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SUMMARY OF FINDINGS

INTRODUCTION

The Seminar on Improvement of Agricultural Marketing Systems for Enhancing International Competitiveness, which was organized by the Asian Productivity Organization and hosted by the Government of Pakistan, was held in Islamabad from 7 to 12 February 2005. The National Productivity Organization of Pakistan implemented the program. Eighteen participants from nine member countries and six resource persons from Bhutan, Malaysia, Pakistan and Thailand attended the seminar.

The objectives of the seminar were: 1) To review recent developments in fruit and vegetable marketing in member countries; and 2) To identify issues and constraints in improving fruit and vegetable marketing systems in member countries for enhancing their international competitiveness and formulate strategies to address them.

The seminar consisted of the presentation and discussion of resource papers and country papers, as well as field visits and workshop. The topics covered by the resource papers were: 1) Recent trends and future prospects of fruit and vegetable marketing in Asia and the Pacific- an overview; 2) Major lessons learned for enhancing the competitive edge of SMEs in international marketing of fruits and vegetables; 3) Exploring new foreign markets for fruit and vegetables-best cases; 4) Challenges and possible options for small producers to cope with increasing market competition; 5) Issues and challenges in improving fruit and vegetable marketing systems of Pakistan for better international competitiveness; and 6) Productivity management tools for enhanced export competitiveness. The country papers focused on the current status of fruit and vegetable marketing in member countries, as well as issues and constraints in enhancing the domestic marketing system for better international competitiveness. For field studies, participants visited Agricultural Research Institute, Tarnab, Peshawar situated in North West Frontier Province.

The highlights of the Seminar are presented below.

RESOURCE PAPERS

Recent Trends and Future Prospects of Fruit and Vegetable Marketing in Asia and the Pacific - an overview (Mr. Grant Vinning and Mr. Chhime Tshering)

This paper encompasses activities of Asian Markets Research, Australia with horticultural products since 1999. The authors have undertaken export market development and market research activities in nearly 20 countries in the Asia-Pacific region.

From this work they have identified trends that will have an impact on the prospects of fruit and vegetable marketing in the region. The trends that have been identified relate to: 1) The changing consumer; 2) The changing outlets for fruit and vegetables; and 3) The changing method of marketing, 4) The emergence of China as a massive supplier; and 5) The impact of the WTO.

In the main the prospects for fruits and vegetable are good, however food safety, convenience and traceability will determine the future success of fruit and vegetable industry of the Asia-Pacific region.

Major Lessons Learned for Enhancing the Competitive Edge of SMEs in International Marketing of Fruit and Vegetables (Dr. Usman Mustafa)

With the advent of WTO and globalization, agriculture in general and fruit and vegetable in particular have become very competitive. The opportunities and challenges encountered today by international marketers are greater and more diverse than ever before. New consumers are springing forth in emerging markets from Eastern Europe, the Commonwealth of Independent States, China and other Asian countries, India, Latin America, etc. Some of these emerging markets have little purchasing power today but hold the promise of huge markets in future. In the more mature markets of industrialized world, opportunities and challenge also abound as consumer's tastes become more sophisticated and complex. Increases in their purchasing power provide them with the means of satisfying new demands.

Under these scenarios, those will succeed who will be capable of adopting constant change and adjusting to new challenges. This can only be achieved with the help of new knowledge, skill and technologies.

Only those products will be marketed which are low priced with good quality. There is a large scope for the export of fruits and vegetables from underdeveloped countries to developed countries due to reduction of subsidies in these countries and comparative advantages of agricultural production in the developing countries. There will be a competition within the developing countries. Only those countries can harness the benefit, which have an affective and efficient marketing. In this connection we need to increase productivity and reduce cost of production. There is a need of continuous improvement of marketing information and research, development of practical export skills, establishment of reliable supply chain, enforcement of food safety and quality systems, improvement of packing and labeling standards, and intensification of marketing promotion activities.

Exploring New Foreign Markets for Fruit and Vegetables - Best Cases (Dr. Saipin Maneepun)

The markets of fruits and vegetables are dynamic and constantly changing or evolving. Thailand used to play a minor role as a fresh fruit and vegetable supplier in the international marketplace due largely to the limitations in the fundamentals in production, inherent perishable nature of tropical produce, and conservative marketing. Recently the significant volume of export of tropical fruits and vegetables in the regional markets has been explored keeping in view the credibility, consistency and continuity as a supplier. The country has identified longan (*Dimocarpus longan*) fruit as product champion that has great potential in foreign markets especially in Asian countries where they are familiar with taste and flavor. The proposed case study was aimed to examine the possibilities of export of both fresh longan and its products to the target markets; China, Hong Kong, Malaysia and Singapore. Several issues have been discussed relating to structures and channels of trade; strategic plans of production, harvesting, growers and traders relationship; marketing system; acceptability of quality with affordable price to the consumers. Current trade of the products in target markets was studied keeping in view the economic, social and population environment. The study also examined the consumers' attitude, purchasing behavior, product perceptions and characteristics in the target markets. The standards of product quality, hygiene and postharvest treatments required from those importing countries have been identified. New market segmentation was developed for young consumers with less income. The market strategy has proposed stakeholders participation in managing products to sustain the production.

Challenges and Possible Options for Small Producers to Cope with Increasing Market Competition (Dr. Abdul Hayee Qureshi)

In the changing environment of globalization, small and resource poor farmers are the most vulnerable segment of the farming community in majority of the developing countries. On the other hand, marketing competition is becoming more and more intense in the backdrop of trade liberalization. Therefore, the need for an effective and efficient marketing system to cope with the emerging challenges of globalization in agricultural trade is further pronounced. The basic theme of the presentation is the identification of market opportunities and development of effective marketing strategies for profitable disposal of agricultural products. The paper discusses the weaknesses of existing agricultural marketing system in developing countries along with characteristics of small producers. It also deliberates on the ways and means for improvement of marketing capabilities and competence of small producers in the emerging liberalized trading regime.

Issues and Challenges in Improving Fruit and Vegetable Marketing Systems of Pakistan for Better International Competitiveness (Mr. Munir Ahmad)

Pakistan has very suitable agro-climatic conditions for successful production of different kinds of fruits and vegetables. The major fruits grown in Pakistan are mango, citrus, dates, apple, banana, watermelon, musk melon, pomegranate, persimmon, peach, plum and grapes whereas potato, tomato, onion, peas, cabbage, carrot, radish, turnips, spinach, okra, garlic, fenugreek and cucurbits are main vegetables.

Fruit and vegetable marketing is in different stages of development in various provinces with some better arrangements in Punjab and Sindh, followed by Baluchistan and then NWFP. The existing marketing system of fruits and vegetables is characterized by: 1) High postharvest losses ranging from 20 to 40 percent; 2) Severe price fluctuations both cyclical and seasonal; and 3) High profit margins for middlemen.

As a result the grower is getting low and fluctuating price which is not attractive for further investment in the sector while consumers have to face high prices which are unaffordable for at least 50 percent of

population. Contribution and behavior of different intermediaries involved in marketing channel of fruit and vegetables, as well as major problems of fruit and vegetable markets are discussed.

Main bottlenecks of horticultural exports are: inadequate cargo service, indemnity bond, lack of insurance and letter of credit (LC) for exporters; no export financing for exporters, inefficient and exploiting markets, lack of standardization and quality certification, and lack of cool chain facilities.

Paper also touches upon the issues and challenges confronted by the export of fruit and vegetables under WTO regime, and initiatives undertaken by the government of Pakistan to cope with such challenges.

Productivity Management Tools for Enhanced Export Competitiveness (Ms. Shahuren Ismail)

This paper highlights the critical importance of productivity-driven growth strategies in strengthening the country's global competitiveness.

A country's global competitiveness can simply be defined as the nation's share of the world markets for its products and services. However, in efforts to increase the global competitiveness through bigger shares of this world market, the country cannot just easily reduce its prices or wages to be lower than the other countries. This will create adverse negative impacts on the country's growth and competitiveness in the long run. Instead, the nation should strive for the higher productivity-driven growth strategies, which can ultimately strengthen its global competitiveness. In this context, the country's competitiveness is determined by the degree to which it can produce goods and services, which meet the tests of the international markets while the people can earn a standard of living that is both rising and sustainable over the long run.

"Productivity drives national development" growth strategies outlined the cyclic contribution of productivity in a country. Productivity begins with individual contributions in wealth generation. Their total efforts contributed to the productivity of the industries and economic sectors. The total wealth created in these sectors forms the output or GDP of the country. This output is then given back to the workers in terms of better standard of living and higher quality of life. The increases in the cyclic productivity contributions would therefore enhance the nation's growth and strengthen its global competitiveness.

In managing the country's productivity growth, conscious efforts are required in enhancing the awareness, commitment and active implementation of productivity enhancement programs across all the economic sectors. This includes the six productivity thrusts of:

- Continuous upgrading of the quality of workforce through building of workers capabilities in critical skills, thinking skills, positive mindset and right attitude;
- Enhancing effective application of productivity and quality systems throughout the value chain;
- Continuous investments in technology and R&D to further improve productivity and competitiveness;
- Strengthening infrastructure support services to accelerate productivity growth;
- Intensifying the adoption of best practices and conformance to international requirements; and
- Promoting culture of excellence as a way of life.

A large selection of productivity management tools is available for the horticultural industries to use in their efforts to improve the quality of workforce, quality systems and management and quality of technology. This includes the development and skills training, QCC, TQM, TPM, quality assurance systems, JIT, BSC, GAP etc. Nonetheless, enterprises need to wisely choose the appropriate tools to be applied to the activities. The basic housekeeping practices of 5S management tool is highly recommended to initiate good practices in farming and marketing of fruits and vegetables. Successful applications of 5S become the building blocks for other P&Q tools.

In ensuring productivity growth through the adoption of best practices and conformance to international standards and requirements, the benchmarking tool is highly recommended. In simple terms, benchmarking is the practice of being humble enough to admit that someone else is better at something and being wise enough to learn how to match and even surpass him or her at it. Benchmarking management tools will guide the industries and stakeholders in measuring their productivity performance using KPIs, analyses their trends and rankings, identify gaps and make comparisons with benchmarks with other organizations within their community of practices. Organizations will be sharing their experiences and adopt best practices to be implemented for organizational improvements. The ultimate results of benchmarking would be to create positive changes within organizations towards greater productivity.

With the understanding that "what we cannot measure, we cannot manage", productivity management tools such as benchmarking should be able to assist the horticultural farmers and stakeholders to enhance their productivity, quality and subsequently their global competitiveness. When these tools are widely

and effectively applied across the stakeholders along the food supply chain, the nation's efforts to enhance their productivity growth and strengthen their global competitiveness can be realized.

COUNTRY PAPERS

Cambodia

Farmers of Cambodia grow all types of vegetables (pod, leafy, fruit and root) mainly along rivers, creeks, lakes, and open well because of easy access to water during the dry season. Lack of irrigation infrastructure during the dry season and excessive rainfall in the wet season limit vegetable production. Due to poor harvest and postharvest handling techniques, lack of transportation infrastructure and processing facilities, production areas are concentrated near final consumption areas such as Kandal, Kampot, Takeo, Siem Reap, Kompong Cham and Battambang.

The markets throughout the country are disorganized and chaotic. There are many small-scale traders. The markets are crowded with sellers with small quantities of produce. Between buying and selling activity, people are loading and unloading produce into whatever means of transport is available (Cylo, Moto, Bicycle, remorque, card). There are varieties of different marketing channels even for the same commodity.

The operators within the channel often carry out a combination of functions, for example, farmer/ collector, farmer /retailer, collector/wholesaler, and retailer/ wholesaler. The movement of produce from farmers to consumers is fast. The channel is generally short, with relatively few middlemen. The absence of a singular, central wholesale market system in Cambodia, like other Indochina countries, has resulted in a fairly weak marketing institution and structure.

Transitional problems resulting from trade liberalization were the failure of local firms or producers to compete with the imported products. The local producers faced problems in competition in transitional period. The main issues were: a) Low productivity and poor postharvest practices; b) Insufficient knowledge and low technology input application in production; c) Lack of recognition of the quality control and quality assurance; d) High production costs due to high input cost and small-scale farms, e) High transportation cost due to poor infrastructure; f) Limited accessibility to credit due to high interest rate; and g) Inadequate supply of high quality seed and inputs.

India

India is the world's second largest producer of fruits and vegetables after China and its vast potential marks India as an assured supplier of wide range of these commodities both, quantitatively and qualitatively in the international market. In the realm of globalization, under Agreement on Agriculture, India has prepared herself in accordance with the required competitive features, transparency and efficiency in transactions. Qualitative standards and other requirements have been aligned with the Codex standards /Technical Barriers to Trade (TBT) which gives assurance to the trading partner about the safety of health of the consumers in their country.

The government of India has undertaken several initiatives to improve the national marketing system for enhancing its international competitiveness. Some of them are: a) provision of modern infrastructure to minimize postharvest losses of fruits and vegetables and enhance the supply level of quality produce to targeted customers by creating sufficient infrastructure facility and modernizing the existing ones; b) creation of several national/state agencies and schemes to provide necessary institutional support; c) strengthening of market integration and backward linkages for market-oriented production and consumer-oriented demand, e.g., promotion of contract farming; d) development of effective and efficient market intelligence, e.g., facilities for online availability of market information, acceptance and processing of applications by the concerned institutions and making them available with the variety of other services required by the market functionaries. *Agmarknet*, is one such online service providing network to the market users.

Alternative marketing strategies have been effective in improving the distribution of fruits and vegetables in India, in the form of Direct Marketing, Contract Farming/Marketing, Co-operative Marketing and Group Marketing. 'Safal Fruit and Vegetable Auction Markets' set up by National Dairy Development Board is one of the most modern fruit and vegetable handling unit. Similarly in Kerala, 'Vegetable and Fruit Promotion Council, Keralam (VFPCK) is working on self-help group basis to help its own farmer community by managing the marketing and processing of the produce.

Marketing of fruits and vegetables is also confronted with many problems such as low economies of scale, poor socio-economic background of farmers, high postharvest losses, inadequate grading at producer's level, production of varieties exclusively for processing, high cost of adopting HACCP, high cost of packaging, low awareness in the farmers about pre- and postharvest practices, low understanding of the markets by farmers, etc. Accordingly, steps have been taken up by Government and private sectors to strengthen the required marketing infrastructure and create a market-friendly environment for the efficient and flawless transactions with full transparency in this competitive global scenario.

Islamic Republic of Iran

Iran has over 18.7 million hectares under agricultural production. The agricultural sector is almost entirely under private ownership. It provides about one fourth of the Iran's total employment. Domestic agriculture now supplies over 80 percent of the nation's food requirements, and it accounts for about 90 percent of agricultural raw materials needed by industries.

Iran has high potential for fruit and vegetable production and marketing that can be exploited through/ because of: a) Establishment of agricultural commodity exchange; b) Selection of new varieties of fruit and vegetables; c) Paying due attention to packaging methods; d) Iranian farmers are very conscious of the negative effect of overuse of pesticides and chemical fertilizers and are extremely interested in developing organic produce; e) Iran has started pasteurization of some fruits such as pistachio; f) Diverse agro-climatic conditions to produce a wide range of temperate, sub-tropical and tropical fruit and vegetable crops; and g) Cheap energy.

Iranian Government is taking the following initiatives for the modernization of agro-based industries: 1) Support for the modernization of production and marketing techniques of agro-based products; 2) Introduction of food safety and quality assurance systems in order to increase competitiveness in overseas markets; and 3) Promotion of investment in the modernization and expansion of the processing industry.

Republic of Korea

The Korean distribution system of fruits and vegetables has been dominated by a large number of small shops and wholesale markets located in urban areas. Fruits and vegetables are therefore, marketed through multi-stages, meaning too many small merchants and handlers are engaged in the food marketing. Due to these factors, physical efficiency in food distribution is generally low and consumers are forced to pay high price.

However, the food distribution system is changing to a more efficient one as western-style supermarkets and various types of discount stores emerge in recent years. As the number of stores which large-scale retailers operate increases, more fresh food items are shipped directly from shippers in producing areas to the retailers. Under this new marketing environment, domestic marketing agents, such as producers, shippers, and wholesalers, are trying to develop new practices to meet the needs from large-scale retailers. In particular, local agricultural cooperatives are trying to play a central role in selling products to the large-scale retailers by strengthening cooperative marketing practices. In addition, local cooperatives are beginning to collaborate with each other in order to improve their position in dealing with large-scale retailers.

International competitiveness of Korean fruit and vegetable items is basically lower than other Asian countries because of high land and labor cost. The share of fruits and vegetables in export is negligible in the Korean industry. Total export of fruits and vegetables was only 171.3 million US dollars in 2003. However, export of some vegetable items increased due to development of the Japanese market in recent years. Paprika is a good example of success in Japan. Currently Korean paprika takes the largest share in the Japanese market, followed by the Netherlands.

Lao People's Democratic Republic

In Lao PDR, agriculture sector contributes 48 percent of the GDP and employs 85 percent of population. Small-scale farmers dominate the farming community. They are operating subsistence farming, except for urban areas.

Main constraints on fruit and vegetable production include: 1) Lack of data and information on crop production (Marketing, quality, pest and diseases, sale price); 2) Lack of credit due to joint liability, collateral, and time limited (only for short time); 3) High investment for the import of vegetable seed and longer

time for adaptation of imported varieties; 4) Vegetable production areas are not widely spread and small farm size (Household Economic Production units); 5) Lack of technical know-how and awareness of production technologies among farmers; and 6) ineffective extension services.

Pakistan (1)

The horticulture sector has great potential to be a source of economic growth and income generation with small farmers as major beneficiaries. Pakistan has a comparative advantage in the production and export of high value and non-traditional crops. This advantage is not being fully exploited specially at farm level. Main constraints are absence of policies favoring growers and ineffective and varying approaches towards regulation of product quality. The market structure in the country is so complex, that the whole system is under the control of few players.

In spite of the market complexity, unavailability of reliable market information, low return to the farmers and non-availability of certified seed etc., the area and production have shown a positive trend for horticulture crops.

Four main categories of wholesale markets exist; primary (terminal), secondary, district wholesale markets and rural assembly markets. The market players include farmers, commission agents, contractors, wholesalers, inter-market traders and many other retailers. The processes involve the determination of price and payment of a fixed commission fee and other charges. In general intermediaries dominate the system and there is little direct market participation of the farmers, particularly small farmers. On the export side, raw material procurement is made mainly from wholesale markets. Lack of market information system has increased the complexity of the marketing system in the country on one hand and brought less return to the farmers on the other.

