the welfare of not only member countries, but also of the bloc and the rest of the world (Hirantha, 2004). Sri Lanka should somehow try to harvest the benefit of trade creation as it will enhance the welfare of the people engaged in regional trade agreements. If trade diversion is greater, it will lead to welfare loss.

CHAPTER SEVEN

SUCCESS STORIES OF AGRICULTURAL MARKETING SRI LANKA

7.1. Fruit and vegetable crops sector

7.1.1. Case Study 1 - Cargills Ceylon PLC: A successful value chain model in local supply of fruits and vegetables

Under this project Cargills Ceylon PLC (Cargills), is aiming at reducing cost by 25% and increasing productivity by 25%. It was started in January 2019 in collaboration with the DOA. Under this project farmers are provided with insect proof netting, drip irrigation systems and polythene mulch. Fifty percent of the total cost is subsidized by Cargills and the rest is given as a loan at 8% interest. It was found from the study in Thambuttegama that their target has been exceeded. Interviews with farmers reveal that costs of production had reduced over 50% while doubling the yields. As reported by the farmers, this was achieved due to the provision of modern technology, provision of extension services by agricultural officers of the company, providing credit facilities and purchasing of the produce by Cargills.

Cargills had set up a collecting center at Thambuttegama in 2004, which is manned by 8 employees consisting of an Agriculture Officer (01), an Officer In-charge (01), Supervisors (02) and Service Assistants (04). The office is open from 8.00am – 6.00pm. The number of registered farmers increased from 60 in 2004 to 500 in 2019. In addition, there are 150 non registered farmers. Women farmers registered are 0.5% of the total. About 40% of the farmers are less than 50 years old. The majority of farmers live around a 5 km radius.

With regard to the supply, the orders received by the vegetable processing unit at Wattala the previous day are distributed to the farmers. Accordingly, the next day, farmers bring vegetables to the collecting center and pack it themselves using polythene purchased from the assigned shop. The packing cost is added to the farmer's payment. These packs are known as bulk packs. Lower quality is packed into budget packs and it goes to the consumer as it is. Bulk packing is disposed at the retail outlets. In addition, GAP certified products are packed with a special label. Every pack includes a label with the farmer's name. Based on that information, money is deposited to the account. On average, 4 lorries carrying 3000 kg each leave for Wattala each day. Vegetables include low country vegetables such as cucumber, winged bean, brinjals, ladies fingers, snake gourd, etc. Fruits (papaya, guava, etc.) are sent to another center assigned to a private party.

Main findings of the Cargills value chain:

i. Integrated value chain - Cargills has a seed company, bank, collecting center, retail outlets along with an extension service.

ii. Strong relationship between farmers and Cargills. It was observed farmers always appreciated Cargills. It was reported that the farmers first go to the Cargills collection center when they purchase a vehicle before going to Udamaluwa (temple), showing their loyal feelings and veneration towards the company.

iii. Modernization project being implemented by Cargills seems to have made a significant impact on increased production, reduced cost, improved quality and attracting youth towards farming.

iv. Value chain is flexible: no written agreement, no fixed price, not bound to sell to Cargills.

v. Farmers undertake some value addition activities such as sorting, grading and packing for an additional income.

7.1.2. Case Study 2 – NIDRO Exporters of Fruit and Vegetables: Successfully integrating modern IT technology in the business

NIDRO Supply (Pvt) Ltd (NIDRO), a company established in Sri Lanka initially to supply fruits and vegetables for the resort operators in Maldives has now evolved to become an exemplary exporter of fruits and vegetables in Sri Lanka. Supporting an ecofriendly, sustainable production environment and incentivizing grower communities are two of the key ethical considerations the company strives to maintain. Currently NIDRO supplies fruits and vegetables to a few other countries other than the Maldives, having identified that there is an unprecedented demand. To meet this demand, NIDRO has evolved into a company which supports the improvement of Sri Lanka's fruit and vegetable value chain with timely integration of technological advances. This not only involves IT related advances, integrating the exporter, supplier and the grower, but also support by providing technologically advanced agronomic know-how to the producer community. The company has found niche markets for traditional health-promoting vegetables and herbs such as neeramulli, gotu kola, velpenela, etc., increasing the export demand of such crops. The company sources non-native herbs such as basil, parsley too from Sri Lanka for exports. In November 2019, 158,000kg of fruits and vegetables which consists of 48 varieties were exported by NIDRO.

NIDRO has strategically and successfully established backward integration by having some of the key areas of the product value chain integrated with their own farms, contract farmers and other potential suppliers. The company works with well-established value chains with forward contract

agreements. Companies that have forward contracts with farmers can link up with NIDRO. Their technological support to producers help in maintaining a well-integrated and efficient process flow.

The Company enjoys a healthy reputation for quality and integrity of supply in the destinations to which they regularly export and are able to fulfil 99% of the firm orders they receive.

The Process

Once a potential order is recognized, the NIDRO officers at the head office level and in the field get activated in integrating the process from production to export. The company's information integration is done on a comprehensive virtual platform from which the company can find the areas of cultivation, potential suppliers with the required quantities and quality, etc., which includes the information of producer's quality consciousness and the buyer's quality requirements. This certainly helps in the smooth process of exporting and the buyer's acceptance.

The NIDRO use QR coding to identify and back track products to the farmer level which is an important aspect in the export business. This makes the producer accountable and helps in the assurance of product quality. NIDRO is completely networked, knows all the products and where to find them in required quantities. When required NIDRO liaises with the officers of the Department of Agriculture for information of potential producers through a fruitful private public partnership.

The company's mobile refrigerated trucks help to apply required pre-cooling technology (which change from product to product) to ensure that the product quality is maintained from farm-gate to the warehouse while reducing the postharvest losses. At the warehouses some of the products which need blast chilling is processed. The NIDRO's system uses its own sterilized crating system to ensure the required phyto-sanitary conditions of the products. The products are packed and dispatched from the warehouses in Biyagama. The company effectively makes the use of currently available e-agriculture and technological support platforms such as Agripola.lk, Govipola.lk, Agri.lk, etc., which provide information on who has what to sell, where to obtain technological knowhow, etc. NIDRO's 110 staff members are spread out and operate from the office level to the grass-root level, with different persons responsible for different levels of the process ensuring the efficiency, timely delivery and support the process flow.

Global Gap certification is the exception rather than the norm for the type of cultivation that is practiced in Sri Lanka. Essentially the company is having a larger majority of smallholders, hence what is seen more of in the past 12-18 months is the implementation of the SL Gap certification which is implemented under the Department of Agriculture (DOA).

They have recognized the huge potential for fruits and vegetables in raw and semi processed form in the export market which Sri Lanka can capture and from which it can benefit. NIDRO's experience finds that small scale secondary packaging for retail, direct supermarket shelf sales as done by Kenya, Thailand and Philippines may provide a significant market potential for Sri Lanka.

The company reiterates that undervaluing export demand has caused under-production within the fruit and vegetable sector in Sri Lanka, and that this should be addressed. Currently, fruit and vegetables remain as a non-formal sector in Sri Lanka with huge untapped potential. Surplus vegetables and fruits can be dehydrated and they emphasize this is another side of the market that can be exploited.

7.1.3. Case study 3 - Lanka Agri Produce Management Corporation (LAPMC): Development of competitive supply and value chains

The LAPMC was established in 2019 with the view of enhancing food security and sustainable agriculture through implementation of efficient and competitive agricultural supply and value chain management systems. The business line started in local markets with vegetables and fruits covering 54 vegetable items, 20 leafy items and 18 fruits items. The company is expected to expand to spices and export to China. As mentioned, its main strategy is management of supply and value chains. Activities carried out are: organizing producer units, directly purchasing from producer units, setting up pack houses in producing areas, collection and distribution of products through temperature control vehicles and the creation of shop-in-shop concept in established retail outlets.

Setting up farmer producer units started in the Anuradhapura district. The number of units established at the end of December is 50. In the future, these producer units will be the shareholders of the LAPMC. Producer units bring vegetables and fruits to the packing centers between 9.00am and 3.00pm. Products are packed in plastic crates and loaded in the company's own temperature controlled vehicles specially manufactured for this purpose. Loaded vehicles come to Colombo by 7.00pm and are distributed to outlets before 10.00am of the following day. Time management is also a strategy. The pricing formula at farm level is the cost of production plus profit. Cost of production is obtained from the Department of Agriculture and profit level is determined by the prevailing market prices. Under shop-in-shop concept company outlets are set up in SATHOSA super markets. In addition to their own outlets, fruits and vegetables are sold to supermarkets and institutes. Post-harvest losses of fruits and vegetables are reduced 5-10% due to this effective supply chain management strategy. The LAPMC adopted most of these strategies based on a successful Korean model.

According to the discussions with the staff of the LAPMC including the CEO, it was pointed out that the company can compete with other entities at present. However, expansion is a problem due to high overheads such as purchasing of vehicles and organizing producer groups. The need of government support to solve the problems was highlighted. Two suggestions made are tax relief for a five year period and duty free imports of vehicle parts. Interviews with farmers and leaders of producer units at Amunugama, Senagama and Nawa-Haguranketa found that the project is running smoothly and that the LAPMC is helping farmers by providing technology with the help of the Department of Agriculture and the Institute of Post-harvest Technology and Management. Leaders of the producer units pointed out the need of adopting modern technology such as use of insect proof nets and drip irrigation to produce quality products at a lower cost.

7.1.4. Case Study 4 – Govipola App by Croptronix: An innovative Agriculture Marketing Platform through Information Technology

Croptronix is an agri-tech company founded in 2018, by a diverse set of individuals who are united in their passion to help and improve the livelihoods of farmers and other stakeholders in the agriculture industry.

Supporting the Department of Agriculture e-Agriculture Strategy, Croptronix created the Govipola virtual platform one and a half years back as a wantboard which is a place where people post their text-based buy and sell offers. Currently, named as the version 2, Govipola is an innovative mobile app that benefits farmers by enhancing market linkages, price awareness and supply and demand matching to give convenient and easy access to markets. The Govipola app is a free mobile app which allows grassroots communities to benefit from accessible mobile technologies to enhance their incomes. The app, bridges the gap between farmers and buyers by creating a digital market that allows buyers of agriculture produce to connect with sellers and thus expand the network as more farmers adopt the app.

Today the app, with over 15,000 generic downloads across the country, helps farmers in marketing their goods on a digital platform with easy access to real time market data. The app also offers convenience to buyers by providing options such as search filtering and notifications, and thereby shortening the otherwise lengthy process of finding goods.

Being an online trading platform, Govipola will allow sellers and buyers to meet online and trade their goods. Therefore, this will enhance the market access to buyers and sellers. Rather than waiting at the wholesale market, sellers now can post what they harvest from the home or the field itself. In addition, Govipola acts as a platform that links input suppliers with producers. Planting material, chemical and

organic fertilizers and pesticides, agricultural equipment, agricultural machinery and other materials such as potting media, potting bags, packaging, etc., could not be sourced though the app.

Producers that are registered with Govipola have the ability to directly link with all these input suppliers and they will have a choice based on their location, unique requirement and price. By linking with the Department of Agriculture's (DOAs) or private sector advisory service, producers, can directly link with agriculture extension services.

The information portal built into Govipola will allow researchers to communicate their new research findings to producers. For example, new varieties that comes out of research, new fertilizer recommendations and market assessments can be disseminated to relevant agriculture producers by researchers using the Govipola information portal. Research information can go beyond traditional areas of farming and make recommendations for sustainable agriculture and climate smart agriculture.

The app's user-friendly interface, three-language support and dynamic alert system also proves to be of immense value to users. The order-matching feature allows the user to get his or her listing directly matched with a corresponding order without the need to perform a lengthy search and read through all the posts placed on the marketplace. Every matched order allows opening of a direct confirmation channel for trade in line with conditions agreed upon by the parties. Once a matching order is finalized, buyers and sellers can complete the transaction via an online payment gateway. Users are given several transportation options to select, including cold chains.

In terms of extending its services to a larger group of producers Govipola aims to bring onboard more than 150,000 agriculture producers and 50,000 large scale buyers by the end of year 2020. Currently, it covers more than 30,000 producers and 5000 large scale buyers. With this reach Govipola will have the largest data base of sellers and buyers of agriculture produce in the country. This invaluable data will allow to identify demographics of production, price behavior, buying behavior and will allow Govipola to provide predictions for the future such as agricultural production, buying and consumption behavior, geographic consumption patterns, profile of consumers and frequency of consumption. These predictions will allow the government to align its policies in order to make agriculture production and consumption more efficient by identifying the necessary incentives.

It is expected to provide unique opportunities for the smallholder farmer to link with the global value chain supporting the improvement of Sri Lanka's smallholder agriculture, thus elevating the sector into a different platform.

7.2. Spice sector

7.2.1. Case study 5 – A to Z model of cinnamon

The career of a person who started as a cinnamon collector 35 years ago in a small town is as follows. The collected cinnamon was exported through main exporters in Colombo. With the expansion of the industry, cinnamon grading, treating with sulfur fumes for improving color and microbial qualities, baling and exporting were undertaken by this businessman. ISO 22,000:2005 certification was obtained for plantation management, harvesting, processing, packaging and sale of cinnamon, whereby attention to quality of products and process in manufacturing have been recognized by the international market. Stringent quality control was maintained throughout the production process. The employees were well trained and they have experience in traditional and modern processing methods. Knowledge and skills passed down through generations were practiced in preserving the true, pure Ceylon cinnamon production.

A range of cinnamon grades such as alba, 5C special, 5C, 4C, 5M, 4M, H1, H2, H2 FAQ, quillings N0.1, quillings N02, cut cinnamon and cinnamon powder were exported to many countries including USA, Mexico, Ecuador, Peru, Chile, Columbia, Nicaragua, Turkey UK, New Zealand, Belgium, Italy, France, Germany, Singapore, India, Pakistan, Jordan, South Africa, Korea and Hong Kong, etc. Two marketing managers have been employed to cover the Latin American region and the Middle Eastern countries.

It is also an appropriate innovation that the traditional cinnamon bales were replaced with cardboard boxes for improving hygienic conditions, easy packing and easy handling. Technological improvements were practiced for fumigation. Since European countries have banned the sulfur treatment method in cinnamon, carbon dioxide gas was introduced instead to avert the ban and winning the European market. In order to keep up with the sanitary and phytosanitary requirements, his own processing factory was also started. Apart from processed items of cinnamon, value added products such as cinnamon bark oil, cinnamon leaf oil, cinnamon tablets and cinnamon drinks were also manufactured and exported. The product range was further increased with citronella oil, sesame oil, sesame seed, black pepper, cloves, garcenia rings, and coffee, etc. In order to capture the organic market its own cinnamon plantation is being maintained organically and its products will be directed to the organic market. Recognizing its service, several international and national awards have been won. The numbers of collecting outlets were also increased facilitating cinnamon farmers in the Matara district to bring their products easily, thus reducing transport cost. Attempts have been taken to participate in international trade fairs and find new importers.

7.2.2. Case study 6 – Centrally and hygienically processed cinnamon for export market

A cinnamon processor as well as grower engaged in the cinnamon industry who had been continuing for three successive generations of cinnamon industry in the southern region. The family background and the innovative ideas of the processor prompted him to raise his business to the international level reducing COP and increasing the quality of products. The scarcity of peelers, high peeling cost and unhygienic peeling were his major concerns. The first attempt was to establish a central processing center introducing stainless steel tables to peel cinnamon hygienically and in order to reduce fatigue of peelers.

His second attempt was to invent a rubbing machine for loosening of the cinnamon bark. Rubbing is done traditionally using a 'brass rod' and is supposed to be a difficult exercise and is considered as a male job. Having experimented for a long time an innovative solution was found. The new machine named the 'Cinnamon trunk rubbing machine' was invented and was also patented. The machine contributed to saving the peeling cost by 40%. The rubbed cinnamon was given to female peelers and the rest of the peeling job until the making of quills stage could be completed by women. The machine is being fabricated by the processor at his factory and sold at Rs. 135,000.

Another positive move practiced was to reduce the quill length from 42 inches to either 21.0 or 10.5 inches. Shortening of the quill length has advantages such as easy handling, sale to supermarket channels are easier with consumer packs, inclusion of substandard bark quilling is prevented and peeling time is also reduced. The certificates such as GMP, HACCO and FSSC 222,000 for the factory and the products aiming at high-end markets have been obtained. Keeping a higher margin which is more than conventional products, markets were found in USA and Europe.

7.2.3. Case study 7 – Centrally processed, organic and biodynamic and fair-trade agricultural products to global market

A company was started 25 years ago with 100 out-growers of organic tea with five workers to sell organic tea to the international market. The product range was gradually increased from tea to spices, coconut, culinary herbs and fruits. The farmer base also was increased up to 5,000. In order to increase quality and ensure hygienic products, the company established eight processing factories: four for tea and one each for coconut, coconut oil, spices and traditional rice, as well as its own laboratory. Sixteen quality certificates including Organic, Demeter and Fair-trade were obtained to suit the marketing of the company products in any country around the world. Converting of primary products into value-added products was a progressive step taken by the company. The branded value-added products include coconut milk, curry mixtures and curry pastes.

The company is functioning as a leading organic product exporter with 700 employees. The secret for the success of this company was found to be novel approaches used to face each step and handle its competitors and strict quality maintenance of its products. It was found that raw material supply from foreign sources was restricted and volume of production of value added products was also adversely affected. Therefore, the company has started a processing company in Germany and raw materials like ginger and turmeric were imported from Myanmar to avoid cumbersome import procedures and raw material scarcity in Sri Lanka.

7.2.4. Case study 8 – Consumer packs of organic curry powder blends and pastes for Indian and Thai markets

A business was started to make curry powder of spices for the local market 33 years ago. The products were prepared using raw materials that were of high quality. In order to win over a share of the competitive spice product market, the company switched to organic marketing from the conventional spice market. The company started to establish a farmer base, comprising of 150 members, of spice and coconut growers and certified them as organic and fair-trade bearing certification costs on behalf of farmers. Considering the high cost of testing and time lag taken to obtain certification, the company started a laboratory and began organic and fair-trade products testing. Raw materials were tested before purchasing according to required quality parameters. Raw materials were purchased only from the farmer base and Rs. 100/kg or more above the prevailing market price was paid for the farmers as a strategic incentive for qualifying materials through the quality testing.