With a rapidly growing population, the domestic demand for fruit and vegetables is expanding, as indeed is the market for processed products. The production of products is highly seasonal, storage facilities are limited, and price variation and cyclic trends are common which lead to the import of fruits and vegetables. At the same time Pakistan is exporting a range of fruits and vegetables to various regions of the world, with the major markets being India, Dubai and Indonesia. Pakistan's key export markets and products have not changed and exports are considered as a means of surplus disposal mainly channeled from the wholesale markets. Exports endeavors need to be supported by a "grow-for-export" strategy. Again a well-established market information system can play a vital role in this connection.

Pakistan (2)

Agriculture occupies an important position in Pakistan and it contributes nearly 24 percent of the gross domestic product (GDP) and provides employment to around 49 percent of the total labor force. A large variety of tropical, sub-tropical and temperate crops are cultivated in the country supported by a climatically conducive environment. The major horticultural products of Pakistan are grown on an area of 0.812 million hectares, which is hardly four percent of the total cultivable land of the country.

Many constraints hinder the exploitation of country's full potential for horticultural production and export such as low productivity, lack of infrastructure, absence of research and development, weak institutional support by the government, and unhealthy competition among exporters. The major horticultural exports include citrus, mango, dates, banana, apple and guava in the fruits category, while the vegetable exports are in potato, onion, spinach, chilies, carrot, and tomato. Export of fruits has increased over time and among primary exports it emerged as the third largest export item after rice and fish.

The production of fruits and vegetables in Pakistan is estimated at 11 million tons per annum. Major constraints on farm-level production include: no or very little coordination among the stakeholders, scarcity in storage and transportation infrastructure, insufficient credit facilities especially for small farmers, advance sales due to financial constraints amongst farmers, and much lower farm-gate prices than market prices. Farmers just receive 25-31 percent of the consumers' price, whereas lion's share goes to contractors (43%), commission agent (7%), and other market traders (19%).

There is need to improve efficiency and effectiveness of marketing chain to promote export of high value crops like fruits and vegetables. Pakistan Horticultural Development and Export Board (PHDEB) was established in 2000 to promote, regulate, coordinate, and improve the fruits and vegetables export of the country. A product-specific market development strategy has been initiated and active participation from the

production and marketing systems have been organized. The PHDEB has also been working on joint international accreditation for Hazard Analysis Critical Control Point (HACCP) of progressive exporters to economize cost.

Pakistan (3)

Mr. Naveed, a progressive farmer, presented his own experience in the production of fruits and vegetables especially organics and their marketing. They are growing fruits such as orange (Kinnu), pear, sweet lemon, as well as vegetables like gourd, bitter gourd, okra, green chilies and water melons. These fruit and vegetables are grown organically. Fruit are grown under open sky while vegetables are grown in covered tunnels. They are using modern technologies like tunnel system, zero tillage, etc. for raising fruit and vegetables. They are also using modern methods of picking, waxing and chilling for storage.

They have their own brand and labeling and are exporting their products to Japan, Germany, UK and Denmark. Their net profit is about 50 percent.

They are members of Pakistan Organic Farmer Foods Association and Jadeed Zarat Society, Pakistan. They are running an Agri School and so far have trained 400 farmers. They have also formed a local Cluster of Farmers to solve their common problems including those related to marketing.

Mr. Naveed emphasized the need of developing regional standards, development and implementation of food act, and harmonization of food standards, among others.

Philippines

Small farmers characterize Philippine agriculture with diverse crops for subsistence and little surplus for marketing. In the case of fruit and vegetable farms, the small area is further subdivided into tiny parcels of land devoted to different types and varieties. The vegetable industry was able to generate on an average of P24 billion annually and about $32 million in foreign exchange earnings while the tropical fruits industry is now emerging as a viable investment option to generate higher income, alleviate poverty, enhance food security, and improve human nutrition and health.

The Philippines has been promoting exports of mangoes (fresh, dried, juice), Cavendish banana (fresh), and pineapples (fresh and canned) because of the country's inherent comparative advantage in these fruits. The Bukidnon Lettuce Cluster (BCL) is another case worth emulating for it proved that through dedicated collaborative efforts, nothing is insurmountable. If previously the farmers were being paid P25 for a kilogram of lettuce, the formation of the cluster enabled them to receive a net income of P27.77/kg.

Among the problems frequently encountered are: no stable market and unstable prices for the produce; lack of technologies for wide-scale production and processing; inadequate knowledge on postharvest handling and packaging; inadequate postharvest and processing facilities; inadequate transportation facilities; lack of access to market information; inadequate communication facilities; inadequate capital and credit facilities; and difficulty in complying with international standards set forth for agricultural exports.

While the presented cases are only two, it is still clear that to compete in the international market for agricultural products, the joint efforts of the government and the private sector, is a necessity. The private sector needs the assistance of the government specifically in providing the right environment for promoting competitiveness. Policy reforms and provision of the much- needed infrastructure are to be expected from good governance. Efficient management and application of good agricultural practices on the other hand, are good enough reasons for the active participation of the private sector in the promotion of international competitiveness. Collaboration is the name of the game not only between the private sector and the government but also among the key players within the private sector itself and among the different government agencies.

Sri Lanka

Sri Lanka being a tropical country, situated in the Indian Ocean, has a wide variety of cultivated food crops. The main fruits grown in Sri Lanka are orange, mango, papaw, avocado, banana, watermelon and pineapple etc. some of the vegetables are beans, cabbage, tomato, carrots, etc.

Postharvest quantitative losses of fruits and vegetables are 30-40 percent. The value of the total loss in these crops has been estimated to be approximately Rs. 13 billion annually. Minimizing these losses by introducing and using improved technologies would not only lead to a substantial increase in the income at the point of marketing of the farming population, but also in the gross national product of Sri Lanka.

In Sri Lanka, total export of fruits and vegetables accounts for around one percent of total production of fruits and vegetables. The marketing chain established in Sri Lanka involves the grower, collector, wholesaler, retailer and the consumer. In order to gain better marketing value all the people involved in the marketing chain should participate together. Once the grower packs his commodities, the package moves through the handling chain. Once the commodity reaches the retailer, the produce is often sorted manually and displayed to the consumer. Due to poor postharvest handling and inadequate packaging, the quality of the produce falls every day. This widens the price gap between the grower and consumer.

Inappropriate cultivation practices and methods of harvesting and subsequent rough handling coupled with inadequate packaging during transport and storage are the major factors which contribute to deterioration of perishables, causing high postharvest losses, thereby reducing the market value as well as the market competitiveness. Therefore, various suitable and low cost technologies should be introduced such as use of proper varieties, proper harvesting practices, handling and use of proper packaging materials for transportation i.e. use of plastic crates, processing and value addition, etc. Better methods of disseminating marketing information and knowledge should be done simultaneously. The government intervention should be present in all these aspects for successful execution of such practices and to make better marketing policies. But implementing these strategies still lays a problem due to low income of parties involved to adopt the new technologies, lack of knowledge and suitable low cost technologies and better policies.

Thailand

Thailand is the potential producer of tropical horticultural products such as fruits, vegetables and flowers. The main vegetables exported from Thailand are sweet corns, canned baby corns, okras and cassavas. The key export tropical fruits are Durian (the king of fruit), Mangosteen (the queen of fruit), Longan, Pummelo, and canned pineapple. Thailand is expanding export of these vegetables and fruits to overseas market under FTA agreement, which has already been signed with China, Australia, India, etc.

Nowadays, the main factor that effects Thailand's improvement of agricultural marketing system is related to the perishable of tropical products, shelf life and product management system such as pre- and postharvest technology, logistic and chemical residue. In order to overcome this kind of problems, Thailand has to increase the capability of the horticultural industry to international competitiveness. We have to run horticulture industry as an integrated system starting from proper variety selection. Management throughout the marketing system will be as below:

1. Research and development of tropical fruits, vegetables and flower have to be focused on the yield, shelf life concerns and customer requirement. Moreover, Thailand has to apply the Good Agricultural Practice (GAP) to the system.
2. Pre- and Post-harvest technology enhances quality of the production. Furthermore organic fertilizer and biologic agent can reduce the cost of production as well as increase the level of food safety.
3. Develop the logistic, cool chain system, and the central market for the whole horticultural industry.
4. Develop brand and packaging in order to increase the customers' level of confidence.
5. Create fruit, vegetable and flower's cluster for increasing the capability of horticultural industry.
6. Promote potential fruit, vegetable and flower to the global market.
7. Encourage the roles of Government sector and private sector to cooperate and establish the value added market, and sustainable market for the better income/profit of the farmers.

FIELD VISITS

For their field studies, participants visited Agricultural Research Institute, Tarnab, Peshawar, which is located at a distance of 150 km in the North West of Islamabad. Mr. Tasleem Jan, Director General of the Institute along with his staff welcomed the participants. Mr. Jan briefed the participants on the research activities of the institute. It carried out its activities in disciplines like soil science, horticulture, entomology, food technology, plant pathology, plant physiology, oilseeds, vegetables, seed certification and statistics.

Horticulture Division of the Institute works on variety development of fruits and modern orchard management. The institute has developed and released several varieties of fruits. Food Technology division conducts research on food preservation and develops technology for reducing postharvest losses of fruits and vegetables. Protein rich products from soybean, canned products and bottled squashes and syrups from fruits

have been successfully popularized among the masses. Guava syrup is the special preparation of the Institute and is most liked by people.

The institute has also played a key role in strengthening the capacity of the services providers in horticultural marketing in order to better contribute to the improved livelihood of the small producers in rural areas of North-West Frontier Province (NWFP). The institute helped in the marketing of their horticultural produce and to introduce new markets to the producers. The institute is providing training in postharvest management, grading, packaging, etc.

The participants visited different laboratories of the institute especially food technology laboratory. However, participants could not observe any out-door facilities of the institute due to continuous rainfall.

Though the local implementing organization had plans to take the participants to the Islamabad Wholesale Fruit and Vegetables Market, they were unable to visit the market due to continuous rainfall in Islamabad throughout the seminar duration.

WORKSHOP OUTPUT

To further deliberate on the seminar subject, workshop discussions were organized in order to identify issues, problems and suggest strategic action plans for the improvement of fruits and vegetables marketing systems in the member countries. The Resource Persons facilitated the discussions. The workshop output is summarized as follows:

ISSUES/PROBLEMS	STRATEGIES/ACTIONS	AGENCY/ ORGANIZATION
I. Pre-harvest		
1. Less effective National Plan for Fruits and Vegetables production • Food security • Export • Crop specific	• Develop an effective National Plan for fruits and vegetables • Crop/orchard zoning • Crop diversification for export • Demand-driven production • Promote consumption of fruits and vegetables • Food security through promotion of fruits and vegetables	Government Governmentt/private sector Private-led/government Farmer Government
2. Farmers' lack of technological know-how • Poor transfer of technology for fruits and vegetables production • Weak linkage between Research and Extension • Less focus on horticulture by extension • Less emphasis on Research and Development in horticulture • Lack of entrepreneurship skills among farmers • High incidence of pests and diseases • Non-uniform fruit maturity	• Quality improvement of seeds and planting materials • Strengthening Research and Development • Strengthening Research and Extension linkage • Encourage public-private sector partnership • Adoption of Good Agricultural Practices (GAP) according to local condition through development of GAP manual for individual crop based on best practices existing within a particular country • Provision of demand-driven training and research • Promotion of IPM • Develop and disseminate technology for uniform/early season/off-season maturity	Government/private Government/private Government/private Government/private Government/farmer Government Farmer/government Government/private/ farmer

(To be continued)

3. Inconsistent supply and high cost of inputs • High cost of inputs • Lack of quality seeds and planting materials • High dependence on inorganic fertilizers and chemicals	• Enhance access to quality inputs at affordable prices • Promote use of appropriate cost effective farm machinery • Promotion of Bio-fertilizer/Organic farming/IPM/IPNM • Promotion of farmers' groups/associations/ cooperatives	Government/private Government/farmer/ private Government/farmer/ private Government/private/ farmer
4. Improper water/irrigation management • Dependence on rains • Lack of resources for adopting modern technology • Low water use efficiency	• Effective water management through adoption of appropriate technology • Construction, improvement and expansion of irrigation systems	Government/private Government/private
5. Limited/inadequate credit and crop insurance facilities	• Enhance credit accessibility through specific financial institutions • Encourage crop insurance to minimize risks • Provision of credit to farmers on soft terms	Government Government Government/private
II. Post-harvest		
1. Improper post-harvest handling technologies resulting in high losses • Inappropriate harvesting practices • Inappropriate time of harvesting • Lack of proper handling • Inadequate storage/cold storage facilities at the farm level • Improper use of chemicals	• Establishment of national grades and standards for fruits and vegetables for particular markets • Develop harvesting indices and manual for individual fruit and vegetable • Develop mechanism to implement market-specific fruits and vegetables standards	Government Government Government/private
2. Lack of infrastructure facilities • Storage - cold storage • Transportation – cold chain, vans/containers	• Capacity building of farmers/local traders/ exporters through training and effective information system • Promote public and private partnership in establishment of cold storage/chain facility	Government Government/private
3. Grading and standardization system • HACCP/GMP • Codex Alimentarius Commission • EUREPGAP • ISO: 9000	• Adoption of HACCP/GMP, Codex, SPS, EUREPGAP, ISO: 9000	Government
4. Packaging/Handling a. Labeling (TBT) b. Bar coding c. Packaging materials (plastic crates, ventilated CFB) d. High cost of packaging	• Encourage use of standard cost effective packaging • Introduce labeling as per international standard • Promoting investment in packaging industry	Private and farmer Government/private Government
5. Processing • Low processing recovery • Limited modern processing industry	• Conduct of Research and Development for fruits and vegetables processing	Government/private

(To be continued)

	• Promotion of package of technologies for processing of fruits and vegetables for SMEs • Establish export processing zones for food • Encourage private sector participation • Provision of credit for SMEs engaged in food processing	Government/private Government Government Government
III. Marketing		
1. Inadequate/lack of access to international market for fruits and vegetables	• Identification of potential markets • Development of niche products • Create product awareness among consumers	Farmer/private
2. Lack of improved marketing facilities	• Provide basic infrastructure facilities at existing markets • Establish wholesale markets • Promote hygiene and food safety measures in traditional markets	Government/private Government -led Government/private
3. Lack of market information (supply, demand, price) • Low producers' share in price spread	• Provide timely market information (supply, demand, price, potential markets) through local media/internet	Government/private
4. Complex marketing system • Lengthy marketing channel	• Develop market chain (farmers' groups/cooperatives/clusters) • Direct marketing/contract marketing • Promote transparent trading and fair auction	Farmer/private Farmer/private Government

1. RECENT TRENDS AND FUTURE PROSPECTS OF FRUIT AND VEGETABLE MARKETING IN ASIA AND THE PACIFIC -- AN OVERVIEW

Grant Vinning
Asian Markets Research
Australia

Chhime Tshering
Ministry of Agriculture
Kingdom of Bhutan

INTRODUCTION

The Internet is a wonderful tool. This entire paper could have been written using sources from just the Internet.

Instead, our approach has been to draw heavily on our own experience. This paper encompasses our activities with horticultural products since 1999. We have undertaken export market development and market research activities in nearly 20 countries in the Asia Pacific region.

From this work we have been able to identify trends that we think will have an impact on the prospects for fruit and vegetable marketing in our region.

The trends that we have identified relate to:

- The changing consumer;
- The changing outlets for fruits and vegetables; and
- The changing method of marketing.

We have had extensive experience with the third issue, that is, the changing method of marketing. We will illustrate this with a case study.

Finally there are a number of smaller unconnected issues that we consider will have an impact on the future marketing of fruits and vegetables in the Asia Pacific region. The two principles ones are:

- The emergence of China as a massive supplier; and
- The impact of the WTO.

CHANGING CONSUMER

Any understanding of the recent changes in horticultural marketing in the Asia Pacific region must come with an understanding of demand side. This is presented by the consumer. Understanding the consumer will be addressed in two ways.

First, a broad scoping of the demographic factors in the Asia Pacific region will be established. Then more detailed micro factors affecting consumer demand will be discussed. Whilst the former will refer broadly to the implication of the marketing of fruits and vegetables, greater emphasis on the specific impacts will be contained in the second section.

1. The Asia-Pacific Consumer: Macro Analysis

The following draws heavily on Coyle et. al (2003) who analyzed the implications of the demographic changes in Asia Pacific region on the food system.

It is generally estimated that the population of the Asia-Pacific region will rise by more than 400 million people in the next two decades. Coyle et. al identified three major factors as to how the demographics will affect the region's food system:

- Urbanization
- Migration of population
- Changes in the age structure of the population

(1) Rapid Urban Population Growth

For the first time in history, the region's urban population will surpass its rural population. The most rapid rates of growth will occur in Vietnam, Indonesia, Singapore, and the Philippines. Marketing food

products in the Asia-Pacific region will increasingly focus on densely populated urban of the Hong Kong-Shenzen-Pearl River Delta area, Shanghai, Jakarta, Bangkok, and Manila.

Drivers behind this growth are high birth rates, migration from rural to urban areas, and immigration into urban areas as urban development is a natural consequence of agricultural surpluses, economic specialization, more efficient allocation of resources, and higher incomes.

Urban diets differ from those in rural areas for reasons of higher incomes, life styles, the role of eating-in, greater availability of different foods, and even the ability to store more perishable foods.

Indigenous suppliers to the urban markets need to be aware that many of these urban areas are coastal and have modern port facilities, making them easily accessible to foreign suppliers. In contrast, indigenous suppliers often face poor infrastructure and deliver a poorer quality at sometimes-higher prices.

The implications for fruits and vegetable marketing from this macro trend are slightly contradictory.

On the one hand, the macro implications are for excellent. One of food types that urban dwellers, with increase in income, substitute a portion of their previous-grain based diet to fruits and vegetables (Bennett's law). Another positive substitution is away from the root and tuber vegetables towards the leafy and fruit ones. Eating out, another urban delight, often features greater varieties of fruits and vegetables.

A less optimistic aspect of the urbanization is the greater availability of choice of origin within the range of fruit and vegetables available. This is particularly so for the coastal centers. Foreign supplies of bulk but high quality fruits and vegetables such as apples, some citrus, and vegetables such as potato, onions, and carrots, are available at very competitive prices. As an example, the imports of fruits and vegetables from the United States into seaboard China increased from US$17 m in 1996 to US$93 m in 2000.

(2) Growth in Population

Coyle et al. concentrated their analysis on the outward migration from Asia - Pacific to the higher income countries of United States, Canada, Australia, New Zealand, even Singapore and Hong Kong. Coyle et. al pointed out that Asia-Pacific's share of the world population will decline from 43 percent in 2000 to 40 percent in 2020, as countries in Africa and Middle East grow faster. However, in absolute terms the population in the Asia-Pacific region is expected to grow from 2.6 billion in 2000 to 3.0 billion in 2020. It was further stated that by 2020, the largest absolute increase will occur in China (160 million), followed by Indonesia (60 million), and the United States (50 million).

Population growth will undoubtedly challenge the food system, though not equally across the region due to varying population distribution and growth rates. It was noted that there is significant migration within the region, which adds on to the population in the region. The migrants tend to favor economies with higher per capita income: Singapore, Hong Kong (China), Japan, Brunei, New Zealand and Australia.

From all of this movement of people with their various culinary traditions and food preferences, Coyle et al. see a fusion of dietary preferences. Initially there is a local boom in the dietary preferences of the migrants. Vinning (1999) has traced this phenomenon in Australia especially for Asian fruits and vegetables whilst Crippen has traced it in other countries. Then as Coyle et al. state, the dietary preferences of the immigrant offspring adopt to the preferences of their adopted countries. Vinning (2003), and Vinning and Young (2003) studied this in regard to the root crop taro ***Colocasis esculenta*** in the Pacific.

While the growth of population in the region is positive for marketing fruit and vegetable industries, the implications are again mixed when it pertains to immigrants. Receiving countries of the migrating Asian-Pacific people able to grow the new fruits and vegetables are stimulated by the new demand to produce the new products. Thus there is only a small initial benefit to producers from the host countries. Indeed, there are numerous examples of where the receiving country has become so efficient at supplying the immigrants the needed fruits and vegetables that they wind up becoming net exporters of the product in direct competition to the host countries. Australia for example has become a net exporter of tropical fruit such as rambutan and lychees, and Asian vegetables such as taro and the green leafies.

(3) Changes in the Age Structure of the Population

Coyle et al. state that between 2000 and 2020, average life expectancy in the Asia-Pacific region is expected to rise from 72 to 77 years, and the median age from 30 to 36 years. Whilst their analysis concentrated on the likes of Australia, Canada, United States, and New Zealand, the drivers behind this phenomenon are common throughout the region. These include the decline in fertility and mortality rates which can be attributed to income growth, medical breakthroughs, health care investments, and public policy, as well as

the increased participation of women in the work force. Certainly these factors are applicable in full to Japan and Singapore and in parts to other parts of the region.

At first the greying of the population may appear not to be good news for the region's fruits and vegetable industries. After all, with an aging population, food demand declines as activity levels and caloric needs decline. A second direct effect is change in dietary composition and the frequency of eating out.

However, this macro trend is considered excellent news for the region's horticultural sector. This is because older people eat much more fresh fruit, salads, and non-fried potatoes.

2. The Asia-Pacific Consumer: Micro Analysis

A number of common micro driving consumer behavior in Asia can be identified. These are noted below.

(1) Safe Food

Over the past few years, agriculture has suffered from poor press that has emphasized the lack of safety in food. Global highlights include:

- BSE - Mad Cow disease, the problem that will not go away. It devastated England, parts of Europe, and, to a lesser extent, North America a few years ago. In September 2004 there was another reported case in Japan whilst there has been a recorded infection in Canada in January 2005.
- E.coli 0157: Japan's hospitalization of many thousands.
- Newcastle Disease: Hong Kong in 2001 and the slaughtering of fowls.
- Japanese Swine Fever outbreak: Malaysia.
- Belgium: Contamination of animal feed with cancer causing dioxin.
- United States and Canada: A small outbreak of the pathogen *Cyclospora* on Guatemalan raspberries that had a significant knock-on effect on other Guatemalan product.

Without doubt the greatest agricultural / food issue within the Asia Pacific region has been the Avian Influenza or bird flu, called "a crisis of global importance" by *AgraFood Asia* (October 2004, No. 126)[1]. By December 2004 outbreaks had been identified in Thailand, Viet Nam, Indonesia, Hong Kong SAR, Malaysia, and Japan[2]. The concern is that the virus may jump across from the bird population to humans[3]. This issue is discussed in more detail later.

A significant result of these agricultural-food disease outbreaks is that consumers have become most concerned about the safety of the food that they consume.

In the main, the food safety message is good for fresh fruits and vegetables. Some adverse publicity has been attracted by the extravagant use of chemicals but in the main these are seen as being issues associated with rogue farmers rather than an industry-wide problem[4]. However, this can reach national proportions. Japan appears to have increased its imports of vegetables from Vietnam because of its concerns about pesticide levels on Chinese vegetables (*AgraFood Asia*, October 2004, No. 126). It is also noted that the United Kingdom's Food Standards Agency has advised people not to eat pickles and preserved vegetables from China, Pakistan, India, and Bangladesh because of illegally high levels of erucic acid (*AgraFood Asia* November 2004, No. 127).

Organic foods are perceived as being the safest of all foods. Again, organics has been a boon and boom to horticulture. Significant growth has been experienced in this sector. Most food retailers commence their move into the marketing of organic product with the fruits and vegetable sectors of their produce range. The widespread acceptance of organic foods nearly precludes any further comment. However it is useful to point out that certifying agencies need to be vigilant in ensuring that all fruits and vegetables identified as organic are indeed organic and that fraudulent labeling be energetically prosecuted. It needs to be borne in mind that producers with organic certification have paid for the right to use that certification. They have done so for a number of reasons but a prime one is for the economic benefit that will result. Whatever market advantage they gain from being organic should be protected with zeal.

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[1] ***AgraFood Asia*** No.126 had five of its 38 pages devoted to a "Special on Avian Flu".

[2] FAO Avian Influenza Emergency, 20 December 2004. Strains other than the H5N1 HPA1 have been identified in South Africa, Republic of Korea, Taiwan Province of China, and Russia. http:www.gao.org/ag/againfo/subjects/en/health/diseases-cards/special_avian.html.

[3] See WHO Fact Sheet, 15 January 2004.

[4] The publicity associated with arsenic residues on vegetables in Bangladesh is clearly related to the national arsenic water crisis and not seen as the fault of any one producer.

(2) Good Food

Once consumers have been assured that food is safe to eat, then they seek to ensure that the food they are consuming is good to eat. Where-as the food safety message reinforces the fact that the food has an absence of bad factors, the nutrition message stresses that the food has an abundance of good factors - high in fiber, high in natural sugar, low in cholesterol[5].

There is increasingly a blurring between food that is nutritious and healthy, and food that is seen as having medicinal benefits, for example the nutritional value of dairy products are seen to outweigh their fat content issue. Fruits and vegetables have always been associated with very high levels of healthiness. This can only be good for the horticultural industry[6].

(3) Freshness

Freshness is one of the most important issues in agriculture and food today. Fresh products imply an absence of chemicals. Freshness seems akin to natural and thus is good to eat. "Natural" is seen as products not containing any artificial substances and being minimally processed. A blurred area of "freshness / natural" refers to GMO. It is noted that with the notable exception of the United States, most other countries are wary of GMO. GMOs has raised food safety concern in the region, mainly for their perceived threats to humans and biodiversity. There is fear also that they erode the seed security of farmers. A final concern regarding GMO comes from Africa where the reluctance to accept corn from a country as food aid is based on the fear that those countries that do not accept GMO food will not accept their corn because of fear of cross contamination of their future exports. In short, GMO food has real fears for exports.

With horticulture, fresh has always been considered as best: *Freshness is still the most important factor for food shopping in a traditional [Hong Kong] family*[7]. This may account somewhat for the rapid rise in the popularity of "fresh cuts". As a near substitute for fresh, the consumption of frozen vegetables is increasing.

At the same time it appears canning is not seen as a substitute for fresh with the consumption of canned fruits and vegetables declining. Canned products actually have a negative image due to the perception that they are high in salt and use preservatives[8]. It is noted that canned orange and tangerine products from China to the EU fell by 80 percent in the first five months of 2003 compared with the same period in 2002.

(4) Flavor and Taste

With the move towards convenience, replacement meals, and snacks there is a trend towards sameness. In order to not be part of the common herd, and in order to create some individuality into one's life, the food that we eat must be distinctive. Thus flavor and taste are becoming important.

This bodes well for a number of "Asian" fruits such as carambola, durian, jakfruit, jujube, lychee, mangosteen, salak, tamarind, and wax apple. A number of Asian vegetables also have distinctive flavor and taste. In the leafy vegetables, there is the Chinese flowering cabbage; with the leafy mustards there is mibuna and mizuna; with the cucurbits there are the loofahs and bitter melon; with water vegetables the water chestnut has a distinctive crunchiness.

(5) Appearance

The product must look good. Remember, consumers buy with their eyes and merely reconfirm with their mouths.

The lesson here is that Asian fruits and vegetables could improve their image. To begin with, overall quality selection needs to be improved. The number of product displayed with clearly visually imperfections has to be reduced. Grading has a lot to do with this with uniformity of size in each packet being more important rather than just one or two sizes.

In the context of appearance, waxing needs to be mentioned.

Waxing is a popular method to give a product an appealing shine as well as help to preserve it. Whilst it is common to wax fruit, especially apples and some citrus, it is noted that cassava in the United States and parts of Europe is more frequently than not waxed.

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[5] Endorsement of specific products by the likes of health institutions in a country is wonderful for the product. In the West, food manufacturers display predominately the approval that their products have gained from the likes of heart, cancer, and obesity foundations.

[6] In the West, children are taught that "an apple a day keeps the doctor away".

[7] ACNielsen (2002)

[8] Euromonitor International (2004)

However, there is some consumer uncertainty regarding the use of waxes. There are two parameters to this. One is the actual health implication. In November 2003, India implemented a ban on all waxes on food products. This was in response to the discovery of some domestic applications of non-food grade waxes on some Indian foods. The other is the origin of the wax. There are three essential forms of wax; literally, animal, vegetable and mineral[9]. There are consumers who for religious or dietary reasons are sensitive to the form of waxing used. The lesson is that horticultural producers must be sensitive to the need to clearly identify the form of the wax if they are to wax.

(6) Convenience

"Convenience" is a multi-faceted term. Two elements are identified:

- *Convenience - produce*

Anything that can reduce time spent in dreary tasks is all-important. Preparing food is essentially dreary work. Producing food in a convenient manner that reduces the time spent in preparing is a major marketing opportunity.

Fruit is the ultimate convenient food - just peel and eat with even the peeling sometimes not being necessary.

Vegetables are usually not seen in the Asian context as being as convenient. This is because Asians tend to cook their vegetables rather than eat them raw in the salad form as the West does. However, the consumption of salads is increasing in Asian. This augurs well for such vegetables.

- *Convenience - shopping*

Convenience refers to the store where the food is purchased. Thus if the one store can provide end-consumers with all their retailing requirements then consumers are more likely to shop there rather than at three or four stores. Convenience also refers to the how food is eaten: fast food outlets are the epitome of convenience and thus their rise in popularity is in direct inverse proportion to the decline in full silver service restaurants. The lesson for exporters is clear - work with stores that provide "convenience" in all its ramifications to its clients.

This imperative does affect fruits and vegetables. Whilst they tend to be sold in wet markets, it is rare for the one stall to have the entire range of produce. In contrast, supermarkets tend to have a greater range.

(7) Snacks

Again, this is part of the "convenience" phenomenon. Because of the pace of the modern world, consumers do not sit down for a lengthy full meal at fixed hours. Instead they want to grab something to eat on the run.

Fruit more than vegetables tend to be the ultimate snack food. The combined factors of food safety, nutritious, and convenience make fruit very popular.

(8) Ethnic

The messages from this driver are mixed. On the one hand it is considered *chic* to eat the food of another country. In this regard, Asians are no different from the rest of the world[10]. For Asian grown fruit in particular this is a challenge.

On the other hand, food is one way of expressing one's ethnicity. Equally so, it is a means of spending a political message.

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[9] One. Carnauba is a low shine, low cost wax derived from the carnauba plant *Copernicia prunifera.* Two, shellac based waxes have the best shine but are more likely to chalk on removal from cold storage. Shellac based waxes are approved for use on fruit exported to Japan. It is the most popular wax currently used however it is one of the most expensive. It is derived from the ***Coccus lacca,*** a scale insect that feeds on certain trees in India and southern Asia. After feeding, the insect produces through its pores a gummy substance which hardens into a protective covering called lac. This lac is collected and then it is crushed, washed and dried. The third are polyethylene based waxes that are petro-derived.

[10] In 2001 the British Home Secretary declared the national dish of England to be *Chicken Tikka Masala* -not roast beef and Yorkshire pudding whist the American market frequently pays more for *sashimi* tuna than Japan, the home of *sashimi.* A 2002 survey of Australian eating habits showed the following favorite cuisines:

Italian:	23 percent	Modern Australian:	17 percent	Chinese	14 percent
Thai:	9 percent	Vietnamese:	3 percent	Indian:	3 percent
Japanese:	2 percent	Other Asian:	3 percent	Mexican:	1 percent
French:	1 percent	Others	24 percent		

In Asia, some apple varieties, western pears, and some citrus are seen as being "western". These are popular when there is no local produce. Once the local produce starts to appear then demand swings rapidly towards these and away from the imported product.

As noted above in the section of flavor and taste, Asia has a number of distinctive fruits and vegetables. Those wishing to express their nationalism for whatever reason can do so by deliberately consuming their indigenous produce. Food retailers can capitalize on national food preferences. Some examples are:

- The salad bar at a multinational fast food outlet in Taiwan has guava, a fruit not found in western outlets of the same chain.
- In Japan, a multinational fast food outlet presents gobo as well as traditional potato fries.
- In the Philippines, the indigenous fast food outlet dispenses the traditional green mango and chillie dessert.

3. The consumer: Summary

Although economic growth and prices are closely monitored drivers of food demand, demographic changes - urbanization, growth in populations, and changes in the age structure of populations - will likely have more profound long-term implications for region's food system (Coyle et al.).

In sum, we are positive about the changing Asian-Pacific consumer and how these changes will impact on future prospects of fruits and vegetables. Of the macro trends, the rising wealth, the increasing urbanization, and, above all, the graying of the population are very good omens for horticulture.

Nearly all of the micro trends that we have identified have a positive implication for the future marketing of fruits and vegetables.

However, we see the need for vigilance in the maintenance of the good image of the sector. For this reason we see the need for the sector to embrace not reject the increasing trend towards higher regulations and the likes of traceability. In this regard HACCP can be a powerful marketing tool and not some unfair imposition imposed by a heartless bureaucrat.

Regional producers of fruits and vegetables must also be sensitive to the fact that if prospects are seen as being good for them then they are also seen as being attractive to suppliers outside the region. Regional producers must expect increasing levels of competition in their industry.

THE CHANGING OUTLETS FOR FRUITS AND VEGETABLES

The retail sector is going through a series of lasting changes. New delivery channels, globalization, concentration, customer loyalty, procurement are all rapidly evolving. In the final analysis, everything is geared to increasing customer satisfaction and engineering processes efficiently to service profitably that satisfaction. Asia and the Pacific have moved from a production-driven system to demand-driven one.

Consumers of food in the Asia Pacific region can access produce through three basic outlets:

- Traditional retailing
- Modern retailing
- Food service sector

For fresh produce, and thus the majority of the form by which fruits and vegetables are marketed in the region, traditional retailing is the most popular outlet. This will now be explored in some depth.

At the same time, greater attention appears to being paid to retailing in the modern form. One reason for this has been that in the West, the marketing of horticultural products through modern retailers has been hugely successful. There, and in the main, the fresh produce sector provides a disproportionate greater contribution to profits compared with their share of gross sales. It is the wish to emulate that success in the Asia Pacific region that underpins the need to understand western retailing.

1. Traditional Retailing

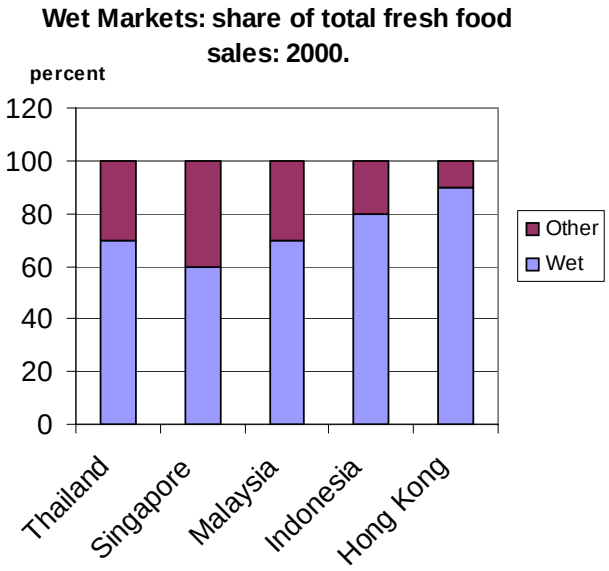
Traditional retailing in Asia encompasses a number of activities; wet markets, hawker stalls, street hawkers. The following concentrates on the former.

Wet markets are the traditional source of fresh produce in most of Asia. This encompasses fruits, vegetables, fish, chicken, and meat.

Whilst one must be cautious of generalities, the share of wet markets in the total fresh food market is around 60 percent of total sales.

A notable exception is Japan where the level is less than five percent. At the end of the spectrum is Hong Kong, well developed in terms of supermarket penetration and per capita income but where the level of

fresh produce sales held by the wet markets is well over 90 percent[11], a level comparable with Vietnam and Cambodia.



Some of the strengths of wet markets are noted below[12].

- They have a strong range of local products compared with supermarkets, which tend to concentrate on imported produce.
- The ability of consumers to touch, smell, even tastes the product. Bear in mind that one buys using a whole series of organoleptic, or sensory, perceptions. The ability to pick up the produce and squeeze, smell or merely touch it produces signals to buy / not buy. The pre-wrapped nature of many supermarket produce prohibits doing this.
- Wet markets have small stock holding, frequently needing replenishment - giving the image of freshness.
- Stalls close down once the stock is sold, reinforcing the fresh image.
- Little refrigeration, regular stock replenishment, reinforcing the fresh image.
- The ability of consumers to bargain. In contrast prices are fixed in supermarkets thereby denying consumers one of the alleged joys of buying.
- The perceptions that stall holders with a limited range of product know that range intimately. In contrast to this specialist knowledge, consumers have to deal with a supermarket employee who is responsible for a vast multiple range of produce. That responsibility comes at the expense of highly localized knowledge.
- Very active customer relations - giving credit, keeping special quality for special customers, “bakers dozen”, etc.
- Conveniently located within housing estates, acting as community meeting place. Many wet markets are actually physically co-located with food courts, reinforcing the notion of community-ness.
  In Hong Kong, 80 percent of households patronize the wet market within their building complex[13].
- The small-scale nature of purchases from wet markets accords well with the small scale cooking facilities (refrigerators, microwaves) of the local householder.