Consumer packs of curry powder mixtures, blends and pastes are marketed under their own brand to local, Indian and Thai markets aiming at consumers who are quality conscious. Due to scarcity of cardamom locally, the company faces difficulties in finding raw materials for further processing. The government has prohibited cardamom importation for local consumption. This restriction has affected the industry.

7.2.5. Case study 9 – Transform spices into curry powder mixtures and selling via supermarket channels

The initial objective of the business was to manufacture consumer packs of pepper, cinnamon and cardamom for the local market. When the business grew the volume marketed was also increased. The making of curry powder was begun expecting more income and profits. Grinders, polythene sealers, sachet making machines, ovens and dryers, filling machines and weighing machines were purchased at an

interest of 14% from a state bank. Quality spices were collected from reliable suppliers paying by Rs. 100 more than the existing market prices.

Mixing different ingredients in different proportions and working through the experiences of different cultures of Sri Lanka, a variety of curry powder mixtures were tried. Roasted and unroasted products were presented to retail shops and the consumer feedback was obtained. Accordingly, the mixtures were invented and labeled as Jaffna curry powder, fish curry powder, meat curry powder and roasted curry powder, comprising packs of 50g, 100g and 250g. Factory improvement was also done. In order to preserve quality, the products were packed in triple laminated packets and sold via popular super markets with a brand name.

The products presented to local market were acceptable to consumers. The next step was to win the international market. Products were sent to Japan through undergraduate students and sold as consumer packs in the retail market. Positive responses were received from the consumers regarding the quality of the curry powder mixtures with demands for more. However, exporting through proper channels needed certification such as GMP, HACCP and ISO, etc. The Department of Export Agriculture has partially financed the obtaining of GMP certification through the Sri Lanka Standard Institute (SLSI). The certification process is in progress.

Until necessary certificates are obtained, products are being sent to the export market through a reputed marketing firm, under its brand name, dealing with similar products. It was revealed that the income was gained through value addition to the primary produce such as pepper, cinnamon, cardamom, coriander, garcenia, etc., was triple. The procurement of raw material supply is not satisfactory as the company relies on the existing market. Purchasing and further cleaning of the spices are the methods used for processing raw materials before starting the manufacturing process. The correct method would have been to purchase raw materials from trustworthy suppliers. On the other hand, if raw materials are purchased from a supplier-base, subsequent traceability can be established when foreign markets are targeted.

7.2.6. Case study 10 – Spice sauce for local market

A spice grower as well as a processor wanted to increase his income through value addition to pepper. The technology for sauce making was obtained from the Department of Export Agriculture. With the participation of family members, the business was established and registered with the local government authorities.

The green pepper sauce and black pepper sauce were made as a cottage industry and presented at exhibitions to study consumer preference. The scale of production increased as the consumer response was positive. Tamarind sauce was also tried and it also had a demand. The products are being marketed in exhibitions and through supermarket channels.

Five daily-paid workers are employed on a daily basis and the income gained in comparison to raw material price is said to be four-times indicating a good achievement. A further improvement to the business has been planned, *viz.,* operating in a GMP certified factory, creating a brand name and winning the international market.

A weakness found in this model was that supplying of raw material was done from various unreliable sources. Therefore, if any defects of the product are found, the failure cannot be traced. Consistency of the products also varies if the raw material is not specified before purchase. Without the traceability of the manufacturing process, products cannot be sold in the international market.

7.3. Floriculture sector

7.3.1. Case study 11 – Production of export quality foliage and pot plants adopting advance technology

The company started with foreign collaboration, spending substantial capital, aiming at the European market in 1983. Steps were taken from its inception to maintain quality standards for the export market. Therefore, plants were raised in controlled environments. The plants were kept in net houses, provided with a sprinkler watering system. The Rh and temperature inside the net house was controlled using mist blowers. Sterilized coir dust was the potting medium and a steam sterilizer was used for sterilization of the potting media.

Demand oriented plant species had been selected including 20 species of ornamental plants, 40 species of cut-foliage and 33 herbal varieties. A registered smallholder supply base comprising of 40 growers was linked to supply cuttings making payments within a week after supply. High quality plants are being exported to Europe earning 10-12 million rupees a month at present.

7.3.2. Case study 12 – Quality maintaining strategies associated with cut-flowers growing for local and international market

The cut-flower export company under consideration was located in the Nuwara-Eliya area in a 16 acre plot giving employment opportunities for 25 workers. The flower species grown in net houses, aiming at the local market, were red and white roses, red and white carnations, mini and standard size gerbera and

small gerbera. The chrysanthemum was the flower species grown for international market. White and red color flowers were in demand and changes of color was made possible by spraying other colors as required for wedding ceremonies.

Cuttings of chrysanthemum were imported from the Netherlands and the mother plant stock was maintained for a year until the vigor of the species remained. The mother plants of gerbera and roses were obtained from India. All the plant species were maintained under controlled conditions manipulating light, temperature, humidity and soil moisture. Slow releasing fertilizer was used through a drip irrigation system. Blooming fertilizer such as iron chelate sprays were also applied at the correct stage to bring flowers to desired sizes and quality. The status of the main soil nutrients, *viz*., N, P, K in the substrate was regularly monitored through a mini-lab in the same location and the plant nutrients were adjusted accordingly using direct fertilizers. In addition, with their own experience, fertilizer formulations were also done for different plant species.

The harvested flowers were dispatched to Colombo in cardboard boxes with 50 and 100 flower bundles via the railway. Usually night trains were used to avoid high temperatures in day time. Before the harvested flowers were sold they were kept in cold rooms to retain freshness. A predetermined number of flowers were sold to a contract buyer on standing orders on a regular basis. Necessary certificates were obtained for exporting flowers and fumigation was done to maintain sanitary conditions. The export quality plants were subject to quarantine inspection and certification before harvesting. At present, the scale of operation is reduced owing to cumbersome export procedure and cost involved in it.

7.3.3. Case study 13 – Traditional technology and innovative ideas to win pot plants and foliage export market

A small scale business was started as a family business for supplying foliage and pot plants to the local market. Once the business expanded, the idea of exporting came to the mind of this female entrepreneur who had foreign exposure in a tissue culture laboratory. It was realized that expectations of European buyers were for diverse plant species, timely supply, sanitary and phyto-sanitary requirements. The diversity of plant species was increased by purchasing plant species from exhibitions, fellow-nurserymen and collecting wild species of creepers and crotons along with popular exportable species. Collecting of small plants and growing them to have the desired size for exports was another practice.

The sanitary and phyto-sanitary requirements were maintained by low cost sterilization of soil using fire-wood whereas traditional plant-raising techniques were followed with manual watering to raise the

plants. A cold room was constructed to keep products prior to export. The other stakeholders to benefit from the enterprise are 11 fulltime laborers, 50 out-growers and 11 foliage suppliers.

7.3.4. Case study 14 – Innovative strategies to win competition among fellow-growers in pot-flower business

The production of pot plants for selling locally was started 10 years ago as a hobby. Common crotons, fern species, anthurium, roses and marigold were the flower species which were tried initially. The marketing difficulties were found for these common species since these plant species were common to most of the fellow-growers. It was realized to include more plant species, instead of a few, such as newly introduced anthurium species, aquatic plants, hoya species, air-plants, bonsai plants, etc., to enrich the plant collection in order to cater to diverse customers.

Recently evolved anthurium and cactus species have a high demand. It was also interesting to find that the small and medium scale entrepreneurs who engaged in the pot plant business have formed a whatsapp group, exchange messages via facebook and use the internet for knowledge seeking and for exchange of plant species and new arrivals. New plant species are traded mostly via a courier service even though the parties are unknown to each other personally. A secret behind the success of this entrepreneur is the eagerness of exploring knowledge and technological advancements which are being practiced in other countries. It is accomplished by using the internet effectively.

Initially local exhibitions and fairs were the selling-points of the plants. With the hope of meeting diverse customers and interactions with other suppliers, the entrepreneur approached 'Diyata' market in Colombo where floricultural products are brought to one-point for selling during weekends on a regular basis. Participation in the festivals is also another strategy to meet customers with different tastes and to sell plants at higher prices.

Another progressive step taken was to produce herbal plants and vegetable plants to cater to specific requests of customers who come to buy plants. Indigenous varieties of chillies of different colors were also sold to satisfy customers with two aspirations such as beauty and household needs. Another strategy adopted to get higher prices was presentation of plant pots in an attractive way. Color combinations of the same plant species plant in one pot was one strategy. Filling pots with pebbles of different colors was another. The shape of the container and material used to grow plants were considered to increase attractiveness. Lamp-shades, coconut shells and coconut husks were used to grow plants and adding artistic value to the plant pot.

7.3.5. Case study 15 – Transform pot-plant selling to landscape enterprise

A road-side pot-plant selling business was started a decade ago with two daily paid female workers. The business was sufficiently profitable to be continued. Initially plants were raised in polythene packets and later cement pots were used.

The businessman came up with the idea of selling bigger cement pots and also taller plants in bigger pots. The demand for this item was found to be good. Once the business progressed, another innovation was started by root-balling of grown up plants of different varieties including indigenous varieties having medicinal value, aesthetic value and timber value, etc.

A further progressive step taken was to undertake both designing and supplying of root-balled plants to newly constructed gardens and parks. This move also resulted in success. Twelve full-time workers were employed in the business and door to door transport is undertaken with their own-truck. The newly designed and established gardens/parks are maintained for an agreed period for of six months or until fully established (for two to three years) providing irrigation facilities, organic manure, fertilizer, etc. When this type of big job is accepted, a contract is signed between the two parties.

CHAPTER EIGHT

SUCCESS STORIES OF AGRICULTURAL MARKETING IN THE REGION

The following sub sections will discuss eight selected success stories of the agricultural marketing programs and policies of the selected countries i.e., India, Vietnam, Thailand and Japan. These includes Dedicated Transport Services (The Banana Train), the e-National Agricultural Marketing Initiative and the e-Warehouse Receipt System of India, the National Trade Promotion Program of Vietnam, the Food Labeling Policies of Thailand and the Japanese Agriculture (JA) Corporative System of Japan and ICT interventions in Agriculture Sector of India.

8.1. Dedicated Freight Corridors and the Banana Train of India

India started a very new transportation initiative called the Dedicated Freight Corridors (DFCs), comprising of rail lines which are dedicated to transporting only goods, including agricultural produce which has been partly operational since 2018. “Dedicated freight lines are rail lines whose planned use is restricted to freight trains only. A dedicated rail freight network would consist of an integral network of such lines, either newly constructed lines or existing lines converted to dedicated freight use, with adaptation where necessary” (Dirand, 2007). These dedicated railway lines are proposed with the intension of providing an efficient and effective goods transportation system leading to sustainable development.

Railway goods transportation, which was a historically prominent mode of goods transportation of India, had shown a significant slowdown of use in the recent past. The following Figure 8.1 shows that railway freight traffic which had been more than 88% in 1950 has decreased to 33% by 2007. Furthermore, freight movement by volume (tonnage) also shows that railway freight movement is around 30% where as it is 61% by road (Prem & Shukla, 2012). This has led to a very congested and uneconomical way of goods transportation in India, which has significantly affected food transportation, especially the transport of perishables.

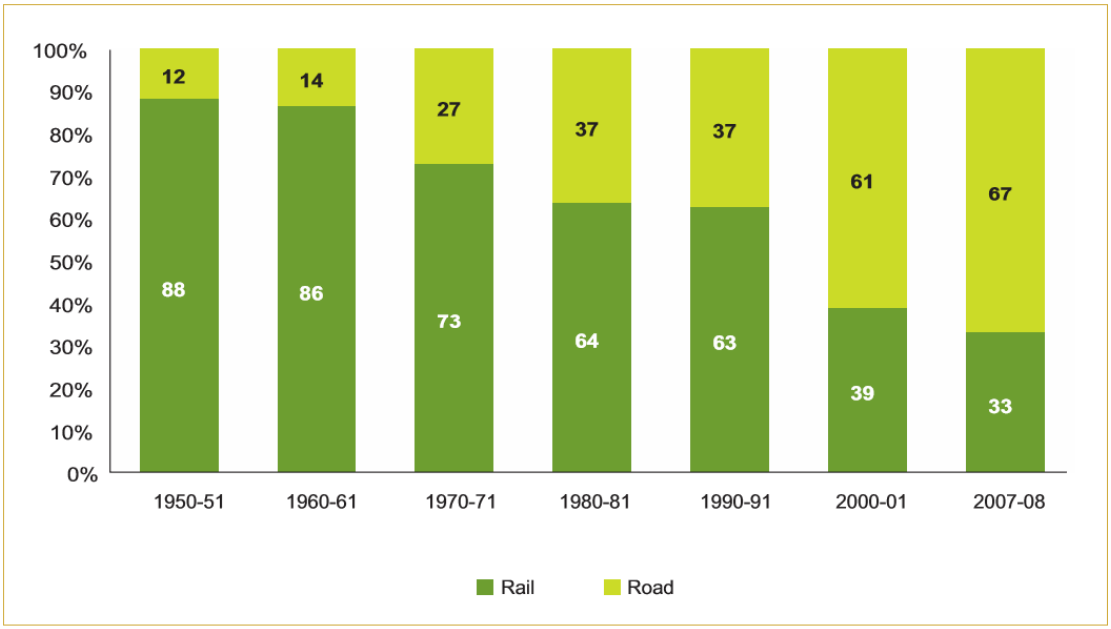

Figure 8.1: Freight traffic movement by rail and road

(Source: Prem & Shukla, 2012)

Therefore, the DFCs are proposed transporting goods with the following objectives: a) reduce unit cost of transportation, b) create rail infrastructure to carry higher output per train, c) offer Indian railway customers a guaranteed faster transit at an economic tariff, d) increase Indian Railway's share in the freight market, e) improve the overall transport efficiency of the national rail network. Originally there were six major corridors proposed. However, in the first phase two corridors with a total route length of about 3347km have been approved. The Eastern DFC, with a route length of about 1800km, would connect Dankuni in West Bengal to Ludhiana in Punjab. The Western DFC would connect Dadri in Uttar Pradesh to the Jawaharlal Nehru Port Trust (JNPT) near Mumbai, with a route length of about 1500km. In the future, four more DFCs will be developed. Those are: East-West Corridor (2000km), North-South Corridor (2173km), East Coast Corridor (1100km) and the Southern Corridor (890km) (see the map given below). The Western Corridor that lies from Delhi to Mumbai expects to carry a major share of food grain as its transportation composition. This initiative is considered as a significant step up in Indian freight transportation. The Figure 8.2 depicts the proposed Dedicated Freight Corridors in India.

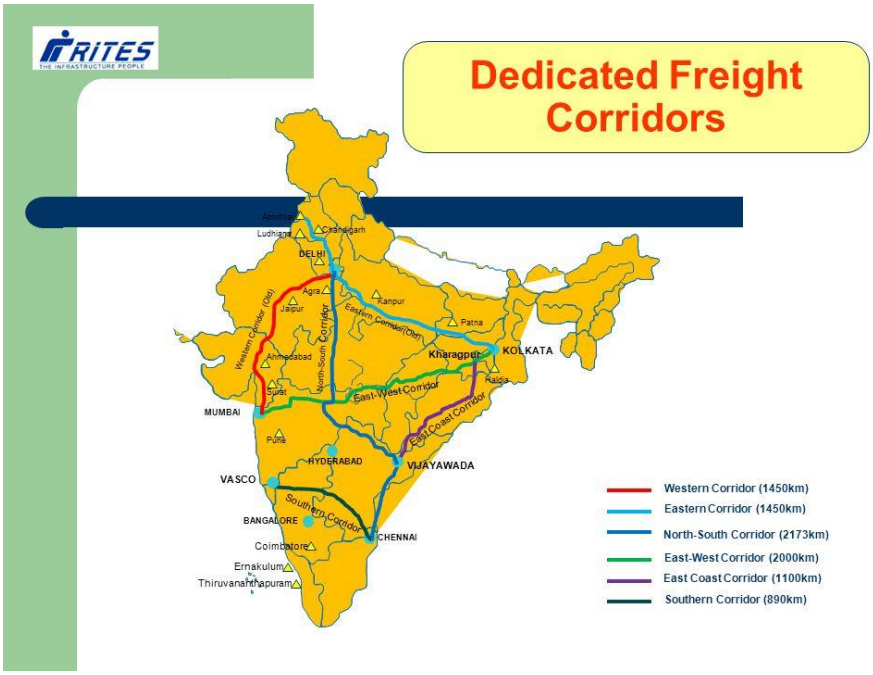

Figure 8.2: Indian dedicated freight corridors

(Source: RITES)

The Banana Train

However, the dedicated freight lines will not be suitable in the Sri Lankan context as the demand and the supply of agricultural products is not as voluminous as in larger economies. Nevertheless, currently Sri Lanka is not tapping even the opportunity of the ordinary railway good transportation which was established more than 100 years ago. Therefore, this section studies another recent development in food transportation in India which is feasible in the Sri Lankan context, which is the dedicated specialized train for the horticultural products which runs regular trips between Maharashtra and Delhi. This train is a specially designed train with insulated and ventilated dedicated containers for horticultural food transportation which carries more than 80 such containers. Since, it mostly carries bananas, the train has been given the nick name, “The Banana Train”. According to the farmers, the new train has reduced the transport cost by 1/3rd compared to the conventional road transportation. The Banana Train is also quicker and it generates lower waste. Due to the success of the Banana Train, India is planning to introduce more such trains for the transportation of the agricultural products. The National Horticultural Board under the Ministry of Agriculture and the Container Corporation of India together finances the project while several other public and private institutions joined together for the operation of the project.