Wet markets’ perceived weaknesses are fewer but are extremely pronounced.

- Poor hygiene and a low level of cleanliness are the principal weaknesses. Waste produce is thrown onto the floor, which is generally awash with water that may or may not be clean.
- Cluttered stalls. This may make for a certain atmosphere but it is inconvenient.
- Co-locating of produce of vastly different hygiene requirements reinforces the lack of hygiene. Thus a butcher chopping up fowls is next door to a fruit seller and just up from a fishmonger scaling a fish.
- Crowded shopping. Again it may produce a certain conducive atmosphere but crowdedness can also be very inconvenient.

[11] Derived from Anderson Consulting (2002). These figures are comparable with those noted in Goldman et al (1999).
[12] Derived from G Vinning in DOTARS (2002.
[13] Nielsen (2001).

- No air-conditioning.
- Restricted hours less attuned to working couples that now constitute the majority in Asian cities. Remember, many stalls close down once they have sold out for the day.
- There is no guarantee of quality.
- Food safety is not mandatory.
- There is no traceability in the event of there being an outbreak of disease or some form of contamination of the produce being sold.

From a supplier's perspective, wet markets do not get involved with promotional activities such as advertising. They rarely promote brands. Product is typically displayed in an ad hoc manner. Worse, wet markets vendors will display a supplier's products in a competitor's container. Even worse, they can even display very poor examples of a competitor's product in third supplier's container.

Yet wet markets in Asia not only persist but continue to mount a challenge to the modern retail / supermarket store format in fresh produce sales. As discussed later, there has been a steady increase in the number of western style retailers in the region. In the west, fresh food marketing contributes a disproportionately high percent of a stores profit. It follows then that the western retailers who have come to Asia seek to repeat that phenomenon here.

Two sets of reasons are advanced for the continued persistence of wet markets.

(1) ***Buying price***: Whilst the supermarkets are able to achieve economies of scale in their purchasing through market integration, it must be remembered that the commission agents and importers in the main local wholesale markets are able to achieve even higher levels of economies of scale because of their scale. The fact is that most agents, importers and wholesalers deal in vastly greater quantities compared with any one retail chain. Thus, if a retailer can extract a discount because of purchasing power, then so too can most agents, importers, and wholesalers. It is in their interest to pass these economies on to their clients who are ultimately the small-scale stallholders and hawkers that constitute the wet market system.

(2) ***Costs***: Supermarkets depend upon a standardized product. This encompasses grading and pre-packaging[14]. Whilst these services are usually provided in the first instances at the farm gate level in the Occident, the scale of farms in the Orient militate against this. As a result, many supermarkets have to provide their own distribution centers that undertake these services. These are complemented by many in-store facilities such as refrigeration and special treatment facilities. Thus supermarkets have costs that wet market operators do not. These are direct costs. Supermarkets also have to sustain higher indirect costs usually associated with wastage. Because wet market operators tend to select their produce themselves, their wastage factor is very low.

Combined, the alleged cost advantage enjoyed by supermarkets may in fact be not as pronounced as first thought[15].

Supermarkets recognize the threat they face from wet markets and have responded by adopting a number of the techniques of the wet markets. These are also discussed later.

Nevertheless, "wet markets are experiencing a steady decline in their share of business, in most countries"[16].

Recent events suggest that this trend will accelerate.

Wet markets have always been associated with less than optimum hygiene conditions. SARS made people aware of the need for higher levels of hygiene. Singapore's wet markets certainly experienced a drop off in customer during the incidence, a reduction that has not fully recovered[17]. In response in May 2003, Singapore's National Environment Agency (NEA) made it mandatory for all stallholders and their assistants in the country's 134 public wet markets and cooked food centers to take their temperature twice a day. The Government supplied around 60 000 kits comprising a digital thermometer, a temperature record card, an

[14] This includes the fact that many pre-packaged produce are presented in many consumer unfriendly sizes. Examples are TWO cucumbers THREE cobs of corn, FOUR tomatoes.

[15] An extremely old Singapore study (Singapore 1992) showed that across 34 vegetables and five fruit, wet markets had higher prices in all but 12 items.

[16] ACNielsen. Singapore, 4 June 2004. Modern Trade in FMCG Experiences Strong Growth in 2003.

[17] The linkage of wet markets with potential health problems is graphically illustrated in Brunei in December 2004 where at Bandar Seri Begawan several wet markets experienced a downturn after the Fisheries Department issued warnings and updates regarding the red tide phenomenon. Stalls were being shut as the number of customers visiting wet markets declined.

advisory in four languages on how to take temperature, and an *I'm OK* badge. As the NEA's Press Release stated "The public can then have peace of mind when they shop and eat in these places".

However, of greater concern is the potential of Avian Influenza A - or 'bird flu' - to be incubated and spread from wet markets. It is noted that most of the deaths in Hong Kong in 1997 and 2003 occurred after the victims had visited live wet markets whilst Hong Kong took strenuous steps to counter the condition that lead to the deaths[18], concern remains. Avian influenza through the association of birds in live and wet markets resulted in deaths in Thailand and Vietnam.

To be fair, SARS also caused the drop off in the customer in modern retailers across the region. All places where large groups of people gathered suffered decline in customer.

Some authorities are calling for the wet markets to be closed[19]. Instead some experts are calling for governments to introduce campaigns to improve hygiene and sanitation in wet markets and to discourage trapping and selling wild animals by educating customers and stall owners about the health risks of keeping live, wild animals in close proximity to humans. Whilst this relates specifically to live and / or wild animals there are general implications for wet markets as a whole.

Until the wet markets can address their perceived lack of hygiene, it is likely that they will suffer increasing levels of government regulation as well as desertion from consumers.

Wet markets face another source of pressure to close. The lack of formal systems that typify wet markets is the very reason why various authorities find it difficult to collect revenue from them. In contrast, the highly formalized structures of the modern retailing sector allow for their easy capture in terms of revenue raising.

2. Modern Retailing

It is difficult to identify exactly when did supermarkets commenced in Asia. In the case of the extremely developed and sophisticated market of Singapore there was more of a gradual emergence rather than suddenly one day the first supermarket just appeared[20]. In contrast, for China Tian (2004) was much precise, dating the formation of supermarkets such as Lianhua and Hualian to 1993[21], and hypermarkets such as Carrefour, Wal-Mart, Auchon, and Lotus to 1995. Our observation is that throughout the entire Asia Pacific region, the most recent development of modern retailing has been in India and Bangladesh[22].

Since then, the growth of supermarkets in the Asia Pacific region has been staggering.

From their beginning, supermarkets were the direct antithesis of the traditional methods of retailing in terms of physical conditions for the consumer:

- Air-conditioned.
- Not smelly.
- Wider aisle with shopping trolleys.
- Car parking.

Given these various attributes it is little wonder that modern retailing as represented by supermarkets have experienced such rapid development in the Asia Pacific region.

A summary of those development and emerging trends is offered below.

- Compared with Europe, North America, and Australia, Asia's retail sector is an immature one. The sector is currently dominated in numbers by traditional stores and wet markets.
- Whilst the traditional sector has the vastly greater number, their share of the total grocery market is rapidly declining.
- Whilst the rates of growth experienced by the supermarket sector have been massive, it must be remembered that they are starting from such a low base. These rates of growth just cannot be expected to continue indefinitely into the future.

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[18] In 1997, quails and all aquatic birds, including ducks and geese were banned from Hong Kong markets and all bird markets forced to undergo a clean day every month when they are all are emptied simultaneously and cleaned.

[19] ABC News in Science, July 2004, citing a consortium of scientists from the New York-based Wildlife Conservation Society and the January 2004 edition of the prestigious British medical journal **The Lancet**.

[20] Asian Markets Research and Aussasia Resources (2000) traced the emergence of the current supermarket chain of Cold Storage through its antecedents of Tops and Robinson's back to the original Cold Storage and Oriental Emporium around a century ago. Taiwan and Hong Kong have had modern retailing for more than 20 years; see USDA (2004a) and Goldman et al. (1999), respectively, with Hong Kong's PARKnSHOP chain claiming to have opened its first store in 1973.

[21] This was also the year of Korea's first hypermarket (USDA 2004b). For China's supermarkets in general, see Gale et al. (2004).

[22] The USDA use the term ''nascent' to describe India's retail food industry (USDA 2004c).

- One of the strengths of the modern retailing sector is the vast array of formats. The following are forms that have emerged in Asia:

Supermarkets	Hypermarkets	Convenient stores
Petro-stations	Specialty stores	Department stores
Buying clubs / warehouses		

  "Blue" and "Green" formats for stores operating in residential and industrial areas.
- Western retailer chains are moving into Asia with major growth strategies[23]. Multinational retailers with presence in Asia include:
  - ❑ Jusco — China[24], Japan, Hong Kong, Malaysia, Thailand
  - ❑ Tesco — Thailand, South Korea, Taiwan, Malaysia, China, Japan
  - ❑ Delhaize — Thailand, Indonesia, Singapore
  - ❑ Wal-Mart[25] — China, South Korea
  - ❑ Promodes — Taiwan, Indonesia, South Korea
  - ❑ Auchan — Thailand
  - ❑ Casino — Taiwan, Thailand
  - ❑ Costco — China, South Korea, Taiwan
  - ❑ Metro — China, India
  - ❑ Carrefour — China, Indonesia, Japan, Singapore, South Korea, Taiwan, Thailand, Malaysia
  - ❑ Makro — Philippines

  It needs to be noted that whilst the above list emphasizes western retail chains, retailers from Japan and South Korea have also been active in China's "retail food revolution" (*AgraFood Asia*, October 2004 No. 126, and December 2004 No. 128) as well as other markets. It is possible that non-western retailers are not as readily observed because if they already participate in a retail activity in Hong Kong they can participate on the mainland. This is how the Japanese retail chain Jusco entered China and how the activities of the Hong Kong-based ParknShop are less noticeable.
- The success of Western retailer chains in Asia has been very uneven. Many have succeeded but just as many have failed[26].
- With the growth of Western style retail chains, there has come the development of western-style distribution centers. This has been particularly true for Japan and Hong Kong. Such distribution centers have major implications for the importation of fruits and vegetables in competition against locally supplied product.
- As part of its accession to WTO, China has had to liberalize regulations relating to retail ownership.
- Unusual alliances are being formed, especially in the service station sector and C-retailing, also known as convenience retailing.

It is our view that modern supermarkets will continue to gain strength in the region.

Notwithstanding the high costs associated with store rental, provision of air-conditioning and washed floors, supermarkets are able to offer lower prices compared with the likes of provision stores and the ubiquitous Mom-and-Pop stores. These are declining rapidly throughout the Asia Pacific region[27].

We consider that supermarkets and their ilk will make comparable in-roads into the general fresh product area. By this we mean fresh fruits and vegetables, fresh meat and fresh seafood's. One positive factor favoring the growth of supermarkets in the general fresh area is the facility for trace back. Modern supermarkets abide by stringent hygiene and sanitation standards. Trace-back capability exists for virtually

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[23] This section was initially part of the project **Exporting to Asian Markets** undertaken by Asian Markets Research Pty.Ltd. In 2002 for the Department of Agriculture of the Government of Western Australia. The data established then has been regularly updated largely through the facilities of the library of the Trade Development Board in Singapore and the library of the International Trade Center in Geneva.

[24] It is noted that under Chinese law foreign retailers can only set up operations in the form of a joint venture with local companies.

[25] Excludes part ownership in other retailers in other countries.

[26] The Dutch cash and carry chain Makro was the first foreign retailer in Taiwan, commencing in 1989. In 2003 it abruptly closed its six stores. Royal Ahold has similarly declined in Singapore and Malaysia.

[27] As illustrations, in Singapore supermarkets increased in numbers from 154 to 187 between October 2001 to December 2003 whilst traditional provision stores fell from 2430 to 2066 in the same period (ACNielsen 88). In South Korea in the period 2001 to 2002 the combined sales from department stores, hypermarkets, supermarkets, and convenience stores rose from W36.2 trillion to W42.1 trillion whilst the sales from traditional markets fell from W111.5 trillion to W104.1 trillion (USDA 2004b).

all foods. As noted in the section on wet markets this attribute will become increasingly a defining issue in the marketing of fresh food.

We are not so confident that supermarkets will make as equally great as in-roads into the fresh fruits and vegetables sector. This is not withstanding the great emphasis being placed on the fresh fruits and vegetable component by the modern retailers: for example Rustan's, one of the major retail chains in the Philippines has introduced the "Fresh" concept. We are certainly not confident that the supermarkets will totally replace the wet market system.

One of the criticisms of supermarkets is that in their efforts to standardize in order to achieve their needed economies of scale, they standardized the handling of all fresh fruits and vegetables. Given the requirement for individual treatment in the sector for reasons of different rates of respiration, different temperatures, different humidity, even different rates of the emission of ethylene, a standardized treatment resulted in a poor fresh product.

Notwithstanding this, going back only a few years all the fresh produce was handled at the one temperature, which, whilst highly suitable for the main produce such as apples or citrus, was it invariably being too low or too high for most other products[28]. Developments in cool chain management, especially at airport handling systems and general storage, and new forms of packaging, such as modified atmosphere packaging, have assisted in addressing these issues. Increasingly we have observed that supermarkets now offer highly individualized handling conditions for different classes of fruits and vegetables[29].

Nevertheless, the drive to gain economies of scale through standardization is still a powerful driver. To some extent this may explain why the modern retailing sector tends to have a disproportionate emphasis on products that have well-known and easy handling characteristics and are available in long run lines. Potatoes, carrots, onions, apples, and citrus are such products. When the conditions for standardization readily apply, retailers are induced to import the products directly through their own distribution systems rather than through the usual importer / wholesaler route. In Taiwan for example it is estimated that around 15 percent of all imports of fresh fruits occurs directly through the retailers.

3. Convergence

What we do forecast is a convergence in the form of retailing. In this convergence we see supermarkets trying to incorporate aspects of wet market operations whilst wet markets are being forced to adopt a number of supermarket features.

Driving the latter has been government and / health authorities. As noted, these have been most concerned about aspects of health and hygiene at the wet markets[30]. However, it is just the authorities that are driving the reforms of the wet markets. One of Guangzhou's wet markets has recently been totally remodeled. It now has non-slip floors to handle the inevitable water, fluorescent lights combat the weakness of "dark and dingy", a ventilation system provides fresh air, work surfaces now have wipe-clean tiles to prevent the build up of bacteria, and emergency lighting and clearer signage make for a more consumer-friendly environment. More importantly, the stallholders funded these reforms[31].

Some of the wet market features that supermarkets are adopting include:

- Loose product not packed/wrapped;
- Open stands where all the produce is displayed rather than a small just having a small volume on display that is continually topped up from a cold store.

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[28] We found the same observation equally true for a number of steps along the cool chain.

[29] We suggest you do what we invariably do in a modern retailer. That is, check the temperature readings on the various cabinets that display the different fruits and vegetables. In addition, see how frequently the temperatures are checked and the temperatures are at the various times of reading. Examine what leafy vegetables are in the cabinet where there is an energetic humidifier at work.

[30] Asian Markets Research and Aussasia Resources (2000) cited the example of meat in Singapore where meat vendors were required to have refrigerated cabinets and cold storage. These cost approximately S$6 000 each, a cost factor that was eventually borne by the consumer through increased wet market vendor's prices. As long as wet markets are not air-conditioned, the opening of cabinets in ambient temperatures of at least 20°C results in a very heavy degree of condensation. This requires the vendor to continually wipe out the cabinets so potential customers can view his wares. One must question the hygiene of the cloth used to mop up the moisture. In addition, the Government has had to upgrade the electricity supply capacity to the wet markets to accommodate the surge of power usage due to the introduction of the Chillers. Again, costs must be passed back to the user, and again, this will raise the cost of doing business in the wet markets.

[31] Another view on "convergence" involving supermarkets is Hu (2004).

Supermarkets are attacking the limited range of fruits and vegetables offered at wet markets by increasing the range that they offer. This can be in terms of total range of products overall as well as varieties of any given product, e.g. different types of lettuce, a greater number of different red and green grapes.

Finally, supermarkets have recognized the inevitability of wet markets in the Asian context and have thus incorporated wet market-type stalls in their new store formats. PARKnSHOP, the Hong Kong-based food retailer that has more than 20 outlets in northern and southern China now incorporates a wet market in each of its new Megastores. Wellcome, PARKnShop's major Hong Kong competitor, has introduced the same concept at its new 'superstore' in Taiwan.

Another effort used by modern retailers to emulate some of the features of a wet market is the introduction of a form of a food court where ready-to-eat can be cooked and consumed within the shop's environs.

4. E-retailing

We are aware of the emergence of e-retailing in the Asia Pacific region. However we consider that its impact on fruit and vegetable marketing will be minimum.

E-retailing requires very high degrees of standardization so that the buyer without actually seeing the product can be confident that what is delivered to the buyer is what the buyer thought exactly what she/he was to get. Such standardization is readily available in many processed food lines. Frozen food products can also be standardized. It is argued that such standardization is particularly difficult to achieve in the fresh fruit and vegetable sectors.

Another inhibiting factor is the standardization of language to describe a product. For example, not every purchaser wants a blood-ready tomato to eat by tonight. But one person's version of a ripe tomato is different to another. The same can be said for bananas where for some consumers a "ripe" banana is one with no brown sugar spots where-as for another it is a banana with a measles-like covering of sugar spots.

5. Food Service Sector

The food service sector has a multiplicity of applications:

- Fast food industry that ranges from traditional food courts and hawker stalls to Western-style family restaurants[32]. The western presence is a result of both Asians who have been to the West either as students, tourists, or business people, and the aggressive expansion policies of the fast food chains themselves. Exposure to Western culture that incorporates the fast food sector comes through television and movies.
- Catering that ranges from in-house company through to food at large scale sporting venues.
- Providing and supplying of food to the likes of shipping companies, tour operators and airlines.
- Formal dining at star-ed hotels and restaurants[33].
- Institutional catering at hospitals[34], schools and universities, prisons, and the armed forces.