8.2. Agricultural Cooperatives (JA) of Japan

Japan Agriculture, commonly known as JA is a powerful cooperative agricultural network engaged in various economic and political activities. JA is known as the biggest and most powerful agricultural group in Japan. It is one of the best examples for the collective actions of the small farmer dominated economy. JA was formed after the Second World War by reorganizing the Agricultural Associations for the purpose of supplying uninterrupted food supply to the nation. JA has become an official operational partner of the Japanese Ministry of Agriculture, Forestry and Fisheries. The majority of the Japanese agricultural farmers belong to this cooperative even though they are not legally required to do so. The JA facilitates almost all the economic and welfare activities of the farmers including the provision of the agricultural inputs, technical assistance, credit, insurance, processing, marketing and welfare activities. The JA now has a well-structured organization from the grassroots level to the national level where several other auxiliary businesses are also operated by it, i.e., tourism and news. The figure below shows the structure of JA. The successful organization of the JA cooperatives are due to several factors, i.e., Japanese Cooperatives are member-driven (farmer), and self-reliant organizations that have the complete trust of their members, Japanese cooperative leaders are mostly the role models selected by general members, Japanese cooperatives are managed by efficient, experienced and qualified staff, and most importantly, Japanese cooperatives provide marketing facilities and establish links between farmers and consumers or at least farmers and retailers for product buying and selling, and finally Japanese cooperatives are open and socially aware institutions that display social concern and maintain good relations with the community at large (Islam et al., 2018).

Figure 8.3 explains the structure and organization of the JA group which has a membership of more than 10 million. As given in the figure, the JA group is organized into five major areas, i.e., marketing and supply, guidance, insurance, credit and others. The marketing and supply arm (green in the figure) directly deals with the farmers in delivering the farmers' output to the consumers. At grassroot level, farmers are organized into farmer groups and then these farmer groups are linked to the provincial groups and then all these provincial groups are federated at the national level as Zen Noh (National Federation for Agricultural Cooperative Associations).

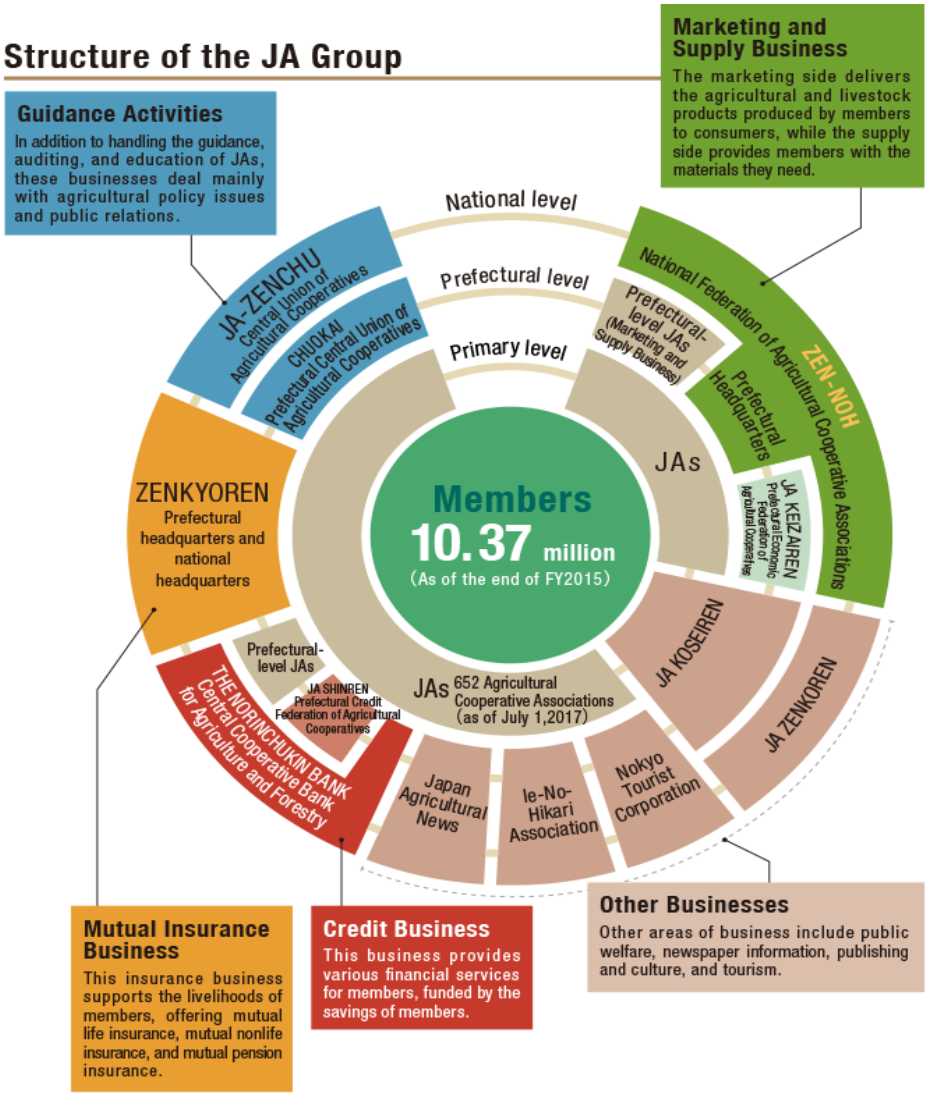

Figure 8.3: Structure of JA group

Source: The JA Group

One of the important features of the JA is the marketing arm which is themed as the trusted and reliable go between the farmers and the consumers. One of the primary activities of the JA group is linking the producer with the consumer. Almost all of the agricultural production is marketed through the JA where the collective bargaining power is very high. The JA marketing arm has a well-established collection, storing and transport system of its own. The members output is channeled to the market through this marketing channel and it also sells the members output directly at its supermarket chain (COOPs). The marketing philosophy of the JA group has three areas, i.e., producers, consumers and the environment, which is given in the diagram below.

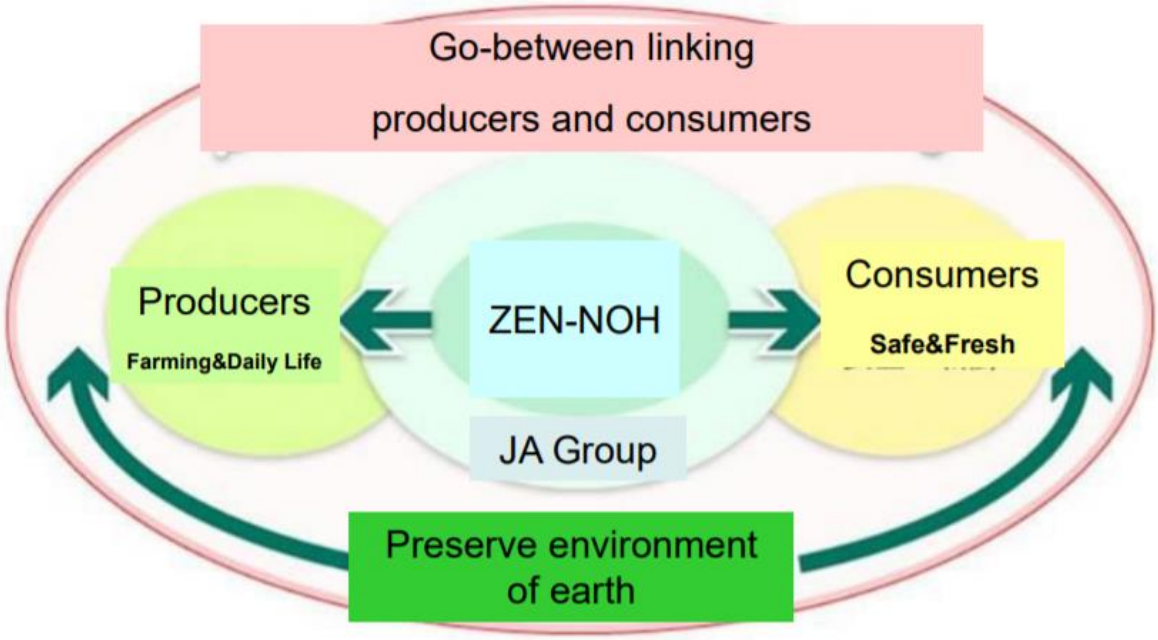

Figure 8.4: Marketing philosophy of the JA group

To improve the life of farmers and help them to grow fresh, delicious and trusted agricultural products, JA invests heavily on research and development. There are five separate business units specialized for the farmers support with more than US $ billion 50 funding per year. The marketing operations of the JA group is organized as rice, horticulture, livestock and dairy, agribusiness and farm input, fuel and daily necessities. JA is well equipped with research centers for new product development and quality checking of the current products, thereby ensuring that that the JA products are safe and reliable. JA organizes food exhibitions promoting Japanese agricultural products as well as it participates in the local and international food exhibitions to promote their products. JA's education and extension programs educate the farmers and provide them with the required knowledge with regard to safer and reliable food production.

When the historical development of the JA is examined, it is found that agricultural cooperatives go back to the Meiji period (mid 1800). At the end of the Japan – Russia war in 1906, the Japanese government placed especial emphasis on the development of the cooperatives, and several legislations were passed for further development of the cooperatives, as the agricultural cooperatives were needed to supply uninterrupted food stocks during the wars. The role of the cooperative was highlighted in the areas of credit, marketing, purchasing and management, aspects which are still continuing to be in focus in most of the Japanese cooperatives even today.

The success of agricultural cooperatives in Japan is also due to the geographical and political structure of Japan. Japan is a country with limited agricultural land where most of the agricultural farmers land areas are small in size. According to the agriculture census of Japan 2015, the average farm size of Japan is around 5 acres. Thus, the bargaining power of the Japanese farmer is relatively low compared to many other developed countries. Therefore, cooperation in the agriculture sector is important for them to reach the scale of required efficiency as well as to face competition. Furthermore, the political structure of Japan also had favored the growth of Japanese agricultural cooperatives providing them with high lobbying power. The number of votes required for a parliament seat in Japan is around one third of the number of votes for a seat from the city. Therefore, the political support for the rural sector was high and the organization of the rural people was mostly with the agricultural cooperatives. Hence, most of the time Japanese agricultural cooperatives received the preferential treatment. Furthermore, historically the Japanese Ministry of Agriculture, Fisheries and Forestry (MAFF) was always larger than the Ministry of Finance. Therefore, MAFF also wanted have a closer link with agriculture cooperatives for their sustainability. Hence, JA had become the unofficial operating arm of the MAFF for a longer period.

8.3. Food Labelling of Thailand

Thailand is a country with the successful introduction of food labelling practices and is also struggling to balance the consumer safety and international trade. Food safety regulations of Thailand have started a century ago whereby the government prohibited the sale of contaminated or adulterated food as their first food regulation in the beginning of 20th century. The first food regulation of Thailand (then known as Siam) was enacted in 1908 concerning the adulterated food which was much prevalent during that period. However, there was no mention of the requirement of food labelling. The proposed regulations identified the use of false brands or names as a breach of regulations which requires punishment. Presently, after a century of evolving, Thai food labelling has developed up to the level of processed food items and to horticultural products. Thai food labelling is not only conveying the food quality and safety information to local consumers, but it has also enhanced the trustworthiness of Thai exports (Rimpeekool, et al., 2015). Furthermore, studies have found that Thai consumers are willing to pay a premium price for the quality and the safety guaranteed by the food labelling (Wongprawmas, Canavari, & Waisarayutt, 2014). The food labelling in Thailand has significantly contributed to the development of the local as well as the export food industry of Thailand. Thai food now has a global reputation, as labeling has evolved with the objective of consumer protection and safety. The labelling has also gradually harmonized with

the regulations of the UN agencies, i.e., WTO, FAO, WHO and Codex Alimentarius, and therefore, gained a significant global reputation.

After World War II, Thailand joined the FAO in 1947 and the food industry has had rapid development focusing on local and international markets. Even before this, Thailand recognized the importance of food labeling as illustrated by the 1941 Food Quality Control Act. This act first used the word "Label" with reference to the Thailand food industry. 'Label' was defined as any statement or picture or imprinting on food, box, package or container, and any food product that mislead the consumer with its label about quality, quantity or specific characteristics were classified as fake foods. Nevertheless, these regulations did not guide the labelling process. In 1942, Thailand enacted its first labeling requirements with the foods that used colorants. It is considered as the first proper labelling requirement of the country. Thereafter, Thai food labelling policies were developed in relation with local requirements as well as international standards. Thailand participated in Codex meetings since the first Codex Alimentarius Commission in 1963. The Food Quality Control Act of 1964 of Thailand was comprehensive in food labelling. It focused on the provision of false details on quality and quantity. Other special characteristics, included were the place of production and country of origin. The punishment for fake foods was imprisonment up to 10 years and/or a fine not exceeding Thai Bhatt 20,000. Food labelling required providing the name, food registration number, net quantity and volume, name and the place of the manufacturer and any usage of additives or preservatives with specified statement and font size (Rimpeekool, et al., 2015).

The Thai Food and Drug Administration (FDA) formed in 1974 is vested with the power to develop the policies related to food labelling and monitor the implementation. After the formation of the FDA, the Food Act was enacted in 1979 which is the central law with respect to food labelling which is in operation up to today. This act defines "food" as "edible items which sustain life" and it defines "label" as "any symbol, pictures, printing or statement on food packages." The Ministry of Public Health of Thailand requires that food labels should display the name and type of the food, food recipe registration number, name and location of manufacturer, manufacture date, quantity and the ingredient list. Labels must also mention any food preservatives, colorants, additives and chemicals that are added. The label should be obvious and should present the truth (Rimpeekool, et al., 2015). The Thai FDA approval symbol was provided to the approved labels which provided the accurate information to the consumer. A consumer could thereby quickly determine if the label/product is an approved one.

Thailand joined the WTO as a founding member in 1995 and since then the label approval from the FDA is for the controlled and other goods prescribed by the minister. This decision was taken as a gesture of

commitment for trade by Thailand. The new FDA approved label was bearing a 13 digit number which will provide the information to the consumer up to the point of manufacturing. The Thai food labels have gained increased visibility and legibility over the period. For example, the font size of the food type should be not less than 14 points Times New Roman and also font color and the font size should be appropriate to the size of the label and it should be placed in a location that is easily legible. Subsequently, further improvements were made to the labels where the usage of natural, synthetic or artificial flavor needs to be mentioned on the product label. From 2000 onwards, mention of the flavor enhancers and food sweeteners also need to be included in the label. From 2014 onwards food additives need to be mentioned accruing to the International Numbering System (INS). One of the recent developments in food labeling in Thailand is that all prepackaged food need labelling (except fresh, kiosk and whole sale). Allergen information is also now needed to be included in the information set of the food labels in Thailand (Rimpeekool, et al., 2015).

Nutrition labelling was not very popular in Thailand until 1990. In 1990, the USA passed the Nutrition Labelling and Education Act which created problems for the food exporters of Thailand. Therefore, nutritional labelling also gained momentum in Thailand and the Recommended Daily Intake (RDI) was set by 1995 after considering the nutritional requirement of an average healthy Thai person and the prevailing global standards. According to the Thai Nutritional Label Law, it is mandatory to provide the information on vitamin A, vitamin B1, vitamin B2, calcium and iron. As the Guideline Daily Amount (GDA) provides more nutritional information to the consumers, Thailand made it a mandatory requirement to provide GDA values for the food with high sugar, fat and salt. By 2011, it is mandatory to provide GDA for fried or baked potatoes, fried or baked popcorn, rice snacks, crackers or biscuits and filling wafers (Rimpeekool, et al., 2015). The figure 8.5 shows two examples of using labeling for specific purposes. Left: the Q Mark is used for labelling fruits with a QR Code which can be used to track upto the origin of the product. Right: the Q Mark is used for Transport Services which gurantee that the transportation of the product was under the guidelines of the Q Mark labelling.

In 2005 the Thai Food Safety and Standards Accreditation Mark, “Q” Mark labelling was initiated by the National Bureau of Agricultural Commodities and Food Standard with the objective of ensuring improved food safety goals, to encourage competition in food product markets, and to provide information to assist consumers in recognizing safe-products, particularly fresh produce that is the main concern of Thai consumers. Q mark labelling is provided for the fresh foods (fruits, vegetables, chicken and shrimp) that conform to the national Good Agricultural Practices (GAP) in the production process and post-harvest

activities (e.g., pack house facilities) have to conform to GMP or HACCP. This project has two components, voluntary food safety labelling and mandatory food safety labelling for fresh foods ensuring food safety in the local markets. An important feature of the Q mark labelling is the traceability of the product. The label is provided with the QR code which can be used to trace the product electronically and also it provides a 20-digit number which can also be used to find all the details of the product from the farm to the super market. Moreover, the government has defined the quality standards for the truck transportation of the "Q" labeled products and these trucks are also provided with Q labelling. Even though there is no detailed analysis of the impact of the Q labelling, the studies found that consumers are willing to pay a higher price for the quality labelled foods (Wongprawmas, Canavari, & Waisarayutt, 2014).

Figure 8.5: Thailand "Q" Mark labelling

Food labeling is not only important for the local food market, as food is an important segment of international trade, harmonized labelling is important for the international food trade. Identifying the global trends, Thailand has also developed or reformatted some of its food labeling policies for identifying the importance of regional integration. However, achieving a harmonized food labelling policy is not easy as agreement is needed among many countries with different socio-economic conditions. Different countries have different nutritional requirements and they have divergent views on food labelling. However, Thailand is successful in the international food market as a food exporter and its long evolved food labelling practices have also significantly contributed to its success. Recent studies have confirmed that there is a strong relationship between food labelling and nutritional food consumption among consumers and hence they support the government food labelling policies (Rimpeekool, et al., 2017)

8.4. National Trade Promotion Program of Vietnam

With the objective of gaining access to the international markets for Vietnamese products, the National Trade Promotion Program (NTPP) was introduced in 2005 by the Vietnamese government. The major task of the program was to facilitate the trade promotion activities of the country. The program assists the enterprises to engage in national and international trade fairs to get contracts, sign MOUs, and have market surveys or market investigations. The program provides 100% funding for preparing the exhibition halls and 50% funding for the participation of trade fairs and invitation of experts. By the year 2014, the NTPP had carried out 150 such promotion programs. Several exhibition facilities were renovated under this program. According to the Vietnamese Department of Trade Promotion, NTPP had assisted 1834 enterprises in 2013 while installing 10,623 booths, and signed contracts or MOUs worth 1.6 US $ Billion. The Vietnam Trade Promotion Agency (Vietrade) under the Ministry of Industry and Trade is vested with power for the operation of the project.

Vietnamese companies had engaged in trade fairs in China, USA, Belgium, Germany, Russia, Japan, the Republic of Korea, Laos, Cambodia and Myanmar under this program. Engaging in these trade fairs had given the opportunity for the enterprises to advertise their products to international audiences, exchange experiences and to gain access to advanced technologies. Moreover, participation in these trade fairs has strengthened the relationship between the local enterprises and the foreign buyers and helped start partnerships as well as find investors.