Asia eats out. Eating out is an every-day event in Asia for a number of reasons[35]:

- Habit
- Huge number of places conveniently available.
- Cheapness.
- Inappropriate facilities at home that militate against too much cooking at home.
- Comparatively few facilities such as refrigerators and microwaves that encourage the application of home cooking.

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[32] Some of the western-style fast food outlets that are now in Asia include Hard Rock Café, Dan Ryan's, TGI Fridays, McDonalds, KFC, Pizza Hut, Arby's, Kenny Rogers, Taco Bell, Burger King, Wendy's, Swensen's, Starbucks, Sizzler, Pret A Manger, and Hokka Bento.
Locally developed western-style fast food chain includes Lotte (originally from Japan even though the initiator is Korean), Mosburger (Japan), Jollee Bee (Philippines), and Coral De Café (Hong Kong). There has been some fusion of the two with western-based fast food outlets offering a localised version of the same main product; for example, in Malaysia McDonald's have a *rendang* burger and a *kiasu* burger in Singapore whilst in Japan Mosburger offers "fries" made with *gobo* ***Arctium lappa***. Jollee bee's hamburger has a vastly sweeter and more chillie flavored sauce compared with any western hamburger.

[33] In the region these cover the full gamut of cuisine such as American, French, Italian, Japanese, Korean, Thai, Vietnamese, Indian, Himalayan, Mexican, African, Caribbean, and, dare we say it, Australia.

[34] Hong Kong's 42 hospitals have 1.2 million in-patients annually (USDA 2004d.

[35] In 2001 it was estimated that every Korean spent nearly 11 percent of total expenditure on eating outside of the home (USDA 2002).

- Time pressure for working families

The size of the food service sector in Asia is staggering:

- In Japan, it is bigger than both the automobile industry and the country's electronics industry. On average, a *shinkansen* leaves Tokyo Station every five minutes with an average of 14 carriages with an average of 150 people per carriage, of whom around 80 percent would buy some form of *obento* or boxed meal[36].
- Hong Kong has nearly seven million residents but hosts over 15 million visitors annually. The very vast majority of the visitors eat out. Singapore has three million residents and six million visitors. One Singapore hotel provides around 4000 covers or meals a day[37].
- Combined, the airline catering facilities of the Philippines, Hong Kong, Thailand, Indonesia, and Singapore produce over 100 000 meals a day.

Thus for the fruit and vegetable producers in the region to ignore this sector is to do so at their own peril.

However to access all components of the sector is not that easy.

To begin with there is a high requirement for consistency of supply. This is particularly true for the catering sub-sector with its need to have supplies highly regularly: what would happen at McDonald's if there was no lettuce? There is also a high requirement for consistency of quality in terms of size, variety, and color.

Second, not only must supply be consistent but so too must prices. In those sub-sectors that must fix prices in advance or print menus, the requirement that the price fixed at the time of quoting must be the same as the price at the time of delivery is imperative.

Third, in some of the sub-sectors, the supply runs are very large.

Whilst the first two aspects militate against most local fruit and vegetable producers, it is the third one, length of supply run that is particularly onerous for local suppliers.

As a broad rule of thumb, low- to middle-income earners frequently visit food courts and hawker stalls. They also take lunch at cafeterias, canteens and hawker centers that may be located within their work environment. Here the emphasis is upon cheapness of cost, quickness of service, and localness in taste. They also eat at western style fast food restaurants that highlight the same three features.

Middle- to upper-income earners tend to eat at full service restaurants. Such facilities are also the site for company events such as staff dinners. Weddings and celebratory festivals such as Chinese New Year, Mid-Autumn Festivals, Christmas, and *Idul Fitrv* / *Idul Adha* are also held in such facilities. Likewise' the nouveau riches of the region will continue to exercise conspicuous consumption at high-end restaurants.

As an equally broad rule of thumb, the food service sector catering to the low- to middle-income earners tends to use local ingredients, especially fruits and vegetables. At the higher level a relatively higher proportion of these items come from imported produce. If anything, we see the high end of the market as being of limited prospects for the local fruit and vegetable industries. We see the sector as not moving forward as distinct from stagnating or even declining. This is because with the growth boom gone from the region, most diners are conscious of the need for value for money. But there still is enough rich or those wishing to portray their being rich to keep this sector alive.

In contrast, we see the lower end sector expanding in both numbers as well as form, such as the introduction of food court-like areas in the newer supermarket centers.

We see this development as being good for the regional fresh fruit and vegetable industries. However we do not see the growth being spread equally across all types of fruits and vegetables. We see a continuation of the role of traditional fruits, such as apples and citrus, as desserts. With vegetables we see major benefits for traditional types of vegetables, especially the green leafies such as bok choi, choi sum, Chinese broccoli, and garland chrysanthemum[38]. We also see some of the traditional root crops and fruit

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[36] The term "average" is used to cover the differences between the different forms of *shinkansen*, such as *kidomo, hikari,* and *noizumi*, which have different carriage combinations.

[37] The impact of SARS on dramatically travelling within the region must be considered when examining data on the region's food service sector for 2003.

[38] Choy sum / Chinese Flowering cabbage. ***Brassica chinensis*** var. ***parachinensis***:
Garland chrysanthemum***.*** ***Chrysanthemum coronarium***. *Shingiku* (Japanese), *tung ho* (Chinese)
Chinese broccoli / Chinese kale / kailaan / white flowering broccoli. ***Brassica oleracea*** cv. group Chinese Kale.

vegetables such as bitter melon, daikon, and winter melon[39] benefiting from expansion in this sector. This is because the margins in this sector are so tight that the risk of experimenting with new menu presentations involving new vegetables is untenable. Better to do small experiments with the known products rather than risk failure with new ones. Finally, the widespread notion of the importance of freshness will see a preference towards local products that infer freshness rather than imported products that has questionable freshness.

6. Changing Outlets: Summary

We consider that the changing elements as to where consumers can acquire their fruits and vegetables to be very positive for the region's fruit and vegetable industries.

We consider that the wet markets will continue to hold their own against the modern retail sector as far as fresh fruits and vegetables are concerned. We consider that whilst too much emphasis has been placed on the role of 'fresh' in the modern retailing sector, for those fruits and vegetables that can be standardized. The wet markets will suffer loss of market share. Such products are apples, most cirtus, potatoes, carrots, and onions. Fruits and vegetables which require more specialist handling will continue to do well in the wet markets. Producers of such products should continue to supply importers and wholesalers who operate through the wholesale market system.

The food service sector will continue to grow. Producers of fresh fruits and vegetables in the region should consider that their best prospects lie with the under-appreciated middle to lower end of this sector. This is where the volume will continue to be. At the same time, this is the sector that has a preference for those fruits and vegetables that are traditionally grown in the region and with which producers have great expertise. This is particularly true for the group called 'asian vegetables'.

CHANGING METHOD OF MARKETING

We have noticed a number of different changes in the method by which fruits and vegetables are being sold in the region.

On the whole, these methods usually relate to imported produce. However we feel that some of these methods should be adopted by regional horticultural suppliers in order to maintain their competitive position.

Two new methods will be discussed:

- Basket of products
- Supply chain management.

1. Basket of Products

It has been observed that the most successful suppliers of horticultural products into region do not supply just the one product. Instead they supply a series of products, albeit in the same product category that is instead of supplying just, say, plums they also supply other stone fruits.

When doing so they recognize that they are invariably supplying into either a wholesaler/importer situation or directly to a supermarket. In either case, they are aware that their buyer handles a multiplicity of products. If their buyer is an importer or a wholesaler, they will handle around ten products, may be a few more. If the buyer is a retailer then the total number of products, called SKU or Stock Keeping Units, handled is likely to be measured in thousands.

One non-price means by which these sellers are increasing their appeal to their buyers is by seeking to reduce the buyer's headache. If the buyer has to buy, say, apricots, plums and cherries, there is the potential for three lots of headaches. If however he can access all three from the one supplier then he will reduce his headaches, thus allowing himself to concentrate on those products that are giving him real problems.

The principle of marketing a basket of products has long been established in the culinary herbs industry where the seller frequently seeks to supply at least six of the usual suite of ten to twelve most common herbs[40]. It has also been common in the hydroponic industry where the same technology can be

[39] Bitter melon / balsam pear / bitter gourd. ***Momordica charantia***
Daikon / Chinese radish / long radish. ***Raphanus sativus***
Winter melon / wax melon. ***Benincasa hispida***. *Dong gua* (Chinese)

[40] See Vinning and Hemphill (2001).

used to produce at nearly the same time a suite of green leafy vegetables, especially the different styles of lettuces.

The principle is now being adopted across a number of horticultural products. To some extent it merely mirrors the efforts of the supermarket sector to concentrate expertise through what is called "category management" which is defined as the management of product categories as a strategic business units. The practices can empower a category manager with full responsibility for the assortment decisions, inventory levels, shelf-space allocation, promotions and buying. With the authority and responsibility, the category manager may be able to judge more accurately the consumer buying patterns, product sales and market trends of that category. One person is responsible for a category all the way from procurement to sales, instead of individual function areas being in charge.

This is an effort by supermarket management to gain the benefits of product expertise amongst their staff whilst reducing their headache factor. Thus on the one hand you have the buyer concentrating on a few categories whilst on the other you have the sellers expanding their supplies across a range of comparable products. We have observed the following "category management" categories:

- Root crops
- Green leafies
- Pip fruit
- Stone fruit.

Alliances

A variation on the basket of products principle is that of sellers forming alliances. However the aim is the same, that is, to increase their non-price appeal to buyers by reducing their headaches.

What we have seen are producers of the same products joining in marketing alliances in order to supply to their buyer product on a year-round basis. Having just to deal with the one selling organization over the year reduces the buyer's headache. These alliances work best when the suppliers have counter-seasonal production and do not compete with one another. Such conditions operate best when there is a clear hemispheric difference, for example Pink Lady apples grown in Australia and New Zealand, and Pink Ladies grown in the north west of the United States.

We see the basket principles being applicable to the likes of mangoes in the region. On a north-south basis there are the *Chaunsa, Sindhri, Faidri,* and *Banganpali* varieties from Pakistan, and the Caraboa from the Philippines. On an east-west basis there are the Thai varieties of *Thai Honey, Red Flower, White Flower,* and *Ivory* and the unique green-ripened *Haromanis* from Indonesia.

2. Supply Chain Management

Supply chain management is being increasingly stressed as a holistic solution to create a win-win situation for the team as a whole rather than trying to exploit members within the channel[41]. Supply chain is defined as an intricate network of suppliers, distributors and customers who share carefully managed information about demand, decisions and performance and who recognize that success for one part of the supply chain means success for all. The current theories of supply chain suggest that successful firms recognize the limitations of the adversarial model of exchange and instead work with other firms by engaging in co-operative long term partnership that help to improve the efficiency of the supply chain as a whole for the mutual benefit of all parties involved. Successful firms therefore realize that the real competition is not firms against firms but supply chain against supply chain. Therefore the focus of supply chain management is upon the management of relationships so as to bring a more profitable outcome for all parties in the chain.

Perhaps the biggest change we noticed in the method of marketing fruits and vegetables in the region has been the change from, essentially, an ex-farm basis to a DIS or Delivery Into Store basis.

Let us explain.

With ex-farm selling the producer basically sets the price for his product at the farm gate. The buyer is responsible for all the costs associated with picking up the product and taking it to the warehouse/shop/home. A comparable variation is with exports where the price is set at the point of export, be that airport, seaport, or land border crossing. Again, the buyer is responsible for all costs associated with moving the product to the point of where it can be used by the buyer.

In contrast, with DIS selling the seller delivers the produce directly into the store of the buyer. In this regard, the term "store" can refer strictly to a factory, a warehouse, and cool store facilities, even the

[41] See methods of Supply Chain Management by Raveendaran et al. (2003)

actual store. In reality the term "store" means where the buyer is able to make money from the purchase. DIS marketing is essentially about the supply chain.

The key to DIS marketing is that the buyer is not sensitive to the actual buying price *per se*. Instead, his focus is on what it costs him to get the product into a position where he can make money from the purchase of that product. DIS marketing recognizes that invariably buyers spend as much on getting the product into a position where they can make money as what it costs them to purchase the product in the first place.

With DIS marketing, the seller becomes more than just a marketer of fruits and vegetables. Instead, the seller becomes a manager of the entire supply chain from the farm to the buyer's store. He becomes a logistics expert.

The critical element for the seller in this form of marketing is that he is not just selling on price.

With ex-farm selling[42], the main element in the seller's marketing armory is price. This is not withstanding marketing issues such as quality, grading, variety, packaging, and timeliness of supply.

In contrast, with DIS marketing the seller has all the elements associated with the supply chain at his command to play with. If the seller can some-how extract an economy of scale from the logistic system he can increase his appeal to the buyer by lowering the DIS price but not lowering his actual selling price. To some extent the longer and more complex the supply chain, the more chance the seller has of extracting some form of economy of scale from it.

For the seller to become a logistics expert is not as harsh as it sounds, as there are now multitudes of what is called third-party logistic suppliers or experts who can actually take over the supply chain functions.

What is needed to be a successful DIS marketer is a detailed knowledge of the entire supply chain from the farm to the buyer's 'store'.

3. Other issues

There are two other major issues that in our opinion will affect the future prospects of fruit and vegetable marketing in Asia and the Pacific:

- China
- WTO.

(1) China

Throughout Asia, the presence of fruits and vegetables from China is ubiquitous. Exports of five vegetables - mushroom, carrot, cabbage, onion, garlic - has more than doubled over the past decade to over one million mt. Fruit exports (orange, grape, banana, pear, mandarin, and apple) have also doubled over the same period to roughly the same volume.

With the omnipresence of Chinese fruits and vegetables in the region there is a tendency to suggest that China has purchased market share at the cost of price. A close study of the Singapore market shows that this is not the case (Vinning 2003). There, China's share of the apple market has surged. In 1997 it supplied just 16 percent. Since then its share has trebled and it now supplies just under half of the total. At the same time, Singapore's import data show China's average CIF price in the three years to 2001 as greater than the overall average on one in three occasions. The clear implication is that variety, packaging, and grading have been the causes of China's success, not solely a low price. In the Indian apple market, China's market share has grown strongly against imports from the United States, New Zealand, and Australia (Vinning and Tobgay 2004). This is attributed to China's decision to promote itself by lower prices rather than the expensive promotional activities engaged in by the other exporters.

In face of this current omnipresence and the rate at which it has grown, there is a tendency to say that China will dominate the supply of most fruits and vegetables in the region.

Whilst not denying that China has a huge presence in horticultural supplies in the region and that this presence will grow, we do not believe in the inevitability of Chinese dominance.

To begin with, we are aware that whilst China exported nearly a million mt of orange, grape, banana, and apple, it also imported in 2003 over half a million mt of the same four fruits. Exporting and importing in China occur on an east-west axis. Because of internal logistic problems, north-south movement is difficult. As internal logistics improve then so too will the apparent contradiction of exporting and importing of the same product as more product flows north-south within the country rather than east-west in and out of the country. Increasing wealth will assist the move of keep products in the country. The same increasing wealth will also result in a greater presence of other countries' produce: already more than 20 countries export fruits to China.

[42] And its export variations of FOB, or Free On Board, pricing.

A second issue is a whole suite of issues graphically illustrated by Herzfelder (2004). He painted a typical five-year scenario for Chinese exports:

Year #1: A market is identified.
Year #2: Farmers start to produce the product.
Year #3: Exports start.
Year #4: Production trebles.
Year #5: Reactionary forces set in there-by forcing prices down. On the one hand, importing countries institute protectionist measures. On the other, and as we have seen with Japan's deliberate decision to avoid Chinese vegetable and instead opt for imports from Vietnam, residues have become a major issue.
Year #6: Farmers start to look for another "hot crop".

The third issue is the value of China's currency. Most commentators consider that the yuan is undervalued[43]. China is under pressure from its major trading partners to revalue the currency. It is being reminded that artificial currency values are contrary to WTO rules of open, fair, and freer trade. Any appreciation of the yuan would limit the competitiveness of Chinese exports[44].

So whilst China might be a dragon, we note that, at least in western mythology, the dragon was tamed.

(2) WTO

This section does not intend entering the pros and cons of the WTO debate.

Instead, it is to record one less heralded reform induced by the WTO that is having, and will continue to have, a major impact on fruit and vegetable marketing in the region.

Previously, fruit and vegetable exporters from the region suffered from the random imposition of measures allegedly designed to protect the health of the importing country. This was particularly true for the smaller exporters from the smaller countries. Intra-regional trade was actually more fraught with difficulty than extra-regional trade as the importing countries sought to protect their domestic producers from imports from like producers in nearby countries. Fresh produce was subjected to undue scrutiny and difficulties through what is called in WTO parlance artificial sanitary and phyto-sanitary (SPS) trade barriers[45].

The impact of the WTO in the region has resulted in a whole new approach. SPS measures are still applied as member governments can act on trade matters to protect their country's human, animal or plant life health. The Avian Flu problem is a classic case.

However, intervention is only acceptable if:

- It is only that necessary to protect the human, animal or plant life.
- The standard to which the intervention is aimed is based on science.
- The intervention action is not arbitrary or unjustifiably discriminates between countries where identical or similar conditions apply.

If an exporting country can show that the measures it applies to its exports achieve the same level of health protection as in the importing country then the importing country has to accept the exporting country's standard and methods. Standards are to be based on international standards, guidelines and recommendations such as with Codex. Higher standards may be applied if there is scientific justification.

We believe that these to be important developments.

The development of appropriate standards is of the highest importance to the fruit and vegetable industries in the region. We do not believe that the development of these standards should be left in the hands of bureaucrats in distance places. We urge the member countries to participate and participate with vigor in the setting of these standards.

CASE STUDY

We will demonstrate the various elements noted above regarding changes in the method of marketing by reference to a case study from the Kingdom of Bhutan.

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[43] See "Trade surplus pits China in a bind", ***International Herald Tribune***, January 12 2005.

[44] The same ***Herald Tribune*** article mentioned a number of unfair trading practices that includes government subsidies to exporters.

[45] For example, unachievable residue limits, and over -energetic inspections coupled with disproportionately high sample levels.

We see the case study as being particularly relevant to this seminar for three main reasons.

First, Bhutan is landlocked and thus has limited scope to exercise economies of scale in its logistics. If the principles can work for Bhutan then they should work for every country with more transport options.

Second, because of its climate and geography, Bhutan has limited options in its production capabilities. Given that it has to do with what it has, it has to make sure that what it does it does very well.