The NTPP not only targeted at trade promotion by assisting in the trade promotions, it has helped the industries in several ways. In addition to trade fairs and festival activities, the national trade promotion program has effectively implemented tasks, including market research and trade promotion delegations to promote exports, as well as improvement of the production capacity of the business community and organization of trade promotion activities and the support of enterprises to consolidate their positions in key markets. “Many Vietnamese products are now available in many markets, especially traditional markets like the USA, EU, Japan and China. In addition, the program has actively supported exporters to return to traditional markets such as Russia and the former East European countries, expand and consolidate their positions in Laos and Cambodia and develop new markets such as Myanmar, Latin America and Africa” (Thang and Linh, 2014, p.5).

8.5. e-National Agricultural Marketing Initiative (eNAM)

Electronic National Agricultural Marketing (eNAM) is an initiative taken by the Indian government in 2016 with regulated wholesale markets and now it has expanded to more than 600 regulated wholesale markets to make a national e-platform for marketing. The major objective of this e-platform is to enhance the farmers' income by directly connecting farmers with buyers across the country and thereby reducing the interference of having too many middlemen. The specific objectives of the initiative are to: (i) create transparent sale transactions and price discovery, (ii) liberalize the licensing of traders/buyers and commission agents by state authorities, (iii) harmonize quality standards of agricultural produce and provision for assaying, (iv) have a single point levy of market fees, (v) provide of scientific techniques such as soil testing laboratories.

The following figure depicts the operation process of the eNAM.

Figure 8.6: eNAM process flow

eNAM is a virtual marketplace where the auctions take place on the web. Buyers as well as sellers from all corners of the country can connect to this e-market and buy and sell their products irrespective of their location (intrastate or interstate). Any buyer or seller can do their transactions from any of these APMCs in the backend using their personal computers or mobile devices. Cashless payment gateways are introduced to the system and assessing (quality and standards) are formulated and their operation is ensured for the smooth functioning of the eNAM. There are two ways of connecting farmers to the eNAM. Either, farmers bring their produce to the already established APMC gate and register their products at the APMC Gate and get the gate-entry receipt (registration of farmer's name, commodity name, bank account number, lot number and quantity), then the commodity is allocated to a commission agent.

Alternatively, the Commission Agent collects the produce at the farm gate and brings the product to the APMC gate and registers the product. The farmer gets access to information whichever system is used, on the registration, auctioning and transaction details of his own product in eNAM. APMC does the grading and warehousing and then the agent displays the lot and the bidding takes from 10.00am to 2.00pm and the highest bidder wins the lot. The information regarding the bid is provided to the farmer through the dashboard of the e-NAM portal as well as an SMS to the farmers mobile. Once the sale is confirmed, the post auction activities take place, such as generation of sale bill, payment to farmer, delivery by commission agent to the trader. The following flow shows the basic operation of the e-NAM.

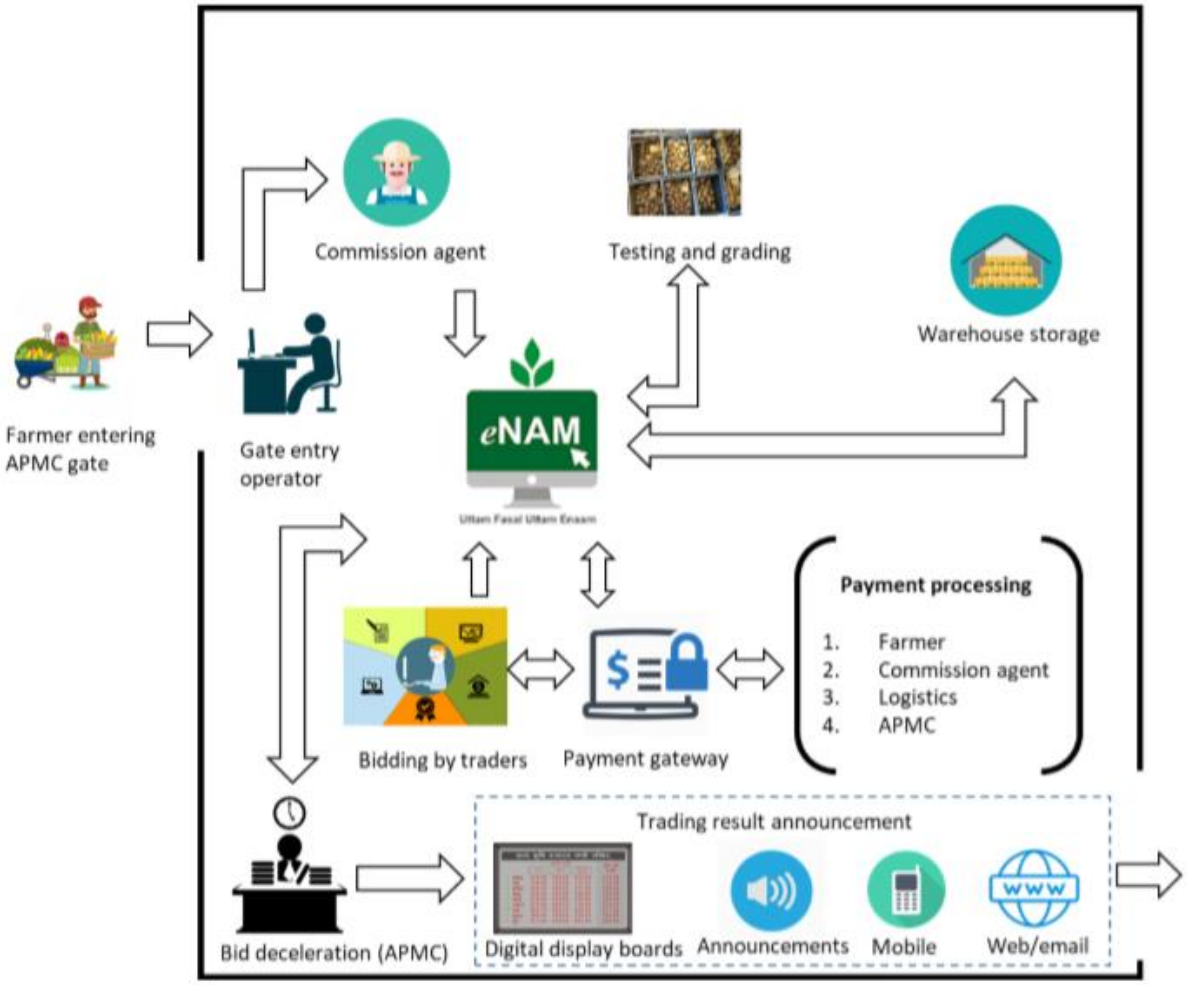

Figure 8.7: Basic operation of eNAM

(Source: Subash et al., 2018)

Some special characters of the eNAM are the single trade license for pan Indian trading transactions in any included regulated markets, single point fee levying for the wholesale market fee and availability of the e-auctioning facility. There are 150 agricultural produce items listed and facilitated in this platform

which comprises of 25 food grains, 13 oil seeds, 14 spices, 29 fruits, 40 vegetables and 29 others. According to the official accounts of the e-NAM initiative, there are more than 10 million registered producers and more than 100,000 registered buyers in the system and usage of the platform is increasing.

With the introduction of the e-NAM, the farmers see the prices of other markets before making their decisions to sell. Furthermore, before operating the e-NAM farmers had to wait for months to get their payment from the agents, without also knowing much about the fees and commissions of the agents. Studies have confirmed that the introduction of eNAM and the e-tendering have successfully reduced the transaction time, brought in the transference in price discovery and increased the market revenue and, moreover, it has enhanced the competition in the agricultural food market. Compared to auctioning, e-tendering saves 40% of the time taken for a transaction. A survey conducted with farmers of the Gulbarga market (APMC) indicate "that e-gate entry of the produce is mandatory, and a majority of them find that with e-tendering competition in the market has increased. Only 2% of them are apprehensive that there could be some scope for price manipulation under e-auctioning as well. As expected, 71% of them reported a decline in the time taken in disposal of the produce. And, almost everyone has reported that they have received payment receipts from the commission agents or traders immediately and/or on the same day. Three-fourths of the farmers also feel that electronic transfer of sale proceeds is better than cash payment" (Pavithra, Gracy, Raka, & Ganesh, 2018, p. 61).

8.6. Negotiable e-Warehouse Receipt System of India

The Indian government introduced the negotiable e-Warehouse Receipt System (eWRS) in 2011 making a significant impact on the small and medium scale agricultural marketing sector. WRS is a mechanism whereby farmers, traders, processors and exporters can obtain finance secured by goods deposited in a warehouse. The farmer brings the product to the locally available warehouse and the warehouse operator issues a receipt for the stored goods showing the quality, quantity and the location of the store, which can be used as collateral to obtain a loan from a financial institution. WRS is important for rural small and medium enterprises, which are often unable to secure their borrowing requirements owing to lack of sufficient conventional loan collateral (Höllinger et.al. 2009). It is vital that the agricultural farmers should be taken into account when considering sustainable agricultural development. However, in many of the developing economies many of the poor rural farmers are depressed due to their lack of financial capability to store the produce and sell it later with a better price. Poor rural farmers are compelled to sell their produce just after reaping the harvest due to the financial requirement. WRS provides a

marketing solution for this problem by providing the easy access for post-harvest credit to the poor farmers. WRS is not only providing the easy access to post-harvest credit for the farmers, but also it encourages storage by reducing the cost and by increasing liquidity in entire commodity chains, which in turn reduces price volatility. By giving farmers access to a new financing tool, it enhances their ability and provides incentives to invest in production (Höllinger et.al. 2009). Since food grains are stored during the harvesting period, this has improved the stability of food prices. In many developing countries, including India, food prices are highly volatile. But storing their produce during the harvesting period has significantly affected the stability of food prices. Furthermore, with climatic changes and global warming, many countries experience adverse weather conditions and environmental turbulence significantly affecting the food supply chain. Since, WRS encourages farmers to store their produce for a longer time this has improved the sustainable food supply chain (Gunawan et al. 2019).

Since the e-WRS is beneficial for all the stakeholders of the agricultural food marketing industry, it is important to know why and how India introduced the e-WRS and its timing. The following figure explains the major trends in the warehousing industry of India at present. The warehousing industry was dominated by fragmented small scale operators, but presently the trend is getting more organized with large-scale players in the industry. Instead of individual investors from the industry, many large-scale instructional investors are attracted to the industry. Showing the same trend, smaller warehousing facilities are decreasing while the number of larger warehousing is increasing. Automation and digitizing the operation of warehousing is also getting popular. Warehousing is also conceptually changing from a mere storage place to a center of value addition, i.e., with inventory management, product testing, wrapping, packaging, labelling and tagging etc. Currently, these warehouses play a major role in bridging the gap between the transportation and delivery while reducing the cost and increasing the profit via these value-added activities.

Warehousing accounts for more than 13% of the GDP of India (Knight Frank Research, 2018). However, it was fragmented and unorganized for a long time and several large organized players are joining the industry in recent times. Separation of warehousing development policies from industrial development policies has also helped the rapid development of the sector. Identified warehousing development policies in India includes the enactment of a dedicated act on warehousing “Warehousing (Development and Regulation) Act, 2007”, providing special provisions for the negotiable eWarehousing Receipt System and Warehousing Development and Regulatory Authority in the same act. Furthermore, the establishment of the logistic parks under PPPs, and making provisions to exempt warehousing from the GST are significant

trends. Changing policies combined with the increased FDI have encouraged the sector to use international benchmarks in warehousing. All these developments have helped automation of the sector and the use of IT facilities (Smart Warehousing) in the warehouse operation. Modernization of the sector by providing more open policies and providing avenues for bigger investments coupled with FDI have helped India to introduce and operate the negotiable e-Warehouse Receipt System.

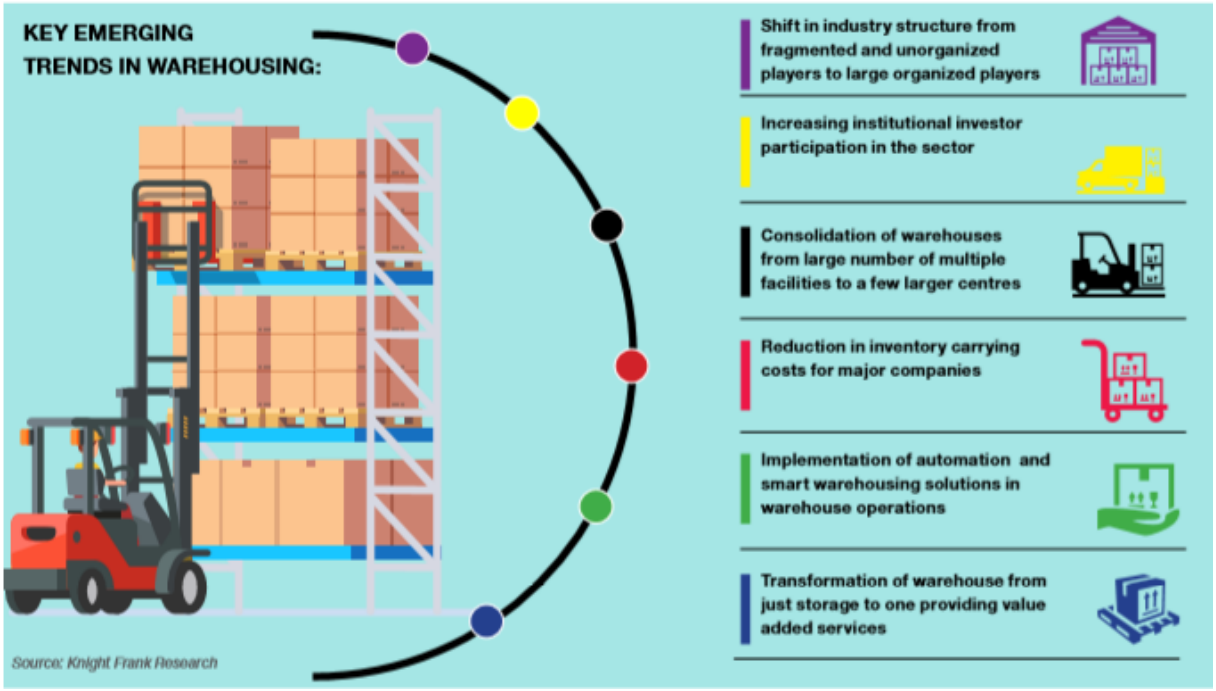

Figure 8.8: Emerging trends in warehousing

8.7. ICT interventions for agriculture in India

The agriculture sector in India is one of the major sectors contributing more than 17% of the total GDP of the country with over 60% of the population being engaged in it. The development and timely dissemination of better personalized technologies specific to different agro-climatic conditions, size of land holding, soil type, type of crops and related pests/diseases is the real issue to be dealt with by the agricultural scientists/experts in India. The timely availability of right information and its proper utilization is indispensable for agriculture. ICT based initiatives can be taken for propagation of information, transfer of technology, procurement of inputs and selling of outputs in a manner to facilitate benefits to the farmers. The provision of timely information and practical solutions to the agricultural problems helps the farmers to adopt good agricultural practices, make better choices of inputs and to plan the cultivation properly. In the context of agriculture, the potential of information and communication technology (IT)

can be studied broadly under two outcomes, viz., direct contribution to farm productivity and indirect contribution. The precision farming is the result of direct contribution of agriculture technology for farm productivity. The indirect tools help farmers take informed and quality decisions which will have a positive impact on the way agriculture and allied activities are conducted. Table 8.1 below summarizes ICT interventions in the agriculture sector for India.

Table 8.1: ICT interventions in the agriculture sector for India

Intervention	Description
Agrisnet	It is a comprehensive web portal to broadcast relevant information to farmers, which was initiated and funded by the Ministry of Agriculture, Government of India. The AGRISNET serves the farming community by disseminating information and providing services through use of ICT.
Digital Green	Digital Green is an international organization, which works with the participatory approach by engaging the rural community to improve their livelihood by using a digital platform. Interactive and self-explanatory videos are prepared for farmers by progressive farmers with the assistance of experts. These videos are shown to the farmers at individual level or in groups. The videos are prepared concentrating on the requirements and welfare of the rural masses.
eSagu	The eSagu system was developed in 2004. eSagu provides a customized solution to the farmer problems and advises them from sowing to harvesting. Farmers send their farm condition in the form of digital photographs and videos, which are analysed by the agricultural scientists and experts. After that, they suggest the remedial action to the farmers. Even small and marginal farmers are also taking advantage of this. The expert advice is conveyed to the concerned farmer within a short time. The queries of illiterate farmers are addressed with the help of educated coordinators at village level. The farm situation or problem is communicated to the agricultural experts and they transmit accurate information to the farmers.
Warana	The Warana “Wired Village” project was instigated in 1998 by the Prime Minister’s Office Information Technology (IT) Task Force with the objective of providing agricultural information and services to farmers for increasing productivity. The information is transmitted to the farmers in the local language about prices of agricultural outputs, employment schemes from the government of Maharashtra and educational opportunities. The information is disseminated through information kiosks with the help of operators, who are the main linkage between the farmers and the agricultural experts.
IKSL	IFFCO KISAN SANCHAR LTD (IFFCO Kisan) was started in 2012. It delivers relevant information and custom-made solutions to the concerned farmers through voice messages on mobile phones. The farmers can also

Intervention	Description
	communicate directly to the agricultural experts on explicit themes via 'phone-in' programs.
Agmarknet	Agricultural Marketing Information Network (AGMARKNET) was started in March 2000 by the Ministry of Agriculture, Government of India, with the aim of empowering the decision-making ability of the farmers regarding selling of their produce. This portal was developed to pace up the agricultural marketing system through broadcasting information about the influx of agricultural commodities in the market and their prices to producers, consumers, traders and policy makers, transparently and quickly.
iKisan	iKisan is a web portal for transmitting information to the farmers about wide-ranging issues related to agriculture such as crop cultivation, weather forecast, agricultural inputs availability and quality, agriculture related financing institutions, soil quality and market updates.
Digital Mandi	Digital Mandi is an electronic trading platform for facilitating farmers and traders to sell and procure agricultural produce beyond the geographical and temporal limitations effortlessly. Various financial institutions also participate in online trading of agricultural output to remove the cash crisis.
eArik	The eArik project was initiated in 2007 and it aims to disseminate climate smart agricultural practices and to achieve food security. It is an integrated platform to enhance the accessibility of agricultural information and technology in north-eastern India. It delivers agricultural specialist advice on crop cultivation, crop management and marketing. Farmers can also obtain information directly from the portal but field workers help farmers to access ICT-based information or to consult with other agricultural experts.
Akashganaga	This ICT project makes possible the milk collection, fat testing, and payment in a timely and user friendly manner. It augments the income generation of dairy farmers through incorporation of advanced technology.
aAQUA (Almost All Questions Answered)	aAQUA is a multilingual online system that facilitates farmers by advising them, solving their problems and answering their questions related to agriculture. Farmers have to register on aAQUA platform online or telephonically. After that, they can post their queries on the portal, for which they get answers shortly.
Fisher Friend Mobile Advisory KCC	The Fisher Friend Program (FFP) of the M. S. Swaminathan Research Foundation was launched in 2009 to protect fisher folk from occupational hazards and to empower their livelihoods. The relevant information on wave height, wind speed and direction, potential fishing zones, relevant news, government schemes and market price is provided to fishermen in the local language. The FFP covers marginalized coastal communities in Tamil Nadu, Puducherry, Andhra Pradesh, Kerala, and Odisha, and is operational in English, Tamil, Telugu, Malayalam and Odiya languages.

Intervention	Description
Reuters Market Light	Reuters Market Light (RML) was initiated in October 2007 to deliver customized information to the registered farmers via mobile-SMS. It disseminates information in eight local languages in 13 states.
SMS Portal/mKisan Portal	This portal is designed to serve farmers in three ways: to disseminate information about diverse agricultural activities, to provide seasonal advisories and to provide various services directly to farmers through SMSs in their local languages. The SMS Portal is a platform for amalgamation of service delivery under different sectors, viz., agriculture, horticulture, animal husbandry and fisheries.
Mahindara Kisan Mitra	This portal provides information to the farmers on price of commodities, weather forecast, crop advisories, loans, insurance, cold storage and warehouses along with success stories of progressive farmers.
Kisan Call Centers (KCCs)	KCCs were commenced on January 21, 2004 by the Department of Agricultural and Co-operation with the main intention of providing extension services to the farming community in the local languages. The queries of farmers are tackled by agricultural graduates on help line, a toll free number in their local language. The agricultural scientists also visit the field in person to get an idea about complex agricultural problems to resolve them.
Village Knowledge Centers (VKCs)	Village knowledge centers of the M.S. Swaminathan Research Foundation, initiated in 1998 in Pondichery as a gateway of technical information related to agricultural inputs, price of outputs, crop rotation, use of fertilizers and pesticides. Information is disseminated through the public address system.
AGRONXT	AgroNxt platform is a multitasking platform for the farmers where farmers can get inputs, agriculture advice, weather condition information, etc. AgroNxt attempts to contribute to the agriculture industry by delivering farmer-friendly and usable, reliable and timely information that maximizes farm profitability. It assists by upholding the agricultural productivity and sustainability.

(Source: Singh et al., Orient. J. Comp. Sci. & Technol., Vol. 10(3), 691-697 (2017))

These IT interventions shows how aggressively India utilizes IT facilities in developing the agriculture sector. Among these programs, Digital Mandi was instrumental in the implementation of the nationwide digital marketing platform of eNAM.

CHAPTER NINE

ISSUES AND GAPS IN THE FOCUS AREAS OF THE STUDY

9.1. Issues and gaps in the food crop sector

9.1.1. Policy and regulatory gaps in the food crop sector identified from the SCP review

1) Reviewing previous policies and policy documents prior to policy formulation does not seem to be a frequent practice. As a result, duplication of the same policies occurs in most policy documents.

2) Although over 15 policy documents have been prepared addressing marketing issues during last four decades there are no functional plans to identify policies and to implement activities that will give effect to the strategies given in the policy documents. Hence, marketing problems such as price fluctuations, post-harvest losses and low farm income have emerged.

3) Food marketing systems can be grouped into two: conventional marketing systems and modern marketing systems. The conventional marketing system is still dominant in Sri Lanka giving rise to inefficiency and ineffectiveness in food marketing. The main constraint in the development of modern marketing systems is a fragmented production system.

4) No transparency in pricing even in the modern food marketing system. Transparency among the actors in the value chain is essential for an effective and efficient value chain. A policy level solution is the enactment of the Right to Information Act No. 12 of 2016 in relation to food marketing in Sri Lanka.

5) Both traditional and modern value chains are governed by the traders to their own advantage.

9.1.2. Policy and regulatory gaps in the food crop sector identified from the key stakeholder analysis

1) Exporters have a severe problem of facing global competition due to high cost and low quality of products. Global competitors use automated techniques to replace labor, whereby labor cost is reduced and efficiency increased. Similarly, they also use technology upgrades and improve the quality of products which is lacking in Sri Lanka due to the scale of operation.

2) Some of the fruit and vegetable exporters depend on collectors instead of farmers. The main reason is assured supply. This indicates an important supporting role carried out by the intermediaries, at-least in the export segment.

3) Government providing input supplies deter diversification and reduce production potential.

4) Geographical branding is yet to be initiated for Sri Lankan crop and spice sectors. This is important.

5) Time taken in quarantine related work becomes significant. Best possible ways to reduce the time should be looked into.

6) GAP certification is not a core culture in Sri Lanka. Not having GAP certification is a significant hindrance for export.

7) Sri Lanka lacks organized farming systems through farmer cooperatives or companies. This is important for a country which possess a significant proportion of micro and small farming units.

8) High post-harvest losses are due to not using crates for transport. Current centralized marketing system does not allow this as there is no closed loop where the crates automatically return to the original spot. Closed looped functional marketing system should be developed to facilitate the use of crates to help reduce post-harvest losses.

9) Dambulla Economic Center can be integrated with a farmers' market.

10) Traceability of exported products are poor. This needs to be improved by facilitating ground level QR coding. Government should facilitate coding equipment at ground level.

11) Sri Lanka's extension system is weak and needs significant improvement through institutional strengthening and resource allocation.

12) Sri Lanka is weak in organic culture. This needs to be encouraged further for better export potential.

13) Modernized agriculture in relation to green and net housing is weak. Technological support to the farmers is needed to adopt the new technology.

14) Offseason cultivation culture is weak in Sri Lanka which will enhance productivity.

15) Poor knowledge in post-harvest technologies and lack of knowledge in post-harvest treatment and availability of cool storage/trucks.

16) Seed importation has issues in timing. This is important as the planting is seasonal.

9.2. Issues and gaps identified in the spices sector

9.2.1. Policy and regulatory gaps in the spice sector

1) Despite, spices being an important area of the Food Act, no position has been allocated to represent it in the Department of Export Agriculture (DEA) in the Food Advisory Committee (Food Act No. 26 of 1980 and Food {Amendment} Act No. 29 of 2011).

2) No provision in the Food Act to prevent inclusion of substandard products that are of no value to consumers (Regulations of Food Act No. 26 of 1980).

3) Oil and oleoresin extraction industry of pepper and cardamom was affected due to shortage of raw material (the amendments to No. 12 of Financial Act of 5/12/ 2019).

4) Failure of monitoring the process of export and gaps in the procedure of allowing permission to export have led to an increase in illegal imports and re-export of pepper.

5) Failure to implement Extra Ordinary Gazette Notification No. 1813/15 dated 5/6/2013), under which no cinnamon quantity of above 25kg is allowed to be exported without conformity certificate with SLS81:2010, issued from the Sri Lanka Standards Institution (SLSI).

6) Monitoring procedure of SAFTA - under the South Asian Free Trade Agreement (SAFTA of 6/1/ 2004) trade malpractices were observed owing to failure of monitoring the process of export.

7) Suspension of importation of pepper, arecanut, nutmeg, mace, tamarind and cinnamon. Abrupt banning of imports affected the extraction industry of pepper oil and oleoresins due to raw material shortage (Cabinet decision on suspension of the importation of spices through different methods for solving the issues affecting the local spices and the related manufacturing industry Gazette notification of 5/12/2019).

8) Due to the banning of entering and doing any human activity in the protected area Declaration of Knuckles Conservation Forest in UNESCO Natural World Heritage List on 31/7/2010, 75% of traditional cardamom growing areas in the Knuckles had to be abandoned. As a result production of cardamom drastically reduced (Declaration of Knuckles Conservation Forest in UNESCO Natural World Heritage List on 31/7/2010).

9.2.2. Empirical evidences on issues and gaps of the existing policies in the spice sector

Procedural Gaps

1) Conflict of national policy and actual implementation of foreign exchange earning objective of the spice sector

The main objective of the development programs of the DEA is to achieve a foreign exchange input of one billion USD by 2020 (Annual Performance Report of Department of Export Agriculture, 2017). The immediate programs would have been the promotion of value addition programs. It was found that out of a total allocation of Rs. 600Mn in 2017 (Annual Performance Report of Department of Export Agriculture), half of it has been spent on a home garden development program called 'Dhana saviya'. Similarly, in 2018 the allocation was Rs. 500Mn (Annual Performance Report of Department of Export Agriculture, 2018), and more than half of it was spent for the same purpose.

Home gardens programs which have been implemented since the inception of the DEA have been suspended on realizing its meagre contribution to national economy. The home garden program in 2016, was restarted in a big way, as the main development program of the department; the outcome expected was the empowerment of women through subsistence farming. The number of home gardens developed in 2016, 2017 and 2018 were 52,430, 145,000 and 125,910 respectively (Annual Performance Report of Department of Export Agriculture, 2016, 2017 and 2018).

This case shows the conflict of interest between the national policy and actual implementation of the development programs.

2) Failure of monitoring SAFTA (South Asia Free Trade Area)

One of the main advantages of this agreement is the marketing of spices, including pepper, to India without much difficulty on the basis of a tax free quota up to 2,500Mt and at 8% FOB value exceeding this volume. India is keen to buy light berries since it has greater extractives. This trade has been continuing for four decades and future prospects for marketing are hopeful. However, local production may not be adequate to meet even the local demand as a number of extracting factories are increasing.

High piperine content of Sri Lankan heavy berries (>8%) made it possible and easy to sell to India. Marketing takes place without much concern about quality aspects. If an Indian buyer is ready to buy, even sub-standard pepper can also be exported. This is one of the reasons that Sri Lanka failed to present quality products to the export market while other pepper producing countries have taken measures to improve the quality of their pepper.

At the Annual Session of International Pepper Community (IPC) which was held in Kandy, Sri Lanka, in early November of 2017, the abuse of SAFTA was openly discussed. The Vietnamese authorities admitted that Sri Lanka has imported more pepper and that it did not match with the country's official figures. Besides, the Head of the Delegates of Sri Lanka requested the Indian counterpart and officials openly to verify authenticity of pepper consignments that reach India from Sri Lanka from the quarantine service at Katunayake.

It was observed that authorities of both countries have failed to take timely action before it became an issue until Indian pepper growers protested against the excessive importing of substandard Vietnamese pepper to India.

3) Procedural weaknesses in exporting Sri Lankan pepper

The present study revealed that even after the racket of illegal export of pepper was discovered, the remedial actions taken to prevent it were unsatisfactory. The following are the procedural shortcomings of the present system of exporting spices.

i. Country of origin certificates, which are necessary to prove as the spice products originated in Sri Lanka, are issued before consignments are dispatched.

ii. The consignment expected to be shipped is examined at a warehouse of the exporter, outside the port, beforehand. There is no assurance whether the same lot will be exported or not.

iii. No verification letter is obtained from Sri Lanka customs with respect to exporting the consignment.

iv. An affidavit is taken from the exporter that the pepper consignment intended to be exported originated from Sri Lanka. This seems to an act to avoid the responsibility of certificate issuing by officers and a means of safeguard themselves in the event a legal matter arises with respect to a particular consignment.

v. Phyto-sanitary certificate is not compulsory for issuing the certificate of country of origin.

It is clear that the loopholes in the procedures have made errant exporters continue with their malpractices since the procedure of issuing the country of origin certification is not transparent and straightforward.

4) Unilateral policy decision-taking without consulting key stakeholders

The stakeholders of the pepper industry comprise of a number of government and private entities. The Department of Export Agriculture (DEA), Department of Customs, Department of Commerce and the respective line Ministries are some of the relevant government entities, whereas the Spice Council and the Spice and Allied Products Producers' and Traders' Association (SAPPTA) represent producer organizations and exporters. It was found that the cabinet decision taken on 12th February 2019, in response to the cabinet paper presented by the Minister of Strategies and Internal Trade, seems one which has not adequately studied the present situation of the spice industry. The pressure and the request from the Indian Government may have been the cause that initiated the cabinet paper.

It is also doubtful that the more recently issued amendment of the Financial Act No. 12 of 2012 of 5th December 2019, regarding import of spices such as pepper, cardamom, cinnamon and tamarind for re-export, has adequately looked into the present problems and issues in the spice industry.

The authorities failed to consult even the DEA and the Spice Council and seek their views before imposing restrictions for importing pepper. The best method should have been to stop illegal imports of pepper by rectifying procedural weaknesses and file charges against the errant importer. However, these two important steps were not taken.

With reference to the cabinet decision to amended the Financial Act, pepper seem to have been considered as one product, without taking into account its two uses. It seems to refer to the pepper used as a consumer item for culinary purpose, but it also impacts on the use of pepper for oil extraction. There is another pepper product called 'light berries' which is used for extraction of pepper oil and oleoresins (concentrates of the constituents of pepper berries). The ban on pepper imports will adversely the affect extraction industry as well.

5) Foreign collaborations granting without proper assessing of local circumstances

Overseas investors were interested in having joint ventures and starting BOI projects in the spice sector owing to the high quality of Sri Lanka's raw material. The local industrialists accused overseas manufactures of being allowed to operate in Sri Lanka, without making proper assessments, especially on the factors such as the number of similar industries in the country, their capacity and annual production of different products, ways of marketing, raw material availability, the number of employees in the factories, their contribution to foreign exchange earnings, etc.

It was found that granting of large scale extraction factories caused closure of existing small-scale industries and reduces manufacturing operations owing to raw material inadequacy and inability to face competition. A call for the views of stakeholders from the DEA before granting foreign investment is the best option to avoid the above mentioned unhealthy situation.

6) Lack of government intervention in pepper and cinnamon trade

The pepper and cinnamon trade in Sri Lanka is handled by exporters. These exporters decide to which country to export, the product to be exported (either light berry or heavy berry), cinnamon grade (C, H and M grades, etc.) exporting quantity and its quality, etc. Most of the pepper products are exported to India, according to the buyers' requirement, while the cinnamon market has been concentrated for decades in Latin American countries governed by a handful of Sri Lankan exporters and their counterparts in the importing countries without involvement of the governments at both sending and receiving ends.

The government involvement in the pepper and cinnamon trade is almost negligible. As the mandatory institute for improving the spice sector, the DEA is involved in expanding cultivations and improving quality of produce and establishing market linkages, etc. The government intervention seems necessary in the case where the pepper industry is at risk, pepper prices are low and export restrictions are imposed by importing countries. Finding of alternative markets and the control of monopolies in the cinnamon trade are the responsibilities of the government to streamline the cinnamon industry.

The pepper trade is subject to high competition among producing countries. The governments of the respective countries intervene when troublesome issues arise in the industry. For example, the Spice Board of India and its Trade Ministry is engaged in close surveillance of the spice trade and take timely decisions to safeguard the industry leaving no chance for the supply and demand process to operate, unlike in Sri Lanka. Similarly, intervention is important to protect the local growers and traders. The cabinet decisions would help to rectify most of these unhealthy situations.

7) Absence of an authorized body to deal with legal matters

Local pepper traders disclosed the fact that certain foreign parties had come to Sri Lanka and established partnerships with local people to collect and export spice products illegally. The foreigners and the local counterparts involved in the export process and financial transactions, do not appear in the trade. Some of the unauthorized foreigners have established processing centers to which entry has been restricted to even for government officers. Activities of these illegal traders have risen to the extent where market manipulation has taken place as in the case of nutmeg.

The government officers are helpless to deal with such cases since they have not been authorized by an act or regulation to intervene. Enacting of the Export Agriculture Promotional Act No. 46 is the lasting solution to counter such corrupt and illegal activities.

8) Failure to explore the niche market for cardamom and depending on one country for exports

As in the case of pepper, the major share of the cardamom has also been exported to India. During the last five years from 2013 to 2017, no exports had taken place to India in 2013 and 2014. However, in 2015 out of a total export of 119.9Mt, the Indian share was 100.0Mt. Similarly, in 2016, the total figure was 779.4Mt and India had imported as high as 636.6Mt from Sri Lanka. In 2017 also nearly one-fourth of the cardamom exports were to India. The income earned from exporting cardamom to other countries was five times more than that of the Indian exports (EAC Stat Book, 2018).

Depending on one country is risky. If import barriers are experienced it is impossible to find alternative markets in a short period. The export commodity was also in bulk form without value addition, and hence potential income was lost.

9) Negligence of the cardamom extraction industry

Extraction of oil and oleoresins from cardamom has being carried out for years. This industry was affected when raw material availability reduced due to the cultivation and harvesting ban in the Knuckles region where 75% of the cultivations were located, and due to the thrips problem which caused discoloration of pods. With the consent of the DEA, the Plant Quarantine Division of the Department of Agriculture permitted industrialists to import cardamom for oil and oleoresin extraction and re-export under the TIEP scheme. The import ban imposed in 2017 by the Ministry of Strategic Development and Internal Trade and the suspension of cardamom imports by the Finance Ministry in 2019 caused the industry to grind to a halt due to unavailability of raw material. The cardamom oil export from 2013 to 2018 has gradually declined from 1.7 Mt to 0.22 Mt (EAC Stat Book, 2018) due to raw material scarcity.

Increase of illegal imports during the past four years may also result in unavailability of cardamom for extraction and consumption.