Third, the case study involves an export market development exercise in July 2004 from the Kingdom to Dhaka in Bangladesh. In shows that profitable markets need not be in the far distance but instead can be close and unexpected[46].

The keys to the case study are:

- Background market research;
- Detailed application of facts and figures;
- Use of a basket of candidate products;
- Consistent application of criteria to establish physical, market, and financial success;
- Drawing of lessons.

Background

Bhutan is a land-locked Buddhist Kingdom in the Himalayas. To the north is China and to the south, east and west is India.

The country has remarkable geographical diversity:

- The lowest point is a mere 70 meters above sea level (masl) yet the highest is over 7700 masl.
- The majority of agriculture production occurs between 1000 and 2500 masl.
- Climatic regimes range from sub-tropical to Alpine.
- Rainfall varies from 2000 mm per annum to less than 100 mm.

The country is oriented along valleys that run north south. This results in great difficulty in transport, as roads snake down one side of a mountain valley, crosses the river, and then climbs back up the opposite side of the valley. East-west travel is slow and tedious: even the major road down to the Indian border takes a loaded truck around six hours to go the 150 kms.

Background Market Research

Bhutan was aware that its altitude gave it a major production advantage in the region. That is, when the sun bakes the Indian sub-continent in the height of summer, temperatures are still mild enough at Bhutan's 2 000 masl to allow for the production of a series of summer vegetables. We were able to determine that vegetables were in short supply in Dhaka in the period June - late August. Specifically, what Bhutan could supply were the very vegetables in Bangladesh that were in short supply.

Our research showed that contrary to the general perception of Bangladesh being an undeveloped country; there was a strong and growing middle and upper class. Further, Bangladesh was developing western style supermarket chain retailing to service this emerging economic class. We established that Dhaka, the capital, had a series of cool stores of varying sophistication and costs that we could store our product in during our development phase. We established the ex-ante supply chain as follows:

- Move produce to Bhutan-Indian border
- Cross through India to Bangladesh
- Move from border into Dhaka

Our ex-ante estimates were that transport costs would be high but that there would be no SPS issues, that is quarantine and food safety problems.

As a consequence of the ex-ante logistics' costs, our goal was to target the market of middle to upper class being serviced through up-market retailer.

Basket of Products

We took a large basket of products with us: 17 vegetables and fruit. We were aware that the products had varying degrees of sensitivity to handling and different temperature requirements.

[46] This is contrary to the approach taken with the US$50 million joint venture Field Fresh Foods between the Rothchild family and the New Delhi-based Bharti conglomerate. This seeks to supply high quality - low cost fruit and vegetables to Europe, South East Asia, and the Middle East from several of India's northern states. AgraFood Asia October 2004.

Success Criteria

We determined that three basic suites of questions needed to be addressed in order to establish the viability of the export drive:

- How do the candidate products handle the journey to the target country?
- How do the candidate products compare with others in the target market at that time of year?
- Economic viability.

a. How did Bhutanese product handle the journey to Dhaka?

The products were subjected to two levels of high stress:

- Time from picking to final display.
- Adverse storage conditions.

A calendar of the time involved is shown below with the three days at the Dhaka's retailer being our estimate of the shelf life required firstly by the retailer and then the end-consumer:

Day	Activity
Day #1	Farmers harvest and commence accumulation
Day #2	Move to collection point at Thimphu in Bhutan
Day #3	Pack and transport to Phuentsholing, the border crossing between Bhutan and India
Day #4	Move to Burimari, the border crossing between India and Bangladesh
Day #5	Arrive into cool store Dhaka, then sort, grade and re-pack
Day #6	Dhaka retailer
Day #7	Dhaka retailer
Day #8	Dhaka retailer

We undertook a detailed assessment of the out-turn of the product after the eight days. The results were quite varied. At the high end, products such as asparagus and tomato had losses as high as 60 percent. A comforting number of products had losses in 20 - 30 percent range. But an encouraging number of products, including brinjal, beans, passion fruit, peas, and ginger, had an encouragingly low outturn of less than 10 percent.

From our assessment we identified nine products that we considered could physically withstand the journey.

b. Viability of other products

We visited a number of local markets and other retailers to assess availability, quality and prices of the products that emerged from our physical assessment criteria.

From this we were able to establish six of our products had a seasonal advantage.

c. Economic viability

These six products were then subjected to a detailed financial analysis to assess their economic viability.

Keys to the assessment were:

- Material costs to the farmer
- Packaging costs
- Labor costs including cleaning, grading, packing, and loading / unloading at eight points
- Transport
- Storage costs
- Documentation
- Taxes.

There are two sets of costs that we analyzed that we considered should be included but from our research were invariably not included in other profitability assessments:

- Weight losses all the way through to the returns from the retailer.
- Retailer's margin.

The returns from the retailer are critical because in some cases this was as high as 20 percent.

From this analysis we determined that five of the products would be economically viable under current conditions.

Supply Chain Management

Our assessment of the need to consider DIS as opposed to FOB marketing, we wish to illustrate how we used the supply chain analysis in order to improve both the profitability on existing products as well as open up the prospects for other fruit and vegetable exports.

The details of the marketing chain are shown below, along with comments as to what costs / steps can be avoided.

Step	Action	Comment		
		Action	Weight(kg)	
#1	Grower harvests		100	Need to remove field heat
#2	Grower packs	Purchase of *tokris* (bamboo baskets)	95	Grower to clean and grade
#3	Grower delivers to centralized collection	Transport	95	Appropriate transport
#4	Collection	Storage costs	95	To be cool / covered
#5	Pack for transport	Purchase of tokris, rice straw for insulation	90	
#6	Transport to Phuentsholing	Transport costs	90	To be at night to gain benefit of cool
#7	Transfer to Indian vehicle	Handling costs	85	Has to be done before border gate shuts. An avoidable cost.
#8	Documentation	Agent's fee	85	
#9	Transport to Burimari	Transport costs	85	
#10	Border documentation		85	Close on 5 hours were spent waiting. The vegetables were in an unprotected vehicle. Luckily it was raining and not blazing sun.
#11	Border Security Force inspection		80	
#12	Duty to enter Bangladesh		80	
#13	Clearance fees		80	
#14	Transfer to Bangladesh vehicle		80	Avoidable.
#15	Transport to Dhaka		80	
#16	Additional charges - grading, repacking	Purchase of cartons	80	To include percentage loss associated with spoilage
#17	Storage charges		80	
#18	Transport to store		80	
#19	Received in the store		70	Loss between 10 - 20 percent
#20	Store mark-up	Average 30 %	70	

If we just did FOB marketing we would be ignoring the fact that Steps #8 and #14 are avoidable. Admittedly we would not be paying these costs but the person who purchased from us would be and naturally the price we received would be lower in order for the buyer to sustain these costs.

With FOB marketing, we would also not be considering the possibilities that the losses associated with Steps #11 to #15 are avoidable. Yet these steps impact on the final loss represented by Steps #19 and # 20. If for example we could actually market 80 kgs and not just 70 kgs, we had another 10 kgs over which to

spread our costs. Again, with FOB marketing we would not have to address these issues, but again, the final costs would eventually be sheeted home to us.

In our view the way to avoid Steps # 8 and #14 and the costs associated with Steps #11 to #15 and eventually the turn-out from Steps #19 and #20 would be for us to adopt DIS marketing.

Key to that would be for us to acquire a cool chain / refrigerated vehicle.

Our analysis shows that the higher costs of a refrigerated vehicle is more than offset by the reduced handling costs and a final higher turn-out figure. The greater the load in the vehicle then lower the per unit cost.

We accept that we must resist the temptation to maximize the load within the vehicle in order to reduce per unit transport costs because vital space is needed to ensure optimum airflow and thus optimum use of the refrigeration facility. We also accept that we need to consider the post-harvest physiology of co-loading products with different temperature requirements and possible conflicting ethylene properties. These aspects are part of our current export marketing development efforts.

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2. MAJOR LESSONS LEARNED FOR ENHANCING THE COMPETITIVE EDGE OF SMES IN INTERNATIONAL MARKETING OF FRUITS AND VEGETABLES

Dr. Usman Mustafa
PLA Consultant
WWF, Environmental Education Program
Islamabad, Pakistan

INTRODUCTION

With the advent of WTO and globalization, agriculture in general and fruit and vegetable in particular have been expanded and become very competitive. The developing countries have experienced comparatively very rapid growth in their exports of fruits and vegetables. The trade has spread from an initial base of traditional tropical fruits i.e. bananas and pineapples to a broader array of fruits and vegetables. Growing consumer interest in healthy living and demand for fresh produce variety, freshness, and year-round availability has stimulated this trade. This has been facilitated by improvements in post-harvest care and international cold chain logistics as well as by improvements in market access to industrial country market (Jaffee, 2003).

The opportunities and challenges encountered today by international marketers are bigger and more diverse than ever before. New consumers are springing forth in emerging markets from Eastern Europe, the Commonwealth of Independent States, China and other Asian countries, India, Latin America, etc. Some of these emerging markets have little purchasing power today but hold the promise of huge markets in future. In the more mature markets of industrialized world, opportunities and challenge also abound as consumer's tastes become more sophisticated and complex. Increases in their purchasing power provide them with the means of satisfying new demands (Cateora, 1997).

The developing countries can harness the demand of the developed countries consumers due to the competitive advantages, which stemmed from a combination of agro-climatic and labor cost advantages. They can provide more cost effective supply of traditional or more exotic agricultural product all the year-round. Beside these, the logistical, historical, and cultural factors have strongly influenced the geography of South-North trade. Many developing countries with the concerns about adverse international prices trends, uncertain market prospects, competitiveness, and diversification are looking to further advances in horticultural exports as a means of fostering economic growth from the primary commodity exports i.e. coffee, cotton, tobacco, rice, etc. (Jaffee, 2003).

From vegetable export to high value industrial export, Taiwan is a good example of economic growth and development. Beside this there are a number of 'success stories' in this field (Benzinger and Shanmugasundaram, 1995 and FAO, 1989). New consumer choices, demand and regulatory measures are emerging, which appear to be raising the bar for new entrants while throwing challenges in the path of existing developing countries exporters. There is a serious concern about the food safety, environmental and/or social dimensions of their food supply chain especially after a serious food safety 'crisis', scandals, mass product recall, and other adverse events and miscommunications. They are seriously concerned about the health hazard of chemicals used in production of fruits and vegetables and willing to pay higher premium for fruits and vegetables produce with organic fertilizer and without chemical pesticides.

There is a serious response of consumers concerns that resulted a wave of legislative and regulatory activities and emergence of numerous private sector 'code of practice' or other technical protocols. The United Nations formulated a "Codex Alimentarius Commission", a body dealing with food standards. It is comprised of Food and Agriculture Organization (FAO) and World Health Organization (WHO) and is recognized by the WTO for the establishment of international food standards. All the exporting countries need to put standard of Codex Alimentarius in place in order to place themselves as a supplier of internationally acceptable quality of fruits and vegetables (SMEDA. 2000). The EU and USA are adopting measures to strengthen phytosanitary regulations to ensure improved food safety management and tractability of food products from farm to table. This has led to concerns that developing countries recent progress in fresh

produce products in EU countries is endangered. The average rate of growth in EU import volume of selected fresh vegetable, 1999-2000 (%) is presented at Table 1 (FAO, 2003).

Table 1. Average Rate of Growth in EU Import Volume of Selected Fresh Vegetable, 1999-2000 (%)

Import Item	Total EU Imports	EU Import From Third World Countries
Tomato	3.0	1.4
Carrots	2.4	0.2
Potatoes	1.0	-1.9
Onions	-0.4	0.3
Green Peas	9.8	11.1
Green Chilies/Peppers	5.4	7.2
Green Beans	5.2	8.6
'Minor' Vegetables*	2.5	4.8

* Classified by FAO as "fresh vegetables" and includes a broad array of vegetables not individually classified in the trade statistics of many countries.

Source: FAO TRADESTAT (Jaffee, 2003).

An other important change in international fresh fruits and vegetables trade is the new emerging distribution system in EU countries in which traditional role of urban wholesale market is changing or toning while a limited number of national or multinational supermarket chains account for large and growing proportion of fresh produce sale. This is well described by Dolan and Humphrey (2000), Stevens and Kennan (2000), Harris et at (2001) and Jafee (2003) for African countries which is equally important for other developing countries.

A number of multi-store retailers are pursuing a growth strategy based on competitive prices and driving down their operating and procurement cost (Garcia et al., 2002). Marks & Spencer (M&S) of the UK was one of the first companies who focused on product differentiation, making major investment to carry a broad range of chilled, prepared food products and a wide range of so-called 'exotic' fruits and vegetables. While other companies had used privately labeled products in order to offer price discount, M&S used private labels to signal especially high quality. This is relatively more prominent in UK as compared to other countries (Table 2). This has resulted in a situation where the fresh produce and chilled food sections of major UK supermarkets typically include dozens of exotic, semi-prepared, and/or ready-to-eat salads, vegetables, and vegetables combination products. This market segment can be an important focus for the developing countries export trade.

Table 2. Private Label Market Share of Retail Grocery Sales 2001 (%)

Country	Percentage
United Kingdom	43.1
Belgium	26.6
Germany	22.5
France	20.1
Netherlands	18.6
Spain	15.7
Italy	10.9

Source: Tassinari (2001)

If we want to expand our fruits and vegetables exports, there is a need to encourage demand-oriented entrepreneurship. The Small and Medium Enterprises (SMEs) sector contributes to the sound development of the national economy; prevents the concentration of economic wealth in a few hands; creates balance ownership structures; creates regional balance; harnesses under utilized resources; provides a smooth transition to higher levels of technology; facilitates service sector and particularly banking sector development; and provides people with fair and equal opportunities to engaged in business. By providing employments SME helps in reducing poverty. It also integrates the working of the large with the small through sub-

contracting and support institutes. Ultimately, it contributes to social and economic development of a country (Khan, 2004).

A number of countries and entrepreneurs have done remarkable performance in the international trade of fruits and vegetables. The overall objective of the paper is to describe the major lessons learned for enhancing the competitiveness edge of SMEs in international marketing of fruits and vegetables. The paper is divided in to different sections. In the first part, the situation of international marketing; the opportunities and threats are highlighted. In the second part, the basic definition of marketing; marketing concept; SME definitional issues and constraints are discussed. Constraints in fruit and vegetable production and exports are also pinpointed. In the third section, some successful cases of fruits and vegetables marketing are discussed. The fourth and the last section describe the summary, conclusion and lessons learned for successful marketing of fruits and vegetables.

SMALL AND MEDIUM ENTERPRISES (SMEs) AND MARKETING

SMSs

There are number of criteria for categorizing SMEs and it also varies from country to country. These are generally defined by the size of investment in plant and machinery, number of employees, value of export, etc. The International Labor Organization (ILO) define small enterprises having the following characteristics:

- Smallness
- Family ownership
- Reliance on indigenous resources

ILO further elaborated, "an enterprise cannot be generally regarded as small if it provides more than 25 full time jobs including those of the proprietors" (Khan, 2004). The definitions of SMEs used by various institutions in Pakistan are given in Table 3.

Table 3. SME Definitions Used by Various Institutions in Pakistan

Institution	Small	Medium
SMEDA	10 - 35 employees or productive assets of Rs. 2 - 20 million	36 - 99 employees or productive assets of Rs.20 - 40 million
SME Bank	Total assets of Rs. 20 million	Total assets of Rs. 100 million
Federal Bureau of Statistics	Less than 10 employees	N/A
State Bank of Pakistan (SME Prudential Regulations)	An entity, ideally not being a public limited company, which does not employee more than 250 persons (manufacturing) and 50 persons (trade/ services)* and also fulfils one of the following criteria: (i) A trade/ services concern with total assets at cost excluding land and building up to Rs. 50 millions. (ii) A manufacturing concern with total assets at cost excluding land and building up to Rs. 100 millions. Any concern (trade, services or manufacturing) with net sales not exceeding Rs. 300 million including land and building	
Sindh Industries Department	Entity engaged in handicrafts or manufacturing of consumer or producer goods with fixed capital investment up to Rs. 10 million including land and building.	
Punjab Industries Department	Fixed assets with Rs. 10 million excluding cost of land.	
Punjab Small Industries Corporation	Fixed investment up to Rs. 20 million excluding land and building	

* Enterprises exporting up to US$2.5 million a year are considered Small by the State Bank of Pakistan.
Source: SMEDA, 2004.

SMEs are playing significant role in socioeconomic development of a country but still facing serious issues and constraints. A number of short/medium term and long term issues are following (Khan, 2004 and SMEDA, 2004).

Short- and Medium-term Issues

- Business environment is biased against small firms.
- Relationship between Govt. and SMEs is weak. There is bureaucratic red tape; the attitude and behavior of Government officers are not friendly. These create inefficiencies in the delivery mechanism. The information materials are not provided in local language. The SMEs have poor access to resources.
- High tax rate are one of the major reasons for firm to drift into informal economy.
- Complicated labor laws and regulations, which also creates un-conducive production environment. There is also lack of HRD.
- Access to equity and formal debt financing has repeatedly been identified as a recurring constraint to SMEs growth and development.
- Technology plays a vital role in the vertical integration of firms. There is no adequate transferring of technology and up-gradation of SMEs mechanism.
- Access to market and industry information is one of the keys to developing successful business strategy. These also include the safety and other standard required by the importing countries. There is no effective system to provide this information.

Long-term Issues

- Environmental
- Literacy
- Law and Order
- Intellectual Property Right
- Infrastructure

Constraints in Fruit and Vegetable Production

There are number of constraints in the production of fruits and vegetables which create hurdle in the competitive environment of international marketing. These are common to many areas as they are mostly at the stage of "take-off" economy. The major problems faced by a number of developing countries are following (FAO, 1995; Nagy, 1995; Iqbal, 1996; and ADP, 2004):

- Poor physical infrastructure and post-harvest technology:
  - Poor transportation facilities
  - Inadequate storage
  - Poor physical handling of products
  - Inappropriate packing and packaging
  - Non-implementation of grades and standard
  - Lack of post-harvest technology
- Lack of market facilities (Rural and wholesale Markets)
- Inadequate marketing facilitating functions:
  - Inefficient marketing information system
  - Inadequate marketing credit availability
  - Lack of group action
  - Lack of marketing training
- Lack of marketing extension services
- Inadequate marketing research
- Poor marketing administration and development planning

Constraints in Fruits and Vegetables Export

There are a number of constraints hampering production and export growth of fruits and vegetables in most of the countries. These include:

- Highly skewed production
- Quality of the products are below standard
- Substandard packing, not attractive to consumers
- High prices of raw and packing material
- High freight rates
- Irregular shipping facilities
- Inadequate publicity (Mkt. skill, exhibitions)
- Lack of proper cooperative or association of growers resulting in ruthless competition among growers
- Inadequate contract farming

SUCCESSFUL CASES IN FRUITS AND VEGETABLES MARKETING

In this section some successful cases of fruits and vegetables marketing are briefly discussed. Some case studies are old and elaborated in FAO (1989) horticultural marketing resource and training manual. These case studies show how farmers in developing world have improved marketing and thereby increased their income. In each case study, important points are also elaborated. These case studies are not necessarily to be adopted but it is important to study the techniques and skills used and how farmers adapted their production and distribution to meet the needs of their customers.