9.3. Policy, regulatory and procedural gaps in the floriculture sector

1) Import restrictions have been made on plants belonging to the families of Palmae, Rosacea, Cecus, Bromiliacea and Arecea. In addition, problems have been faced in exporting pandanus species, eucalyptus leaves and aquatic plants. Failure to provide guidelines and regulations caused

inconvenience to importing and exporting plants of these families (Plant Quarantine Act of 1999-35 under the clause on protection of local flora and fauna from pests and diseases that are not prevalent in this country).

2) Cut-flower exporters encountered difficulties in importing specialized fertilizer in order to produce flowers for international standards (Regulation of Fertilizer Act No. 69 of 1988 re fertilizer import, manufacture and formulation).

3) **Regional restriction for sale, offer for sale and use of Carbofuran:** No recommended substitute for controlling nematodes as the importers' requirement is zero for nematodes (The government Extraordinary Gazette No. 1894/4 of 22/12/2014 under the Control of Pesticides Act No. 33 of 1980).

4) Cut-flower and foliage export to Australia was terminated because Glyphosate is the only dipping treatment permitted by Australia (ban of importation of Glyphosate by the government Extraordinary Gazette No. 1813/14 of 5-6-2013 under the Import and Export (Control) Act No. 01 of 1969).

5) A good export potential prevails for aquatic plants and flowers. Thought should be given to relax regulations for exporting of aquatic flowers with value addition, since flowers are in abundance in the lakes of the dry zones.

6) **Conflict of national policy and implementation of floriculture programs:** The floriculture sector has been identified by the government as a priority sector for development and promotion of exports (Industry Capability Report, 2012). Apart from that the government encourages Foreign Direct Investments (FDI) in the floriculture sector. The Export Development Board (EDB) provides the market intelligence and assistance for export marketing (Industry Capability Report, 2012).

However, it was found that a tangible program has not been implemented by the Department of National Botanic Gardens to enhance the objective of earing foreign exchange. Its main focus is to empower low and middle level horticulturists in the floriculture sector and to uplift their economic standards (Annual Performance Report of the Department of National Botanic Gardens, 2017). Since the main institutions that work towards the improvement of the floriculture industry are not aligned to a common objective, expected results could not be achieved.

7) **Weaknesses in the registration process of entrepreneurs:** The entrepreneurs engaged in the floriculture industry are required to obtain registration in two institutions. If they need government assistance they have to be registered in the Department of National Botanic Gardens. Otherwise they can operate individually and registration with the department is not mandatory.

The other institution registering the entrepreneurs is the Seed Certification Service of the Department of Agriculture. This registration is compulsory for running a propagation unit of plants under the Seed Act No. 22 of 2003, Section iii. The seed certification service issues 'Seed Handler Registration Certificate' and subsequent renewal is done in every two years.

It was found that only interested entrepreneurs have obtained the latter certificate. Those sellers who engaged in buying and selling are also supposed to get registered. However, most of them were engaged in the business without a proper registration due to weaknesses in enforcement.

The consequences are: non-registered businesses are not answerable for any defects in the plants and malpractices committed by them. Complaints from the consumers were received during the study with respect to this weakness. Updating of statistics is also impossible due to non-recording of their involvement. The better policy should have been to register all the entrepreneurs with the Department of National Botanic Gardens and Seed Certification Service.

8) **Non-availability of effective measures to curb Illegal flower imports:** A racket of importing flowers at low prices and its distribution among florists was revealed. The flower growers complained that due to this malpractice selling of their produce has become difficult. Besides, it was also said that the spread of 'crown ball' disease associated with the pathogens coming from imported roses had taken place. In addition, foreign exchange was spent for importing flowers when local production was sufficient.

   It was seen that no government organization has taken legal action against errant flower importers who are a threat to the existence of the local cut flower trade.

9.4. Policy, regulatory and procedural gaps in the export sector

1) **Export Performance has not reached its potential due to many factors such as:** weak export performance, low export diversification, low market diversification, low value addition, minimum use of new technologies, low engagement in SME exports, complexity of export product is very low, etc.

2) **Free Trade Agreements and Trade Barriers (Tariff, Para-Tariff, Non-Tariff Barriers)**
   i. Trade is heavily concentrated on only a fraction of potential markets in the region.
   ii. SAARC members do not even meet the twin criterion of having adequate demand in receiving countries and adequate supply capabilities in the supply countries.

iii. Progress on liberalization has been too slow, especially in the case of SAFTA and APTA.
iv. The proportion of trade undertaken within these agreements has been low.
v. Under-utilization of the quotas offered under the ISLFTA (at least partially), the high dependence on unprocessed primary products, low volume of trade in services, and lack of product diversification of exports.
vi. Problems with adequate demand and adequate supply capabilities.
vii. SAPTA – no discernible/noticeable impact on Sri Lanka.
viii. ISFTA – Sri Lanka has not benefited much from this agreement.
ix. Limited in capacity to respond to global demand.
x. High and complex import tariff regime, lack of attention to trade facilitation, low level of regional connectivity and ineffective trade agreements and lack of supply side capacity for exports.
xi. Sri Lanka's system of trade taxes and tariffs on food import is complex, with a multiplicity of taxes, year-to-year and within-year variations, and lack of uniformity.
xii. Non-tariff barriers, logistical and infrastructure constraints, stringent rules of origin, lack of supply capacity of Sri Lankan exporters and lack of information about the concessions offered under these trade pacts among the business community.
xiii. Introduction of high export taxes (cess) on raw material such as tea, cinnamon, coconut and spices with the notion that this would increase value addition of exports but discourages the production of exportable products.
xiv. The poor performance on trade logistics.
xv. Although all laws and regulations are published in the official gazette, they are not readily available to the trading community.
xvi. The absence of a central repository of information on laws and regulations for importing and exporting, cumbersome and discretionary application of the rules, and infrastructure weaknesses.
xvii. Poor diversification of agricultural exports.

CHAPTER 10

CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

Important conclusions drawn from the analysis are presented in this section under different sub headings. The issues and knowledge gaps are described in detail in the previous chapter.

10.1.1. Rice, other field crops, vegetables and fruit sectors

Structural changes in the food marketing system in Sri Lanka have taken place especially with regard to rice. The traditional rice marketing system is unable to compete with the modern rice marketing system and the effect of this is development of an oligopolistic market structure in the rice market is a national issue today. Unlike in the case of rice, although structural changes in the marketing of other crops are taking place, the traditional marketing system still shows dominance.

The operation of the vegetable marketing system is favored by the traders due to the market power in price determination especially during main harvesting season. Traders adopt the variable pricing principle, keeping higher margins at main harvesting season and lowering it during the lean supply season. Although this mechanism favors price stabilization, the famers are not benefited.

The marketing margin of vegetables shows an increasing trend towards negligible value addition indicating low operational efficiency. This is mainly due to the absence of channel competition and limited agro entrepreneurs to undertake innovative marketing strategies elevating it to the next level. The behavior of traders is having adverse effects on the farmers resulting in decreasing the farmers' share over time, instead of improving efficiency. In this backdrop, it can be seen that agro-value chain players lack business orientation and collaboration towards achieving the common goal of maximizing profit through customer satisfaction.

10.1.2. Spice and floriculture sectors

The traditional spice marketing system is based on exporting of primary products in bulk form to India and other Asian countries. In the event of supply exceeding the demand, Sri Lanka cannot compete in the global spice market and clear its stocks unless a strict quality control system is exercised. It was also revealed that the intrinsic quality of Sri Lankan spices has not been used as a marketing tool in the export market. Similarly, low or non-usage of agrochemicals in the production process is also a good marketing

tool which has so far not been made utilized. It was revealed that the absence of a legally enacted institution to deal with trade related matters is a serious weakness and has to be rectified for the betterment of the spice industry.

In the upcountry area approximately 150 growers are involved in the cut-flower trade. Some of them have links to buyers and hence marketing is easy. The flower production is weather dependent and during rainy seasons production is low. On the other hand, the demand also fluctuates, with it increasing during the festive seasons and on the eve of wedding ceremonies. Linking of producers and buyers was unsatisfactory. The present export rules and regulations are not export-friendly. The advantages of the year-round cool climate in the hill country have not been used for boosting the floriculture industry in Sri Lanka.

10.1.3. Regional market analysis

In studying the agriculture marketing systems in the region, it was found that the agricultural marketing systems in the region are quite similar due to similar geographical and socio-economic conditions. Public interventions in agricultural marketing are popular in the region while long term consistency of these interventions is not observed. Though price support systems aiming to benefit both producers and consumers are popular in the region, the importance of price support systems is gradually growing less at present. It is observed that the use of modern IT infrastructure in facilitating agricultural marketing activities is getting popular. Popularity of Agricultural Marketing Information Systems (AMIS) is also increasing, while web-based marketing platforms are introduced in many economies in the region leading to decreasing numbers of actors in agricultural value chains. Food labelling integrated with modern technology also plays an important role in present agricultural marketing systems in the region. Use of QR Codes that ensures traceability of agricultural produce down to the famer level have increased the consumer confidence in the agricultural products. Intervention of the government in ensuring quality standards in food marketing is important as the quality improvements have led to increased popularity of certain brands not only in local markets, but also in the international markets. These quality brandings have taken place from production, transportation, storing stages and to the retail trade.

The study also found that there are a number of public institutions established for assisting the agricultural marketing systems in countries of the region. However, the efficiency and effectiveness of these public institutions are often questioned. Provision of the e-warehouse receipt system is a noticeable improvement in agricultural marketing in the region. Though there are several trials and errors in the use of farmer cooperatives in agricultural marketing in the region, the formation of agricultural cooperatives

is still seen as relevant in the area of agricultural marketing. However, farmer companies have also been introduced in place of farmer cooperatives at present. Nevertheless, strong farmer cooperatives have benefited the farmers substantially.

There are several factors identified as key successes in agricultural marketing in this region such as: i) use of low-cost, effective modern technologies in marketing, ii) strengthening the cooperation among small farmers, iii) availability of improved and dedicated transport and logistic facilities for farmers, iv) government intervention in quality guarantee programs and v) public sector's role as a facilitator in the marketing process rather than being directly involved as a trader.

10.1.4. Agricultural exports

Sri Lanka's policy framework has been conducive for exporting, although exports remain limited and the competitiveness of agricultural products in the world market is not in a satisfactory state. Export products and markets have not diversified and the penetration of the world markets through Sri Lankan trade names, trade promotion, and certification measures have been very slow, i.e., export composition is stagnant and dependent on a few low complexity products. The major reasons for low export performance is attributed to heavy dependence on a few export markets and high dependence on imports to meet the domestic food requirement. This may be due to the fact that exporters have a poor knowledge of niche markets. In addition, Sri Lanka has not been able to adjust to the world market requirements of agricultural products to cater to the changing demand. The value addition in the value chain is very low, and produce deteriorates as it changes many hands from farmer to consumer.

The performance of the export segment of the agricultural sector was not satisfactory due to various reasons, among which the changes in agricultural and other related policies due to changes in governments and ministers and poor interconnection and coordination among the related ministries and institutions could be highlighted. Silo based environment also played a major role in hindering the development of those sectors. Research and Development (R & D) activities, have mostly been carried out without having a clear understanding of market demands and customer requirements. Therefore, Sri Lanka has failed to diversify its export products as expected.

Sri Lanka has the most complicated tariff system and traders complain that they have to face many Non-Tariff barriers, Para-Tariffs, Procedural Obstacles (POs) and Trade Related Business Environments (TBEs). Para-tariff dispersion leads to prices that distort production and consumption patterns, create a major anti-export bias by significantly increasing nominal protection and prices of imports. Adding to the trade

policy complexity, the addition of para-tariffs, including import surcharges, results in the policy framework becoming even more distorted and ad hoc. Trade barriers also make it difficult to access world class inputs at competitive prices thus reducing the ability of firms to compete and integrate into global value chains and regional value chains. Non-tariff barriers resulted in poor performance in FTAs. Positive results of CESSes have not been identified. The poor performance in trade logistics has led to weak integration into global production networks. One of the major issues related to investment in trade and related activities is the poor performance of trade logistics and FDI.

In the case of Sri Lankan agricultural exports such as coconut, cinnamon, cloves and nutmeg, the traders have to comply with strict technical regulations applied by various countries to import from Sri Lanka. Where organic products from Sri Lanka to the EU are concerned, EU buyers need to obtain a special import authorization for organic products which is costly and time consuming for EU buyers. Sri Lanka has not been classified by the EU as an equivalent country in terms of an organic regime. Sri Lankan exporters of organic foods depend on very few authorized buyers and therefore traders cannot diversify across them.

10.2. Policy recommendations

10.2.1. Overarching recommendations

10.2.1.1. Short term - New Policies

1) Sustainable informal farmer collective action

In addition to formal collective actions, informal collective actions should be promoted because they are more successful in Sri Lanka and Central America. The lead farmer-business model implemented by the supermarket in Central America is successful due to the low costs incurred by the supermarket. In this model, supermarket has a link with the lead farmer who is responsible to provide required quantity with assured quality. The lead farmer has a network with other farmers. In Sri Lanka, the Cargills business model has registered farmers without written agreements and is functioning well mainly due to the strong business trust established between farmers and Cargills by paying higher prices, providing technology and credit facilities. The other Sri Lankan supermarkets can also apply the lead farmer-business model.

2) Strengthening of warehouse receipt financing system (WRFS)

In addition to the direct government purchasing, the warehouse receipt financing system is in operation in many countries including Sri Lanka to control market supply at harvest time. The experience with African counties found that the participant farmers' income increased 94% and 98% of the farmers used

warehouse receipts as collateral to borrow loans. Further, it was reported that the loan recovery rate is 100%. A study carried out in 2019 in India found that the WRFS is a profitable strategy for farmers and its success factors are: electronic warehouse receipts, licensing farmers, inspection body and creating an indemnity fund. However, the system is not operating effectively in Sri Lanka and only 6.2% of the storage capacity of 48,000Mt was used by 2104 farmers during the period from 2015 to 2019. Discussions held with relevant stakeholders revealed that the lack of awareness, poor access to banks, transport difficulties and ad hoc pricing policy are major causes for poor adoption by farmers. It is proposed to implement this program in collaboration with farmer organizations. It is also necessary to link organized transporters to the system like India. Similarly, attention should be given to enforce new laws and regulations on the warehouse receipt financing system similar to other countries such as India, Indonesia and USA, that gives legal recognition to the system and supports the enhancement of confidence of the participants, including banks and buyers. Cooperation between farmer, warehouse operator, bank, government and buyer is a prerequisite to the success of the warehouse receipts financing system in the country putting in place an efficient and effective Public, Private and Peoples Partnership (PPPP).

3) Interconnected, Coordination and Collective Actions

A Silo based environment has played a major role in hindering the development of the export sector. All the agricultural related ministries, export promotion boards and other agencies related to export, should work hand in hand to develop and capture the export market. A one-stop shop for everything or locating all the relevant agencies in one building would unify the inspection of relevant agencies into a single window inspection. Delays, informal payments and other inconsistencies, arbitrary behavior of officials mostly at Customs Department, Port Authorities and other relevant institutions should be minimized.

10.2.1.2. Short term - Policy Reforms

1) Agricultural policy formulation

Sri Lanka has several policy documents that include marketing policies. Most of them duplicate one into another due to formulation of new policies without reviewing the existing policies. Sometimes, new policy documents have been prepared when the Minister changed during the same government. It is also very rare to prepare a functional plan to implement the strategies given in the policy documents. There were few functional plans but many of them were not monitored. Regional experience shows that counties have good planning and monitoring systems. India is now implementing the 13th economic development plan while Malaysia is executing the 12th economic plan after independence. The planning process starts well in advance and all the stakeholders are involved in planning. Moreover, annual monitoring takes

place and progress reports are submitted to the parliament annually. A new plan is prepared for every five years. In Sri Lanka the National Planning Department (NPD) is responsible for preparing and monitoring of economic plans including agriculture. At present, NPD prepares a Public Investment Program (PIP) continuously but there is no implementation and monitoring mechanism. There should be a functional plan explaining activities, responsible agencies and timeframe to realize the plan. Similarly, there should be a sound monitoring system. Either the NPD or the proposed Planning and Implementation Commission under the President as envisaged in the Vistas of Prosperity and Splendor, can be a responsible agency for planning, implementing and monitoring of agricultural marketing policies.

2) Market led production planning

Although the need for commercialization of agriculture was proposed in several policy documents, it has not been achieved to satisfactory levels. In this regard, agriculture should be converted to agribusinesses and farmers into agro-entrepreneurs in accordance with the competitive economic environment. Similarly, the production oriented extension system should be transferred to a market oriented extension system. The extension service should be able to guide what to grow, when to grow, how to grow, when to sell, how to sell and at what price. The marketing pull approach is an innovative approach as against the marketing push approach that impels producing a product and then pushing to the consumer. Hence, there should be a market led production plan monitored by Agrarian Service Centers (ASCs). ASCs should be upgraded as business development centers. Agricultural graduates should be absorbed to the extension service and responsibility should be given to them to develop agriculture, including the marketing aspects in the designated area. The monthly requirement of production of each commodity can be estimated by taking data on per capita consumption and population from the Department of Census and Statistics. The monthly extent required to produce the quantity can be computed with the average yield of each crop. Having identified the required extent, it can be allocated for each ASCs considering agronomic factors such as soil and climate. ASCs should monitor the production plan and report to the divisional agricultural committee chaired by the Divisional Secretary who is responsible to report to the District Secretary. Thereafter, the information should be passed to either the NPD or the proposed commission at national level.

3) Simplified tax structure

Another important policy instrument must be to simplify the tariff structure of the country as a customs tariff with a limited rate and only a few exceptions, which will not only facilitate cargo clearance, reducing time and costs but also improve revenue collection and administration. Binding a tariff is considered

favorable for international trade as it gives potential exporters and importers a level of certainty they otherwise would not have. Enhancing the scope and the level of their bindings would increase predictability to the trade regime and would help to improve the business environment. Similarly, export taxes on agricultural commodities need to be revisited as the rationale behind them is no longer clear. CESS should be transferred to the relevant institutions to meet the objectives of imposing a CESS and it should not be imposed on value added exports, but should be limited to encourage export value addition. Streamlining computation of various border taxes, conversion of specific duties into ad valorem to enhance transparency, passing WTO consistent remedial measures such as anti-dumping, countervailing, and safeguard measures without resorting to para-tariffs are some of the other policies that Sri Lanka should adopt accordingly. Domestic equivalent taxes (that apply to imports as well as domestically produced goods) should be harmonized into a single tax and gradually abolished. This should apply to the Nation Building Tax and the Special Commodity Levy. This can be done in a separate tax reform package to simplify the tax code. The latter should be based on a small number of direct and consumption-based (VAT) tax instruments, not a paraphernalia of additional taxes.