Sri Lanka Floriculture Export Industry

There is a growing demand for cut flower in almost all countries of the world, especially the developed markets of Europe. Netherlands is the largest exporter while Germany is the largest importer of cut flowers in the world. Sri Lanka's Floriculture industry is buoyant and expanding. The inputs of technology and scientific cultivation farming have made floriculture production controlled, predictable and commercially viable. Apart from technological inputs and an educated manpower, Sri Lanka's main advantage is its tropical climate, with uniform temperature throughout the year because of its proximity to the equator.

The industry is capital intensive and sophisticated. Almost all the farmers have in-house Tissue Culture lab, Cooling Houses, Packing facilities, Pest Control Unit, Cooling and Green Houses facilities. All the items are imported either from Holland or France. The farms are structured on scientific line; each plantation site is specializing in different varieties of plants at different stages of growth. The production is streamlined in such a manner that most exporters manage to ship out one container every week. Poor quality cut flowers are sold in the local market. The growers have their own refrigerated lorries to transport the produce to Colombo airport.

They have highly qualified staff and farm employee i.e. professional agronomist, tissue culturist, agricultural engineers, entomologist, pesticide expert and many other professional. The skilled labor is also freely available. They also have strong research and development section.

Marketing of Apricot in Hunza, Northern Pakistan

The high altitude areas of Pakistan, such as Hunza, were brought into contact with the major markets in the Punjab plain and world by the building of the Karakoram Highway. The major crop grown in the area is apricots and some other fruits. Only small volumes were sold in the markets, farmers only grew crops for their own need. They have no experience and expertise of marketing and completely unaware of prices, transport cost, packing and grading required by the major markets.

The Aga Khan Rural Support Program (AKRSP) introduced the participatory rural development in the area. The group marketing was introduced with this understanding that they would have to work together if they were to succeed. The sun dried apricot without any chemical residual got high export demand. The traders and commission agents were encouraged to assist and provide training. They were prepared to do as it was in their own best interest. They recognized that new sources of supply would benefit their businesses.

Hydroponics' Sweet Chili Production, Garut, W. Java, Indonesia

Chili is an important and essential of daily Indonesian diet. It is mainly consumed in fresh semi crushed form, locally known as "Sambals" (RIV, 1996). It is also an important commercial crop in Indonesia, grown year round mainly by small peasants, both in high and lowlands rain fed as well as in irrigated areas. The sweet chilies are cultivated in the cold mountainous area of Garut, West Java under hydroponics' system under plastic sheds. The farmers have been organized and multinational company provides them the technical and financial support and also ensures the purchase of their product. The high-grade sweet chilies are exported to different countries while the lower grade chilies are locally supplied in super markets in plastic packing. The farmers are cultivating hybrid varieties and earning substantial profit.

SUMMARY, CONCLUSION AND LESSONS LEARNED

Under the prevailing scenarios, only those will succeed who will be capable of adopting constant change and adjusting to new challenges. This can only be achieved with the help of new knowledge, skill and technologies. Only those products will be marketed which are low priced with good quality. There is a large scope for the export of fruits and vegetables from underdeveloped countries to developed countries due to reduction of subsidies in these countries and comparative advantages of agricultural production in the

developing countries. There will be competition within the developing countries. Only those countries can harness the benefit, which have affective and efficient SME marketing systems. In this connection we need to increase productivity and reduce cost of production. There is a need of continuous improvement of marketing information and research, development of practical export skills, establishment of joint venture, establishment of reliable supply chain, enhancement of food safety and quality systems, improvement of packing, encouragements of regional market groups; participatory or cooperative development, government financial and technical support specially for SME, labeling standards, infrastructure development and intensification of marketing promotion activities.

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3. EXPLORING NEW FOREIGN MARKETS FOR FRUIT AND VEGETABLE – BEST CASES

Dr. Saipin Maneepun
Expert Research Researcher
Institute of Food Research and Product Development
Kasetsart University
Bangkok, Thailand

INTRODUCTION

The market of fruits and vegetables is dynamic and constantly changing or evolving. In many countries, the demand of traditional fruits and vegetables has remained fairly constant for several decades due to several factors including health benefits. Thailand has explored her horticultural commodities market that requires innovation in handling; storage, postharvest handling treatment technologies and management for export markets. Although the country has played a minor role as a fresh fruit and vegetable supplier in the international marketplace due largely to limitations in the fundamentals in production, inherent perishable nature of the tropical produce, and conservative marketing, recently the significant volume of export of tropical fruits and vegetables in the regional markets has been explored keeping in view the credibility, consistency and continuity as a supplier. In addition, there have been dramatic changes in the international as well as the regional fruit trade in the past few years due to the dynamic consumer behavior, migration, the changing import and export requirements and new evolving marketing arrangements. The evolving marketing system will become more complex before they become clearer in a few years time and a worse case scenario is that Thailand loses its competitive edge. Furthermore, increasing cost conscious by the operators resulting from the economic slowdown initially in the region and more recently globally has also had adverse effects on initiatives to improve quality. The Thai fresh produce industry must make timely adjustment to supply high quality fresh produce, maximize utilization of harvested produce, meet consumer needs, improve competitiveness, maintain existing and exploring new foreign markets all at the same time.

Longan (*Dimocarpus longan*) was identified as product champion (Department of Agriculture, http//www.doa.go.th/data-agri/LONGAN/7stand/stand01.html) that has potential to be exported in foreign markets especially in Asian countries where they are familiar with taste and flavor of this particular fruit. As for as international trade is concerned, fresh longan has limited shelf life and the exporters require knowledge in supply chain management. Since both the fresh and processed longan products are commonly available, the range of products being marketed have significantly influence on prices. The holistic study of market system is aimed to investigate socio-economic and social environment, consumers' attitude and purchasing behavior of both target markets and consumers. The major problems have also been explored in fruit production chain from farms to consumers that need to establish good agricultural practices (GAP) and to control sulphur dioxide content to comply with international standards since 1998. As a result, some importing countries have well-established process of auditing of their supplies and ensuring, where possible, the post harvest treatments are adequate to remove the threat of pests and pathogenic organisms. Hygienic and sanitation practices have also been introduced by exporters to ensure that their operations are correct, effective and comply to importing countries requirement. The support from government has provided an assistance to upgrade quality standards in order to increase export to existing markets and to explore potential foreign markets.

Longan is subtropical fruit that originated in China. Over several thousand years it spread out to various continentals: Asia, North America and Australia. Presently, the prominent production countries are China, Thailand, Vietnam and Taiwan. Only the production in Thailand has been greater than local consumption for last decade and exported more than 50% of total production to global market annually. There is an increasing trend in the export of longan and it is expected that Thai farmers will expand their cultivated lands. Both China and Vietnam have also seen growing market opportunities of this fruit resulting in an increase in its production. Now more countries are growing longan trees such as Northern Australia, USA,

Philippines, Myanmar, Laos, Indonesia and Israel. The longan products may have to compete with more competitors in global markets. As longan trees take 3-4 years to start bearing fruits, therefore, both structures and channels of trade are going through a period of significant change.

According to market study, about 93 % of total fresh longan being imported by Chinese market is from Thailand and 7 % from Vietnam (Danphiboon, 2000). In 2001, only fresh longan from Thailand was imported due to the quality preference of consumers and no price difference of longan from Vietnam. Later, the investigation was found that the production in China has increased causing 40 % reduction in imported quantity from the Thailand. When China became member of World Trade Organization (WTO) on November 10, 2001, the discussion of bilateral trade agreement between Thailand and China has resulted in the reduction of the import tax for Thai agricultural produce including fresh longan from 30 % in 2001 to 12 % in 2005 and dried longan product from 28 % in 2001 to 0 % in 2005 as shown in Table 1 (Viriyamettakul et al. 2002).

Table 1. Reduction in Import Tax on Fresh and Dried Longan Products When China Became Member of WTO Starting from 2001

Unit: Percentage

Product	Year				
	2001	2002	2003	2004	2005
Fresh	30+VAT 13	21	18	15	12
Dried	28+VAT 17	24	22	20	-

The possibility was considered to expand marketing of longan products to the existing markets in China. Further it is explored to export the longan to other foreign markets in Hong Kong, Malaysia and Singapore where the consumers used to consume. Both USA and Canadian markets were excluded in this paper since only processed longan products can be imported in these countries. The fresh produce still has problems with importing regulations of these countries.

The objectives of study were to explore the possibilities of export of both fresh longan and its products to the target markets, China, Hong Kong, Malaysia and Singapore. Several issues associated with both structures and channels of trade for the products were investigated. The challengers have to seek strategic plans starting from production, harvesting, growers and traders relationship and marketing system to ensure that the products designated buyer's site accepts quality with affordable price (The Thai Research Fund, 2003).

A survey was conducted regarding the current trade of the products in target markets given economic, social and population environment. The study also included the performance of consumers' attitude, purchasing behavior and product perceptions and characteristics. The standards of product quality, hygiene and post harvest treatments required from those importing countries have partially created problems to the products. The recommendations were provided to all concerned stakeholders for further development.

PRODUCTION AND MARKETING ANALYSIS

1. Production Data and Market Demands of Fresh Longan and its Processed Products

Fruit production for both local and export markets from various sources are as follows:

a. Production and Processing in Thailand:

- Longan plantation is concentrated in the upper northern provinces; Cheingmai, Lumphon and Cheingrai. The plantation is expanded in northeastern provinces; Loi and Nongkai and eastern province; Chantaburi.
- Dried longan production is in northern provinces; Cheingmai and Cheingnrai.
- Canned longan factory is in central and northern provinces; Bangkok and Cheingmai.
- Frozen longan factories are in northern and southern provinces; Cheingmai and Songkla.

b. Production and Processing in China:

The production of longan in China is mainly concentrated in the original areas where they used to cultivate. However acreage expansion has been speeded up for the last 10 years. Due to climate difference in

the country, about 90% of total longan plantation is located in four provinces; Guangxi, Hinan, Guangdong and Fujian (Office of Agricultural Economic, 2002).

Only 20% of total longan production is consumed fresh in near by cities or towns due to lack of knowledge in post harvest handling, packaging and transportation technology. The access to distant markets in the country is limited. Post harvest treatment and cold storage is needed to extend shelf life of fresh longan selling in food shops. Remaining 80 % longan is traditionally processed and consumed during winter season. However, the fresh longan can be sold in the market if the price is good. Family member commonly processes whole dried longan product, which normally does not have commercial production.

2. Estimation of Demand and Exporting Quantity of Longan and its Processed Products

The demand of both fresh and processed longan products in Thailand and target markets; China, Hong Kong, Malaysia and Singapore, was surveyed in the wholesale and retail markets in main cities and supermarkets. During 1991-2001, the exports of longan showed Hong Kong as the highest importer of fresh longan, followed by Malaysia, Singapore and China. China was the largest importer of dried longan product followed by Hong Kong, Singapore, and Malaysia. Canned longan product was mainly imported in Malaysia followed by Singapore, Hong Kong and China. Frozen longan was only imported in Hong Kong among target markets.

Table 2. Estimated Export Quantity of Longan and its Processed Products to Various Countries Over 2003-2005

Unit: Metric Ton

Item	2003		2004		2005	
Total production	350,579		377,088		401,905	
Estimated export						
Fresh longan						
China	12,552	(14.31%)	12,946	(14.44%)	13,170	(14.46%)
Hong Kong	60,933	(69.41%)	62,272	(69.45%)	63,202	(69.50%)
Malaysia	5,705	(6.51%)	5,713	(6.35%)	5,719	(6.25%)
Singapore	5,375	(6.13%)	5,467	(6.10%)	5,531	(6.09%)
Others	3,186	(3.63%)	3,269	(3.65%)	3,327	(3.60%)
Total	87,751		89,667		90,949	
Whole dried longan						
China	1,093	(20.74%)	1,102	(20.46%)	1,108	(20.32%)
Hong Kong	3,501	(66.42%)	3,593	(66.76%)	3,656	(67.03%)
Malaysia	93	(1.7%)	94	(1.75%)	94	(1.73%)
Singapore	319	(6.06%)	324	(6.03%)	328	(6.02%)
Others	265	(5.04%)	268	(4.72%)	269	(4.94%)
Total	5,271		5,381		5,455	
Conversion rate 3:1	(15,813)		(16,143)		(16,365)	
Canned Longan						
China	213	(2.02%)	217	(2.04%)	218	(2.05%)
Hong Kong	63	(0.60%)	64	(0.60%)	65	(0.61%)
Malaysia	4,276	(40.55%)	4,304	(40.41%)	4,276	(40.21%)
Singapore	4,168	(39.54%)	4,233	(39.74%)	4,276	(39.89%)
Others	1,824	(16.4%)	1,834	(16.32%)	1,840	(17.17%)
Total	10,543		10,652		10,722	
Conversion rate 1.13:1	(11,913)		(12,037)		(12,116)	
Frozen longan						
Hong Kong	1,886	(53.57%)	1,893	(52.59%)	1,898	(52.13%)
Others	1,655	(49.43%)	1,707	(47.41%)	1,743	(47.88%)
Total	3,541		3,600		3,641	
Total fresh export	119,018		121,447		123,071	
Local consumption and export to target markets	171,605		121,447		123,071	
Quantity of fresh longan for local consumption	178,974	(51.00%)	199,078	(52.80%)	218,548	(54.38%)

Remark: 1. The estimation of exporting longan products to 6 target markets for 2003-2005.
2. Total local consumption of longan products is 15 % of total fresh longan production.

Although longan and its processed products have continually been exported for many years. However the growers have faced various problems and constraints to market their products such as excess quantity during season causing low price, poor performance of marketing system, and investment and financial loss. The situation became political issues and the government intervened to promote dried whole longan with seed and skin in the year 2000 season. The exports increased till 2001 and then declined. The studies were conducted by using linear regression model to estimate the excess quantity over local consumption for export to target markets over the period 2003-2005. The export to the target markets was estimated to be 53%.

In Table 2, results show that the demand of fresh longan is still the highest in the Hong Kong market followed by China, Malaysia, and Singapore the highest demand of dried whole longan would be in Hong Kong market. It would be followed by China, Singapore and Malaysia. Canned longan shows that the Malaysian market has the highest demand and followed by Singapore, China and Hong Kong. Hong Kong market is and will be the biggest market for frozen longan. Markets of other countries like USA and Canada have the high potential for frozen longan.

3. Market and Production Systems of Longan Products

There are various longan cultivars grown in Thailand. The popular cultivars are Edau, Sri Chompoo and Biew Kiew, which have large, good quality fruit. The growers who have production land from 1-7 hectares have knowledge of orchard management; fertilizing, cutting, trimming and pest control. Flowering is induced by low temperature and drought stress, but tree can be induced to flower by the application of a 1-2 % potassium chlorate solution to the soil around the tree or to the foliage. With the application of potassium chlorate technique, the off-season production of longan increased to 374,459 mt in 2000. More than 90% of total production is from the Northern Thailand. About 18.69% (70,025 mt) of the production is consumed locally, 28.14% (105,387 mt) is exported fresh, 45.48 % is used for drying, 6.61 % is canned, and 1.06% is frozen. During 2000-2002 the seasonal production increased more than usual and the government has used the supporting price combined with the market management mechanism for target markets as follows:

a. ***China*** is the second prominent market after Hong Kong for fresh longan, with the usual shipment through Hong Kong by sea. Dried whole longan was transported by boat from northern province of Thailand, Cheingrai. In 2000, road transport was arranged for dried longan from northeastern Thailand through China via Vietnam without taxation due to tax exemption between Vietnam and China agreement at this particular border. The consignment was arranged with sale agent.
b. ***Hong Kong*** is the largest importer of fresh longan. About 90% of total imported quantity is re-exported to China. Local consumption and re-export to other destination is only 10% of total imported quantity. The shipment of consignment by sea was agreed with sale agent.
c. ***Malaysia*** is an important market for fresh and canned longan. Fresh longan shipment is done by road transport through southern Thailand, while train transports the canned longan. Consignment is arranged with sale agent.
d. ***Singapore*** is an important market for canned longan, which was transported by train. Consignment is also agreed with sale agent.