4) Improve Market Intelligence

Sri Lanka has poor market intelligence for new market links, niche markets, prices, technology, potential markets, SPS testing requirements, export procedures, logistics, and raw material supplies. Most importantly public private partnerships are highly inadequate. Small companies that struggle with strict requirements may require better access to information about technical measures which are available domestically and abroad. The country does not have a solid information base for providing information on value added industries and for identifying new investors for large scale high-tech investments.

5) Export Product and Market Diversification

It is imperative for the government to formulate the long-term trade policy as an integral part of a comprehensive agricultural development strategy for the country. Product diversification, product differentiation, quality differentiation, value addition and value creation, focused differentiation, adoption of strategies like blue ocean strategy, shortening supply chains, investment in trade and related activities, the poor performance on trade logistics and FDI, promotion of organic agriculture, investing in new production processes to improve quality and reliability, adopting new technologies to identify ways in which they could compete in the global markets, diversifying its export base to processed agro-products in which the country has a comparative advantage beyond tea, rubber and coconut, investing on GMP and GAP, upgrading the infrastructure facilities for quality improvements while providing low cost testing

and other facilities evenly within the country and Introduction of Block Chain Technologies, would lead to growth in exports.

10.2.1.3. Short term - Policy Adjustments

1) Agro-product branding

Since Sri Lanka has now reached the high-middle income country status, consumers tend to prefer to purchase safe, nutritious, convenient agro-products. In this backdrop, product branding can be promoted as a marketing strategy to increase demand for agro-products. It is an innovative as well as competitive marketing strategy used to differentiate the product among competitors. Innovative agro-entrepreneurs in the country such as rice millers (Nipuna, Araliya Newratne, etc.), food processors (Raigam, Smack, etc.) and dairy producers (Hodahitha) have already used brandings and they are highly successful due to growing brand-loyal customers. In Sri Lanka branding is not popular in the global agro-food value chain, except with regard to tea, because the country mainly exports unfinished products. It may be worth applying branding in cinnamon exports because Sri Lanka is the number one producer contributing around 70% of the world production with an intrinsically high quality product. It is also possible to adapt branding Sri Lankan spices to its consumers create demand for branded products. Promotion of branding for export is proposed in the Vistas Prosperity and Splendor policy. Promoting geographical and general branding of Sri Lanka products is needed to differentiate Sri Lankan brands.

2) Providing output subsidies

As practiced in other countries, where the governments provide subsidies based on farmers' production outputs, especially as a middle income country, it is time for Sri Lanka to resort to providing output subsidies. This will encourage higher production and facilitate a better basis for operationalizing, although can be complex in some angles. Since it is a pull factor as opposed to the current push factor, which is certainly better, it and should be encouraged. This can be implemented to promote organic products as a pilot basis.

3) Promoting organic products

Organic products that will fetch better prices at niche local and foreign markets should be promoted. The Good Market in Colombo and some of the foreign companies located in Sri Lanka and abroad encourage Sri Lankan farmers towards organic cultivation and facilitate specialized farmer cooperatives along with technical and managerial capacity building. They also support Fair Trade certification required by the European markets. This could be incentivized and facilitated with a special division of for Organic

Agriculture by the Department of Agriculture and Department of Export Agriculture encouraging this sustainable and healthy alternative.

4) Facilitation in getting organic certifications

In the case of Sri Lankan agricultural exports such as coconut, cinnamon, cloves and nutmeg, the traders have to comply with strict technical regulations applied by various countries to import from Sri Lanka. When organic products from Sri Lanka to EU is concerned, EU buyers need to obtain a special import authorization for organic products which is costly and time consuming for EU buyers. As Sri Lanka has not been classified by EU as an equivalent country in terms of an organic regime, EU buyers are motivated to buy from EU or EU equivalent countries. Therefore, Sri Lankan exporters of organic foods depend on a very few authorized buyers and therefore traders cannot diversify across them. The solution is to get certification from an authorized body recognized by the European Commission. The domestic bottleneck in testing and certification infrastructure should be improved.

10.2.1.4. Medium term - New Policies

1) Promotion of agro-entrepreneurship

Since Sri Lanka is in shortage of agricultural entrepreneurs, value addition and competitiveness has been major issues for decades. The impact of this is severe in terms of meeting domestic demand and promotion of exports. The Global Value Added Index and Competitive Index ranks Sri Lanka below India, Malaysia, Philippines and Thailand and just above the Bangladesh and Nepal. Many countries such as India and Indonesia established business incubation centers to promote agricultural entrepreneurship. There are few entrepreneurial degree programs currently being conducted in the state university system (i.e. Uva Wellassa University, Wayamba University and Jayawardanapura University) and these degree programs could be extended to the other universities for increasing the student intake of entrepreneurial degrees. Furthermore, already established University Business Linkage Cells (UBL Cells) of the universities can be utilized as a vehicle for promoting agricultural entrepreneurship among the young undergraduates while promoting the value addition to the agricultural products and these UBL Cells should prioritize agricultural entrepreneurship as one of their high priority areas. The universities could restructure some of these courses as business and entrepreneurship certificate or diploma level courses targeting especially the farming youth and others and expanding opportunities to the general populace. Enhancing youth specific incentives to attract youth to agribusiness is also a complementary need.

2) Introduction of digital marketing platform for economic centers

Most of the agricultural products are distributed through dedicated economic centers. Operational efficiency of economic centers which is the key in the modern marketing can be improved by introducing an electronic marketing system similar to that in India (e-NAM) as detailed in this report. In this system island-wide economic centers and other related centers could be electronically linked where farmer's products are listed and registered electronically, auctioned with the payments are also being conducted online, and the products are transported by the organized transporter network. This system of nationwide electronic marketing platform for agricultural products can be initially introduced to the DECs and later it can be extended to the other local areas connecting DECs. Below Figure 10.1 explains the proposed digital marketing platform for economic centers.

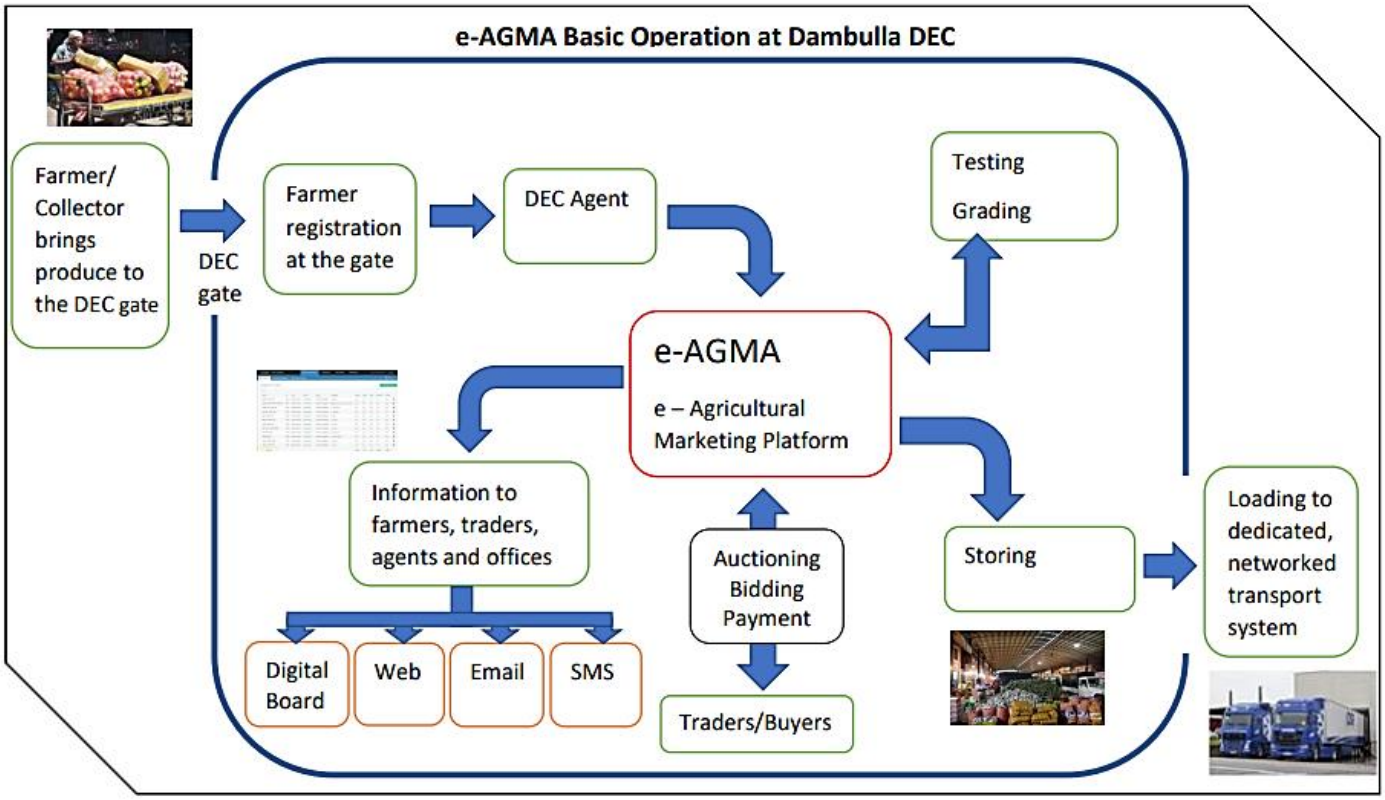

Figure 10.1: Proposed e-AGMA Basic Operation at Dambulla DEC

This system will be operated at all the DECs of the country and all the DECs will be electronically linked by the e-AGMA. All transactions will be visible to all the stakeholders via real time portals as well as emails and SMSs. Selected crop varieties such as non-perishables can be introduced to the system in the pilot testing and thereafter other produce can be included with the success.

3) Direct marketing

Traditional commodity marketing channels do not provide adequate returns for farmers to maintain a viable livelihood. Direct marketing to consumers allows farmers to obtain a higher share of the consumer price. However, this opportunity is not yet tapped by many farmers despite being potential consumers within the community. Under the Community Supported Agriculture (CSA) System practiced in many countries farmers directly sell products to the community. Farmer markets, agro-tourism and virtual markets are widely used direct marketing tools today in the world. Sri Lanka needs to popularize this aspect through a facilitation role played by the Agricultural Research and Production Assistants (ARPAs) assigned to each village.

4) Simplification and automation of documentation

Active involvement of the Chambers of Commerce and industry associations in simplifying and automating documentation, certificates of origin, and other steps in import/export processes, progress in aligning national procedures and documentation with international standards and conventions, tailoring trade facilitation measures in support of cross border production networks, especially in support of SMEs, identification of backend production opportunities are the steps needed to realize these objectives. Simplification of customs procedures and the paper work through improved cross border infrastructure and transport protocols would further facilitate trade. Apart from these aspects, an online network for traders, trade fairs and exhibitions, establishment of cross border banking facilities, easier access to credit and banking system reduction in sensitive lists, relaxing RoOs and establishing an effective mechanism to deal with NTMs and NTBs would create a conducive environment for trade. Improvement and extension of the use of electronic customs systems and expansion of the general cargo handling capacity are also necessary.

5) Education on Post-harvest management

Sri Lanka should educate farmers on post-harvest technologies especially storage and preservation. Sri Lanka's famers lack this knowledge and technology and suffer larger post-harvest losses and quality level losses. As an example, some products require pre-cooling while transportation to reduce post-harvest and quality losses, some require cold storage and some do not have this requirement. This knowledge and practice should become a core to optimize benefits of the production. The establishment of cold storage facilities linking them with the above mentioned WRFS could be advantageous.

10.2.1.5. Medium term - Policy Reforms

1) Agricultural value chain upgrading

The current agricultural value chain is characterized for being long, fragmented and non-transparent. Traders hide their margins. Every player in the chain must know all the transactions taking place in the value chain. A well-functioning value chain requires business trust and collaboration of each player in the chain. The proposed mechanism to rectify this situation is the development of public-private partnerships (PPP). Although it is becoming popular now and is implemented in Sri Lanka, the Germen Development Institute (GDI) suggested the same in 2006 to promote effective agribusiness in Sri Lanka. Although the PPP approach is being implemented in Sri Lanka, its success is doubtful mainly due to the absence of transparent information flow. Hence, it is proposed to implement a transparent information flow on quantity, quality and price to establish business trust among players through the block chain technology. There should be effective and efficient agro value chains to reduce costs, to produce value added and convenient products for local and export markets.

2) Transportation of Agro-products through railway

Value chain analysis shows high transport costs. This can be reduced through rail transport which is in operation successfully in India (Banana Train) as explained above under the regional success stories. Transport costs are reduced to one-third with rail transport in India. In Sri Lanka flower and vegetable transportation takes place on individual basis in a small scale using the railway. Transportation of agricultural commodity through the railway is one of the proposals given in the Vistas of Prosperity and Splendor policy document as well. As a pilot project this can be implemented using Jaffna to Colombo railway route and the lessons learnt could be used to expand to other routes and the creation of new strategic routes. Using the existing infrastructure, as a start, a dedicated but technically upgraded cargo wagon can be introduced to a regular train, while later it can be extended to a dedicated train for agricultural product transportation. As the long-term benefits are high costing of this transportation system can be done in a competitive manner.

3) Government procurement system

Although open economic policies are implemented in many countries, there are government organizations in the region involved in agricultural marketing such as the National Food Authority (NFA) in Philippines, Indonesian Bureau of Logistics (BULOG) in Indonesia, Federal Agricultural Marketing Authority (FAMA) in Malaysia and National Agricultural Cooperative Marketing Federation of India Ltd (NAFED) in India. However, in Sri Lanka the only marketing related government institutions is the Paddy

Marketing Board (PMB). PMB exists for the sole purpose of purchasing of paddy. PMB was established during the close economic period and continues upto now operating at a loss. It has been proven that the private sector is not operating agricultural marketing systems effectively mainly due to lack of interest and high costs. It is also argued that the existence of government organizations has a big impact on agricultural marketing because it gives a signal of "government readiness" to the private businessmen. Nevertheless, the Stainable Procurement Systems (SPS) are established and practiced in many countries in order to minimize their adverse impacts on the Treasury in one hand and to improve food security, employment and livelihoods in the other hand. Denmark and Sweden introduced the Green Procurement System (GPS) to promote green products. African countries such as Malawi and Ethiopia provide school feeding programs through government procurement. The public distribution system in India is linked with the public procurement. Thailand has a system of providing requirements to government institutes such as hospitals and the forces through government procurement. Similarly, the government procurement system is now operating in collaboration with Small and Medium Enterprises (SMEs). Based on these success stories the government procurement system in Sri Lanka should be revised to maintain a SPS. Farmer organizations can operate as collecting centers of the PMB and medium and small mills can process paddy into rice. The PMB can distribute rice to the government agencies at a price on par with the open market. It is also necessary to revise the PMB Act enable it to procure other agricultural products including organic products. The PMB can be renamed as the Food Marketing Authority (FMA) and effectively function as the apex body for food and agriculture marketing in Sri Lanka. This will help fill an important gap in the system.

4) Promote multilateral trade and customs union

The countries in the customs union usually restructure their domestic economy and economic policies in order to maximize their gain from membership in the union. It has its own advantages and disadvantages. It increases in trade flows and economic integration. It increases trade between member countries. It helps improve the allocation of scarce resources that satisfy the wants and needs of consumers and boosts Foreign Direct Investment (FDI). The presence of a common external tariff in the customs unions helps avoid problems that arise from tariff differentials. The customs unions eliminate the need for some regulations and customs checks at the border. It is easier to negotiate trade deals as a large economic block. Trade deals take a long time. A customs union is an important step towards closer to economic integration and a single market.

10.2.1.6. Medium term - Policy Adjustments

1) Sustainable formal farmer collective action

Farmer organizations have been in operation since the 1980s in different forms such as farmer organizations, producer groups, farmer cooperatives and farmer companies, developed mainly through donor assistance. They operate under different agencies such as the Department of Agriculture, the Department of Irrigation, the Department of Agrarian Development, the Department of Cooperatives, the Export Development Board and the Mahaweli Development Authority. However, their sustainability is questionable. Successful farmer organizations were not found during the course of the study. However, collective farmer actions either formal or informal are needed to solve marketing problems faced by farmers to increase their livelihoods. Success stories especially in Central America and Mexico show the need of continual government support as generally, there is a long time lag (seven years in some cases) to achieve self-sustenance by the farmer organizations. Also, experiences in Japan and Korea pointed out the need of vertical integration for the effectiveness and sustainability of farmer organizations. Success stories of producer companies established since 2002 in India reveal that commitment of both members and staff is the major success factor followed by participation, communication and managerial skills. In India, Small Farmers' Agribusiness Consortium (SFAC) established in 1994 by the Ministry of Agriculture, to act as a facilitating agency for producer companies and farmer producer groups, has shown success.

Considering all these aspects, it is proposed to give full authority to the Department of Agrarian Development to create, develop and sustain farmer organizations because it has the network required for this task and is the legal authority. It is necessary to establish a farmer driven value chain that is capable of competing with existing buyer driven value chains. Poor leadership, lack of entrepreneurship skills and political influence have been identified as reasons for the poor performance of farmer organizations in Sri Lanka and corrective actions have been already made for capacity building of farmer organizations. Evidence shows that providing only training is inadequate and continuous government support is required during the incubation period as mentioned earlier. Further, this could be integrated and incentivized at policy level where farmers value the membership due to the higher benefits, they could reap given the examples of Japan and India.

2) Formula for guaranteed price

Decline in agricultural commodity prices during the harvest time is a critical issue for both developed and developing countries. Introduction of guaranteed price is one mechanism applied in many countries including Sri Lanka. However, setting of the guaranteed price is done in an ad hoc basis in Sri Lanka. There is no price formula and no specific time period for announcing it. It is proposed to adopt a formula that is

cash cost plus imputed cost to the family labor added and incorporate 50% profit which is similar to India. This announcement should be made before planting. The department of National Planning could be a responsible agency.

3) Promoting GAP certification

GAP implementation and facilitation of the certification process is a need across the country to improve product quality and traceability. It should become a core practice in the future. As this is a government function, institutional strengthening to ensure island wide knowledge dissemination and certification is of prime importance to facilitate agriculture exports. This factor is vital for the success in international/niche marketing. Sri Lanka regulations should harmonize with international standards for improved marketing. Accreditation of Sri Lanka GAP certification to international standards to match the 'Global Gap' Certification is recommended. If the government authorities such as the Department of Agriculture on their own cannot handle GAP certification supporting farmers across the country, strategically encourage accredited private institutions to disseminate this knowledge, working towards government certification. This could be similar to NAITA's vocational training degree programs disseminated via accredited private organizations.

10.2.2. Specific recommendations, trade policies and facilitation for spices and floriculture

Based on the empirical findings, the following recommendations can be made with respect to spice and floriculture trade policies. Policy recommendations common to spice sector are discussed first and the recommendations for cinnamon, pepper and cardamom are then discussed as they are specific to the crops. Finally, policy recommendations for the floriculture sector are given.

10.2.2.1. Short term – New Policies

1) Creating of a trade information portal as a means of facilitating trade

In order to solve this problem, a 'trade information portal' is suggested, as a means of facilitating trade, through a single user-friendly website. All the producers and users (buyers) should be registered first indicating relevant information such as name, address, contact numbers, email, bank account details, kind of flower species in production, production status, and availability of flowers on a particular day with numbers, varieties and prices of each variety, etc. These details would facilitate negotiations and get the orders done.

10.2.2.2. Short term - Policy Reforms

1) Strengthening interagency cohesion to facilitate value addition and marketing of spices

Responsibility of the improvement of the spice sector is vested with the government, semi-government institutions and the private sector. As a government institute the DEA assists in the cultivation of spices, improvement of the productivity of the existing cultivations, and value addition and quality improvement. The Department of Agriculture mediates issuing of quarantine certificates while Department of Customs enables exporting and importing spices. The EDB, as a semi-government institute, does a role of trade facilitation. The Spice Council and Spices and Allied Produce Producers' and Traders Association (SAPPTA) comprises of large-scale producers and exporters of spices engaged in marketing activities. A cohesive mechanism to facilitate and interact in relation to marketing in the spice sector and its needs among these agencies have to be worked out.

2) Marketing of quality attributes of pepper

The worlds' best pepper is produced in Sri Lanka owing to its intrinsic characteristics. Rather than selling pepper as a commodity, products have to be differentiated and sold quality-wise. The quality can be determined in two ways: according to the bulk density (liter weight) and piperine content. The bulk density increases with maturity, therefore farmers should be encouraged to delay harvesting until 6.5 months after flowering, then only the desired bulk density is >530 g/liter can be obtained. Piperine content of Sri Lankan pepper is always above 8.0%. The requirement of piperine for the most consuming countries set as 6%. Sri Lanka has a high opportunity to sell its products indicating the content of the piperine and value the products accordingly and optimize the export earnings.

10.2.2.3. Short term - Policy Adjustments

1) Establishment of Marketing linkages

It is recommended to introduce potential buyers in the private sector to farmers, from the crop establishment stage up to marketing. Linking an exporter to a farmer group has many advantages such as traceability at the time of exporting. The exporters can guide farmers on the production process and collect produce of export quality, inputs and machinery may be granted to build up good rapport and buy back of the produce at a competitive price.

2) Trade promotional missions

Trade promotion campaigns are important to popularize Sri Lankan pepper and cinnamon abroad. The government should extend facilities to our businessmen to participate in international fairs and exhibitions. As practiced in India, grants should be made available fully for potential exporters to

participate in exhibitions and trade fairs, brand promotion and sending samples for trade promotion, etc. The government is expected to finance the propaganda, web-designing etc. In India there is a separate department for coordinating marketing. A similar institute is suggested with sufficient funds for marketing activities.

3) Regional restriction on markets due to blanket restriction on sale and use of Carbofuran

Revisions are required to introduce alternative nematocides in place of Carbofuran in the Act (The government extraordinary gazette No. 1894/4 of 22/12/2014 under the Control of Pesticides Act No. 33 of 1980). Due to the belief that the Unidentified Kidney Disease (UKD) of the dry zone was associated with the use of Glyphosate its import was banned. As a result, the cut-flower and foliage export to Australia was terminated because Glyphosate is the only dipping treatment permitted by Australia (Ban of importation of Glyphosate by the Government Extraordinary Gazette No. 1813/14 of 5-6-2013 under the Import and Export (control) Act No. 01 of 1969). Sri Lanka lost the export potential to Australia as they selected other compliant suppliers. It may be better to study sector by sector and make necessary amendments in the gazette to allow Glyphosate usage and/or conduct country to country negotiations on this aspect for alternative compromise to this large and potential market.

4) Strengthen inter-agency coordination for the betterment of floriculture industry

The Department of National Botanic Gardens has created nearly 200 societies called 'Suhas mal samithi' having 7,000 members (Annual Performance Report of Department of National Botanic Gardens, 2017). Almost all of them possess nurseries (propagation units) of cut-flower, ornamental and pot plants. Similarly, the Department of Agriculture also assisted in establishing such societies in Kandy district called 'Liya abhimani' comprising of five societies producing mostly anthurium, orchid and ornamental plants. Its membership is 100 and almost all of them are rural women. Similarly, The Sri Lanka Export Development Board has also started a floriculture village under 'one village one product 'program in the Kegalle district. A number of departments, institutions like Ministry of Self-employment, Department of Samurdhi, Department of Health (for mentally retarded patients), Central Bank and Provincial Councils have also assisted in establishing nurseries of flower and ornamental plants. It was found that these institutions operate in isolation without planning and coordination. Lack of planning and coordination among institutions results in problems such as over-production of plants and difficulties of selling, competition among fellow-growers for marketing and non-uniformity of price setting. There is a foreseen danger that once the production exceeds demand, the collapse of the industry would occur owing to restricted selling opportunities. It is a timely requirement to bring all the institutions together and to form

a one apex/coordinating body, preferably under the leadership of the Director General of the National Botanic Gardens Department, and decide on how to expand the industry.

10.2.2.4. Medium Term - New Policies

1) Establishment of laboratory facilities

When spice products are exported to European countries, the USA and Japan, quality certificates are mandatory. Sri Lanka has two accredited laboratories, one is semi-government and the other is a private one, for testing quality parameters and issuing certificates. The high cost of certification prevented medium scale enterprises from getting their services. Delays in getting certificates were also have been experienced. Two more well equipped accredited laboratories would solve this problem, and at the same time the certification cost can be reduced if the government gets involved in this development.

10.2.2.5. Medium term - Policy Reforms

1) Enforcement of Export Agricultural Promotional (Revised) Act of 1992 No.46

It has surfaced from the study that trade malpractices have undesirably affected spice marketing, such as when there was violation of SAFTA and illegal transshipment of Vietnamese pepper as Sri Lankan. It was seen that there was no legal body to prosecute the errant traders and exporters. The Act of 1992 No 46, contains clauses that enable legal actions against defaulters of law by authorizing the Department of Export Agriculture (DEA). It is a timely requirement to enact the act and make regulations to streamlined to spice industry and spice trade in particular, in the country. Absence of an apex body for dealing with matters related to spices is a weakness. Empowering of the DEA legally is the solution for preventing interference of other institutions in the spice trade.

2) Creating a 'single window' license issuing body to facilitate spice exports

A number of institutions are involved in granting clearance one it has to be obtained before a spice container is exported. The DEA is responsible for observing the goods and issue a letter certifying that it has originated in Sri Lanka. The plant quarantine certificate is issued by the quarantine division of the Department of Agriculture. The 'Country of origin' certificate is issued by the Department of Commerce. In addition, a clearance has to be taken from the Department of Inland Revenue, Import and Export Controller and the Customs Department. It was found that there was no coordination among the departments in giving necessary authorizations for exporting spices.

Digitization and the issuing of E-certificates is also a good option to minimize cumbersome license obtaining procedure, reduce malpractices and improve coordination among institutes and establish transparency.

3) Approaching niche markets

Except cinnamon (Sri Lankan true cinnamon share in the global market is 80%), the share of other spices in the global market is negligible. Pepper contributes around 4% of world demand whereas other spices share even less than 0.1%. However, Sri Lanka is renowned for having spices of high intrinsic quality. There are two niche markets which are possible to be penetrated *viz*., organic market and fair-trade product market. The organic certification process should be expanded step-by-step at least to cover 75% of the present pepper extent. This is because, the price volatility is less pronounced on organic pepper and consumers world-wide prefer to buy organic products. Since the conversion period from conventional farming to organic farming takes as high as three years, in order to facilitate certification, the villages where pepper is cultivated organically, has to be identified and record keeping process should be started beforehand. It is advisable that the government's fertilizer subsidy program is not extended to spice crops, other than cinnamon, as it disrupt organic and sustainable growing of spices in the country. Alternatively, the promoting of an organic manure supplying program is recommended.

Since 90% of our spice farmers are smallholders (EAC Stat Book, 2018) obtaining fair-trade certification is a feasible solution to face price volatility of spices and unexpected price drops. High certification cost of fair-trade is the negative factor that prevents the implementation for an extensive certification program. It is proposed to allocate 75% of the certification fee as a subsidy by the government, while the balance to be paid by farmer organizations.

3) Introduction of value added products to market

Approximately 75% of our pepper exports take place as primary produce without value addition, in bulk form. Pepper extractives such as oil and oleoresin have a specific market mainly in Europe for manufacturing pharmaceutical and fragrance products. Value addition is an important concept since value added products are less subject to price volatility and boost income of the producers in comparison to primary produce. The white pepper price is always 60% more than heavy pepper berries. When Cost of Production (COP) is deducted producers get nearly 30% more profit from white pepper.

According to the sauce makers four times profit can be reaped by making sauce using black pepper and green pepper. However, marketing is difficult locally.

Another value added product which has a demand in supermarket channel is curry powder mixtures. This market is captured by large scale producers. The reasons for difficulty in entering to supermarket channel are high profit margin kept, which is 30% and postpone of payments up to three months.

'Spent pepper' is a bi-product, which yields after oil extraction. It was found that this precious product is wasted without proper use. The minute quantity of Piperine in the spent pepper can be used for blending purpose to prepare 'low-pungent pepper', aiming at the Europe market.

Nano technology can do miracles in the spice industry for the invention of products in the pharmaceutical and cosmetic production fields. More allocation of funds is recommended for research in this field and coordination of institutes is also needed.

4) Obtaining Geographical Indication (GI) certification for cinnamon and pepper GI for cinnamon

The Ceylon cinnamon has specific quality linked to origin on the following key-points (Ceylon cinnamon, 2013). Ceylon cinnamon is the world reference for quality and high value with a specific organoleptic characteristics. Traditional knowledge is used in harvesting, peeling, drying, quills making and re-drying.

As a means of protecting identity of Ceylon cinnamon against misleading products, and to promote the specific and high intrinsic quality of the product, The Spice Council and Export Development Board have developed a strategy for protection of the brand 'Ceylon cinnamon'. The strategy extends to threefold protection: first, through a certification trademark registered in Sri Lanka, second, in registering the trademark in several export countries, and third, in preparing the registration as geographical indication both as an appellation of origin under the TRIPS (Trade Related Aspects of Intellectual Property Rights).

A GI is needed not only for safeguarding the Sri Lankan identity but also to prevent illegal trade. An illegal import of Madagascar cinnamon was detected in Colombo harbor threatening our cinnamon industry. The government took prompt action to ban all sorts of cinnamon imports to country. It is recommended to expedite and follow-up GI registration procedure.

GI for pepper: Cambodia sells its pepper to Europe under GI certification and draws a good income. Fall of global pepper prices does not affect to this country. GI certified pepper is highly priced and is not much affected by price fluctuation.

High flavor and pungent characteristics of pepper have been identified in region-wise of Sri Lanka. For example, Rattota, Walapane, Rakwana, Badalkumbura and Kandaketiya have been identified as quality pepper growing areas. Inherently high quality pepper comes from these areas and more than 90% of lands are covered with pepper of local varieties, having a piperine content exceeding 9% reflecting high quality.

Since the Dutch era, cinnamon has been prepared like bales comprising 42'' long quills by joining bark pieces. No attempts were taken to change this form and with great difficulty produce is being prepared and exported with a number of grades. Determination of grades is also a difficult task and nobody knows

for sure which grade is most demanding at a time in the global market. Therefore, fluctuation of prices was observed for different grades incurring a loss to the growers at the time of lesser demand.

It is suggested that the time has come to negotiate with the main importing countries such as Mexico, Columbia and Peru, etc., for exporting dried bark pieces instead of bales at a lower price. In order to do it government-to-government negotiation the missions in those countries must be used.

Diplomatic intervention is also needed to find new markets, in addition to the traditional existing markets. Europe and China are emerging markets. Absence of coumarin toxin in our cinnamon compared to the cinnamon substitute cassia is another marketable attribute which should be used for propaganda. Approaching developed countries through supermarket channels to sell cinnamon as consumer packs is also another option.

5) Initiation of a large-scale cut-flower project in upcountry

One of the biggest constraints that Sri Lanka faces is insufficient investments on large scale floriculture ventures, and does not make most of out of businesses' medium-to small scale enterprises. The cut-flower exports have diminished mainly due to insufficient production, unavailability of flowers in par with international standards and inability of facing high competition among producing countries for price and quality. Our country has year-round cool climate suitable for temperate cut-flowers production on continuous basis since it is not subject to seasonality. These healthy environmental conditions have not been utilized to the national advantage.

There are about 50 cut-flower growers who are mainly suppliers for the local market. More than 10 individuals expressed their willingness to go for intensive and large scale production if lands are given, since land is a limiting factor for expansion of the business. It was found that under-utilized lands are available in Badulla and Nuwara Eliya districts which belong to plantation companies. It is suggested to get released 50 ha of land in continuous blocks to be distributed among potential cut-flower exporters or they work in partnership. The government assistance is needed for improving infrastructure facilities like water supply and a micro irrigation system installation, electricity supply, cold storage facility and erecting net houses, etc. Foreign collaboration is also suggested for required technology, obtaining seed and planting material and arranging buyback of the production.

6) Creating a conducive environment for exporting floriculture products

Involving of number of institutes in the process of plant-growing and exporting of floricultural products, the lack of coordination among the institutes have created problems of exporting products. Similarly,

import restrictions were also observed to the plants belonged to the families of Arecacea, Palmae, Rosacea, Bromiliaceae and as well as for aquatic species, etc. Even though mahogany is a forest plant, it is exported for beatification purpose. The way of looking at these plants, when they are exported as pot plants, should be changed by the Department of Export Agriculture and the Department of Forest. Similarly, all the pandanus spp. are not prohibited to be exported. When export permits are requested from respective departments, officers involved are not sure whether to allow or not allow exporting due to ambiguity of processes and lack of clear guidelines. Another reason is that, for example, the Flora and Fauna Act has not been revised for three and half decades and this needs to be revised to the current context. However, the Export Agricultural Promotional Act No. 46 is in the process of being finalized.

7) Increase exports sharing targets among plant nurseries distributed across the country

The setback of the floriculture industry is associated with reasons within the country and outside our borders as well. Countries like Thailand produced new varieties of anthurium, orchid and other ornamental plants with rapid succession and most of them have been patented. New plant varieties are propagated in mass-scale and made available to entire world through their airlines worldwide. Investment-friendly laws and policies are adopted in Netherland and Ethiopia, etc., and therefore importing and exporting of plants is made easy.

In contrast, Sri Lankan exporters suffer from inefficient procedures at the border. This is reflected by the country's global ranking in efficiency of border procedures, measured by Global Trade Enabling Index. The ranking went down by ten paces within two years, from 87th place (2014) to 97th (2016) out of 136 countries (Sri Lanka's domestic barriers to trade: Case studies of agricultural exports, 2017). It was revealed that investment-friendly policies are also lacking and investors have experienced barriers in getting necessary approvals for exporting produce and delays in receiving approval. Sri Lanka has imposed stringent rules and regulations, as an agricultural country, to protect our plant species from intrusive species of flora and fauna.

Considering the above facts, it is suggested to import plants, re-grow and re-export under direct government intervention and supervision. Since tissue cultured plants are not restricted, the government should intervene and encourage the import of such plants suitable for our environmental conditions. For instance orchids and anthuriums can be distributed among already established nurseries for further growing with the hope of buyback and re-export.

10.2.2.6. Medium term - Policy Adjustments

1) Initiation of demand-driven marketing system instead of supply driven

Spice exports takes place according to the understanding between the buyer and the seller. No quality certificates are needed unless buyer requires one.

Low quality products are marketed mainly in India and Middle East countries. Pepper export to India is 80% of total production. The risk of depending on one country was experienced during recent past when India imposed a minimum Import Price of Rs. 500 for one kg of pepper.

European buyers are actively looking for new suppliers that can meet the requirements such as deliver stable supplies of pepper, both in quantity and quality; comply with delivery time and comply with food safety requirements (htttp://www.cbi.eu/market-information/spices-herbs/pepper). The conditions to fulfill the European market are: sustainable production, minimum agrochemical residual limits, consistent supply, sanitary and phyto-sanitory requirements (microbial qualities) and traceability of producers, etc.

It is suggested to construct large-scale processing centers, installing drying facility, in major spice growing areas similar to technological parks in India so that farmers can obtain the service of these centers by paying a nominal fee and thereby improve the quality of the produce and target the European market.

The 'Export agricultural promotional societies' formed by the DEA should be further strengthened and purchasing of produce should be done from the societies enabling the subsequent establishment of traceability.

10.3 Policy outcomes and impact

Policy outcomes of implementing the aforementioned policy adjustments, policy reforms and new policies related to the agricultural marketing sector, would result in higher agricultural growth rates which are required for sustained economic growth, reduced agrarian poverty, enhanced food security, reduced rural unemployment, increased foreign exchange earnings and the provision of quality products to the consumer safely and conveniently. The policy impact would be a contribution towards the achievement of a sustainable agricultural and food system which facilitate to accomplish the Millennium Development Goals (MDGs).

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