ECONOMIC, SOCIAL, POPULATION, AGRICULTURAL DATA AND POLICIES OF TARGET MARKETS

According to the growth rate of Gross Domestic Product (GDP) the countries are ranked as China, Hong Kong, Singapore and Malaysia. With respect to population income these are Singapore, Hong Kong, Malaysia and China. The respondents who mainly have Asian tribal relation and culture are the most familiar with longan products. The Asian tribe population is 1,200 million in China, 7 million in Hong Kong, 21 million in Malaysia, and 4 million in Singapore. The relationship of social and culture with longan products is getting more to the Asian tribe population than Western population. As for as agricultural policies are concerned, agricultural production, support policies, import restrictions and inspection effected market development for exporting longan to respective target markets i.e. Singapore, Malaysia, China and Hong Kong.

a. ***China*** has population approximately 1,300 million that consists of Asian tribe about 1,226 million. The population growth is 0.88%, about 32% of total population lives in city. According to agricultural data and policies, fruits and vegetables market is fast growing sector, which has the largest retail market with

less developed market system. Due to inefficient transportation, market expansion has faced several problems. The country is known as one of the world largest fruit producers, some important field crops have highest yield than world average yields. The production of longan has doubled than Thailand. Very small amount of fruits is exported due to high demand for quality fruits in the country. Trade fruit partners are Japan, Hong Kong, Russia, Korea and Singapore. Both tropical and sub-tropical fruits are mostly imported (China Economic and Trade Consultant Corporation, 2000) About 90% of longan imports are from Thailand and the rest is from Vietnam. The predicted import of longan from Thailand will be reduced in the future. The government has policies to produce sufficient agricultural products to meet population demands. Further the agriculture would generate enough income and employment in rural areas. The country has decentralized policy and the provincial government makes decision for fruits and vegetables production. The market structure of fruits and vegetables in China will be more complicated in future.

b. ***Hong Kong*** has population around 7.4 million. Asian tribe consists of about 7 million. The population growth is 1.26%, and 100% lives in town. With capitalistic system, the main economic structure is well developed in trade, finance, banking, investment and tourism. It would be center for import and re-export goods to the third countries. Agricultural production is very small and no statistic of longan production is available. Local consumption and re-export of fruits, vegetables including longan products is part of exporting business and longan products are mainly imported from Thailand. Agricultural policies have market mechanism in controlling import of fruits, vegetables as well as longan quality and quantity. Hong Kong still has no restriction on importing longan from Thailand. Occasionally, any unfavorable news regarding the chemical residues have affected product sale in the markets.
c. **Malaysia** has population approximately 22.6 million. Asian tribe consists of about 21 million and eastern Asian tribe around 1.6 million. The population growth is 1.91% and the GDP growth rate 0.3%. Based on agricultural policies, the expected growth of fresh fruits and vegetables market will be 7-10% in next 3-4 years. There is high opportunity for organic fresh produce in local market. The export of tropical vegetables has recently increased but very small quantity of longan products exported. Some fruits and vegetables are still being imported from Thailand and Indonesia. In 2004, the rectification of agricultural policies started implementation that included food quality and safety for both local and imported food products. Agri-food Business Center is established and implemented to assist production, investment, promotion, and also to provide consultancy to develop food sectors in the country. Although there is less restriction on importing longan products from Thailand, the established standards of product quality, hygiene and treatments have the dominant force.
d. ***Singapore*** has population around 4.4 million and consists of Asian tribe about 4 million. The population growth is approximately 3.46% and 100% of population lives in town. The income of population is quite high among target markets. Based on agricultural policies, fruits from cold climate have market share about 65% (which was 58% in 1998) and the rest of 45% is for tropical fruits. Generally, tropical fruits are cheaper. In the next 4 years, about 5-10% growth of fruits from cool climate is expected. Fruits and vegetables imported from various countries are re-exported. The share of tropical fruits is about 60%, from which 90% destines to ASEAN countries. The policies are liberal in the import of fruits and vegetables from many countries but strictly enforcement on hygiene and inspection is used in most importing produce including longan products from Thailand.

CONSUMERS BEHAVIOR TO PURCHASE LONGAN PRODUCTS IN TARGET MARKETS

In depth interviews with respondents from different institutions were used for collecting information. These included growers, collectors and traders from wholesale and retail markets in Thailand and China, who were directly involved in distributing fresh fruits and also supply a substantially fruit quantity in markets. Processors, exporters, importers and wholesalers and retailers from target markets provided information about the consumers' preference. Academics in marketing, economic, business and management in international trade should assist to analyze market constraints, consumer's behavior and decision. Officers and politicians, who involve in issuing policy, law and regulations, provided information regarding the product safety requirement.

As the consumers were familiar with longan products in target markets, several issues were sought out on consumers' behaviors and knowledge, production sources, buying places and buying factors. Results of quantitative studies are shown in Tables 3, 4, 5 and 6.

Table 3. Consumers' Behavior and Knowledge of Longan Products

Buying Situation	Conditions	China %	Hong Kong %	Malaysia %	Singapore %
Situation	Buy and consume	62.6	70.2	73.5	81.0
	Do not know and need to taste	13.2	12.9	17.5	15.5
Knowledge about longan products	Fresh longan	92.9	90.3	72.9	70.4
	Dried whole longan	54.0	42.5	49.1	55.5
	Dried longan flesh	48.2	31.1	31.3	39.9
	Canned longan	31.1	16.2	27.4	19.1
	Frozen longan	13.0	8.1	9.9	12.6
Used to longan products	Fresh longan	98.3	85.7	95.4	96.2
	Dried whole longan	70.9	46.7	73.2	75.8
	Dried longan flesh	66.5	39.9	60.4	61.5
	Canned longan	55.5	24.5	53.7	56.4
	Frozen longan	46.0	19.8	43.0	40.8
Knowledge on longan variety	No knowledge	83.1	71.8	83.3	81.9

In Table 3, most consumers are familiar with fresh longan and some processed products especially both dried whole longan and dried longan flesh. Since dried whole longan is the traditional product that is processed on farms where longan is grown and also the price is low. The dried longan flesh has been processed in Thailand for several decades; the product has improved quality, color and packaging. The process requires skilled labor to remove seed before drying; only varieties with thick flesh are used for making this product. During harvesting season, labor is used for packing fresh fruits to markets causing labors shortage for processing dried longan flesh. Most consumers have no knowledge of longan variety; they usually recognize fruit through appearance or taste it before making a decision about its purchase.

Table 4. Consumers' Knowledge on Production Sources

Sources of Production	China %	Hong Kong %	Malaysia %	Singapore %
Fresh longan				
China	61.8	60.6	15.4	25.7
Thailand	56.9	72.4	78.2	72.7
Vietnam	2.4	2.4	1.3	-
Dried whole longan				
China	46.4	57.6	23.5	27.2
Thailand	15.1	30.4	63.9	59.9
Vietnam	3.9	3.5	2.6	0.9
Dried longan flesh				
China	54.4	61.6	32.7	34.4
Thailand	25.6	29.5	52.4	56.0
Vietnam	7.4	3.3	1.9	2.9
Canned longan				
China	38.8	85.6	26.8	33.7
Thailand	20.5	36.1	53.9	53.8
Vietnam	13.4	5.9	3.2	6.2
Frozen longan				
China	15.2	21.1	17.9	25.4
Thailand	16.2	23.6	29.6	29.6

Table 4 shows consumers' knowledge on production sources of individual longan product. Fresh longan from Thailand has the highest market share except China, where the production quantity has double than Thailand. As mentioned earlier inefficient road transportation in the country has effected distribution to most local fresh markets. Regarding the dried whole longan markets, China has more market share in China and Hong Kong because of long shelf life of the product suitable for traveling to distance markets. Thailand has the highest market share in Malaysian and Singaporean markets since both markets have strong quality control and inspection of processed products. Like the dried flesh, canned longan products dominate these markets. There is high potential of dried longan flesh in China especially as medicinal ingredient in Chinese medicine. Frozen longan is the least popular products that need further development. Table 5 shows marketing place of individual product that consumers in target markets purchase. Consumers buy fresh longan from fresh markets, fruit stores and less in supermarkets and convenience stores. Fresh produce is mostly purchased from fresh markets and fruit stores. Supermarkets in China and Hong Kong sell more dried whole longan, while in Malaysia and Singapore it is sold through convenience stores. Dried, fresh, canned and frozen products are sold through supermarkets in all target markets. Most of the processed products are gradually becoming available in convenience stores in Malaysia and Singapore that consumers have a chance to expose to these products. Table 6 shows that more than 90% of consumers purchase the products constantly and on special occasion for themselves and family in all markets. Only Hong Kong market prefers to have products in late season in July -September. According to buying reasons, most of the consumers consume it as fruit in all the four countries. However Chinese and Malaysian consumers also use it because of its medicinal and health value. Consumers in all markets still wish to buy for themselves and also to introduce to others.

Table 5. Buying Places of Longan Products by Consumers

Buying Places	China %	Hong Kong %	Malaysia %	Singapore %
Fresh longan				
Fresh market	61.1	46.9	33.2	33.9
Fruit store	43.1	37.4	39.0	40.6
Supermarket	22.2	28.1	29.9	30.9
Convenient store	13.3	11.4	23.2	24.2
Dried whole longan				
Fresh market	16.4	16.0	9.5	5.5
Fruit store	30.0	12.6	16.2	17.3
Supermarket	48.2	50.5	30.5	37.3
Convenient store	16.6	22.8	47.6	47.7
Dried longan flesh				
Fresh market	15.3	10.2	8.5	8.3
Fruit store	32.4	8.9	20.5	16.6
Supermarket	53.0	57.2	40.8	41.5
Convenient store	19.1	18.2	34.0	41.1
Canned longan				
Fresh market	5.1	15.2	8.6	6.0
Fruit store	19.7	6.4	18.2	15.8
Supermarket	66.2	55.2	59.2	57.7
Convenient store	36.6	27.2	25.1	32.2
Frozen longan				
Fresh market	12.8	19.8	13.4	13.1
Fruit store	23.0	18.9	27.7	25.0
Supermarket	56.4	43.4	36.0	33.2
Convenient store	17.2	17.9	23.6	30.0

Table 6. Buying Factors of Longan Products by Consumers

Buying Factors	China %	Hong Kong %	Malaysia %	Singapore %
Buying proposed				
Special occasion	49.5	57.9	52.6	40.0
Constantly buying	48.7	34.3	38.8	52.8
Most buying periods				
April-June	47.0	33.2	34.6	33.0
July-September	18.6	54.5	26.7	34.0
Buying decision				
Self	76.8	69.7	60.4	62.7
Family	28.5	28.5	26.7	24.6
Friend	18.1	6.1	20.0	15.5
Buying reasons				
Fruit	40.6	77.5	48.5	50.1
Gift	32.1	10.9	22.6	16.2
Cooking	28.2	10.3	17.9	15.9
Seasonality	26.0	23.8	21.7	16.7
Medicinal/health conscious	25.4	-	18.1	-
Snack foods	-	9.5	-	26.7
Buying intention				
Certainly	65.6	61.1	44.8	43.3
May be	26.0	20.4	34.5	33.4
Introduce to buy				
Certainly	30.5	45.6	45.5	40.9
May be	37.8	39.2	35.6	36.9

Table 7. Important Factors Influencing the Consumer's Decision to Buy the Products

Factor	China	Hong Kong	Malaysia	Singapore
Overall factors				
Taste	4.08	4.16	4.10	4.17
Texture	3.89	-	3.93	3.95
Convenience to buy	3.78	3.94	-	3.96
Cleaning place	-	3.99	3.96	3.98
Price	-	-	3.92	3.90
Flesh color	-	-	-	3.86
Quality & size	-	-	3.88	3.83
Products				
Taste	4.08	4.16	4.10	4.17
Texture	3.86	3.64	3.93	3.95
Size & variety	3.57	3.70	3.88	-
Flesh color	3.54	-	-	3.85
No hazard substances	-	3.71	4.11	4.17
Price				
Quality relating to price	3.69	3.70	3.92	3.96
Price level	3.53	3.53	3.88	3.90
Selling location				
Convenience	3.78	3.94	3.77	3.85
Cleanliness	3.74	3.99	3.95	3.98
Selling place	3.51	3.30	3.79	3.74
Market promotion				
Sale promotion	3.65	3.52	3.81	3.70
Seller	3.43	3.70	3.74	3.73
Advertising	3.34	3.23	3.64	3.45

INFLUENTIAL FACTORS OF CONSUMERS DECISION TO BUY PRODUCTS IN TARGET MARKETS

Many factors including marketing are important which influence the consumer's decision to buy the product ranging from 1 (not influence) to 5 (most influence). Taste was the most prominent factor followed by texture and convenience to buy as shown in Table 7. Size, variety and color of flesh are the other factors, which are taken into account while making a decision about the purchase of a product by the consumers. Price is the most important factor for buying products especially price relating to quality and reasonable price level. Selling location also has prior consideration for buying decision. Convenience, cleanliness, and the selling price are taken into account while deciding about the purchase of a product from a particular location. Market promotion is the most essential factor having influence on consumer's decision. Sale promotion is the priority followed by selling and advertising.

CONSUMERS' ATTITUDE TOWARDS LONGAN PRODUCTS FROM THAILAND

Consumer's opinions were obtained about various issues relating to marketing of products. Since the countries have different marketing structure, income, product experience, size of population, therefore consumer's attitude towards longan products were ascertained especially in China where the consumers are familiar with the products in cities. The prominent issues about consumers concern to the products require careful consideration and improvement.

1. Attitude to Products

All consumers in target markets consume longan as fruit. The three most recognized products are fresh, dried whole, dried flesh in China and Hong Kong. In Malaysia and Singapore, the consumers also recognize fresh, dried flesh and canned products. Medicinal and health effective properties of longan are known among consumers and the regional trade of the products would stay in demand. As regards the opinion of the consumers about the products, only Chinese consumers expressed the better taste of Thai longan from others but consumers from Hong Kong, Malaysia and Singapore could not distinguish the difference. Longan products have good reputation in all markets. Only China has problems to find selling places of the products from Thailand and they are still expensive especially for young consumers who have less income. Products require more market strategy and sale promotion in Chinese market but not in others. Due to large population and the market size variation in the country, market opportunities have to be specified by consumer groups, selling locations and eating culture.

2. Product Price

As the Thai products are expensive for certain groups in China, Chinese consumers still prefer to purchase them. Further investigation to expand product sale in China should be planned since infrastructure to facilitate transportation has been improved over the last few years that should increase produce distributing process in the country. Consumers in Hong Kong appreciate product quality and price especially the aging population. Marketing of the products have to consider a convenient location for buying and to maintain the quality and safety in future. In Malaysia, consumers have no preferential difference in longan products, only aging population prefers more Thai products than others, and presently are still comfortable with price and quality. Some consumers have concerns about the chemical treatment, which is affecting health. The products have future in this market, which have to maintain quality and reputation. Singaporean consumers prefer fresh rather processed products. They have no preferential difference in different ages. In general, product price from Thailand is acceptable except young consumers complaining of price. The consumers have concerns about chemical residues from post harvest treatment, which needs to be resolved in order to regain the products market in future.

3. Product Preference

Both the fresh and dried fresh products are the most popular in all markets. The required characteristics of fresh are thick and moist flesh, very sweet and crisp. As all the markets are located in Asian region, improved transportation process can speed up the movement of the products efficiently to the distant markets. Sweet varieties have high potential in both Malaysian and Singaporean markets. Recently the technology for producing off-season fresh fruits in Thailand has been introduced, the producer have good response from consumers in all target markets. As the taste, texture and quality of the off season fruits are similar to the

normal season fruit, therefore, there is a good potential to sell it in all target markets. Dried flesh product is one of the preferential processed products that consumers normally consume as snack food and some use as medicinal ingredient in several Oriental medicines. A decoction of the dried flesh is taken as a tonic and treatment for insomnia and neurasthenic neurosis (http://www.tradewindsfruit.com/longan.htm). Thailand has developed varieties, which have firm texture, taste with specific aroma. Dried flesh can stay in shape with careful drying to maintain soft texture, color, glossy and shiny appearance.

4. Packaging Preference for Dried Flesh

Since type of packaging play an important role for keeping quality of dried flesh product, several criteria are proposed for consideration such as, see-through pack, resist to moisture and size for both individual consumer and family. The three types of packaging materials are proposed with a possibility to reuse and protect product over 3-6 months. Design has to look beautiful and attractive and packing shapes are oval, cylindrical box, and expandable pouch. Packaging preference of dried flesh longan from target markets is shown in Table 8.

Table 8. Summaries for Packaging of Dried Flesh Products in Target Markets

Suitable packaging for dried flesh	China	Hong Kong	Malaysia	Singapore
1. Packaging for dried flesh	- Partially or majority or whole see-through	- Partially or majority or whole see-through	- Partially or majority or whole see-through	- Partially or majority or whole see-through - Willing to pay more if design is attractive
2. Suitable size for: Family Individual person	 250-500 gram 100-200 gram	 250-500 gram 100-200 gram	 250-500 gram 100-200 gram	 Less than 250 gram Less than 100 gram
3. Prior choice of packaging materials	- Glass - Hard plastic bag - Hard plastic box	- Soft plastic box - Hard plastic box - Metal box	- Soft plastic box - Hard plastic box - Glass	- Soft plastic box - Hard plastic box - Paper box
4. Prior choice of packaging shape	- Round - Hang for showing - Expandable pouch	- Hang for showing - Oval - Cylindrical box	- Square - Round - Cylindrical box	- Round - Cylindrical box - Oval

REGULATIONS, PROBLEMS AND OBSTACLES OF LONGAN PRODUCTS IMPORTED IN TARGET MARKETS

There are several concerns from counties that import Thai longan products. Standards of longan products from individual country have been consolidated and analyzed in order to develop procedures as required. The prominent issues are sulphur dioxide residues from post harvest treatment and carrying over of some hazard chemical residues from farms.

The available standards of longan products are for fresh and canned products that are only the minimum requirements of physical and chemical properties. Sensory evaluation is used for judging those properties, which have no relation to what consumers require. Regarding the dried flesh product standard, there is urgent need to develop standard since the product will be moved more to international trade in near future.

According to sulphur dioxide residue levels after post harvest treatment, the permitted standard for a maximum level is 10 ppm in fresh longan. The permitted levels from some target markets have varied strictly during inspection, residues normally are found on fruit skin, rind and aril but not in flesh with standard fumigation treatment. Therefore, the government has taken actions for the collaboration among concerning institutions in the country to develop standard fumigation chamber to study the relationship between application rates and residue levels. The residue level has to comply with standards of target markets require-

ments. In order to avoid the controversies, every longan exporter has to have certification for residue permission from Department of Agriculture before exporting his/her produce. After obtaining the certification, Ministry of Commerce will release the shipment. The training workshops are also held for stakeholders involved in exporting longan. The workshops address to Good Agricultural Practices (GAP), Good Manufacturing Practices (GMP), Hazard Analysis and Critical Control Points (HACCP) and quality management system for horticultural crops.

1. Laws and Regulations for Importing Longan Products

The import requirement for fresh and processed longan products in China has to have certification of free pest and importing permission from State Administration for Entry-Exit Inspection and Quarantine (SAIQ). The limitation of sulphur dioxide residues is 350 ppm for whole fruit and 30 ppm for flesh. The processed products have to follow packaging and labeling regulation.

Hong Kong still maintains its own administration that is called "Hong Kong Special Administration Region or Hong Kong SAR. The permission for importing fresh produce requires certification for free pest, which fresh longan has to follow. The processed products, has to comply with permission of food adulteration, sweeteners, labeling and requiring of expiry date and GMP.

Malaysia has specific requirement for importing fresh longan. Permission has to be obtained from Department of Agriculture. It does not allow sulphur dioxide fumigation for maintaining the freshness of fruit. However, presently the permission has flexibility for not finding sulphur dioxide in flesh. All processed food products have to comply with laws and regulations of labeling of processed foods.

Import in Singapore requires permission from Agri-food and Veterinary Authority of Singapore (AVA) before importing fresh produce. Specific requirement for chemical residues for fresh longan has not exceeded 200-300 ppm on fruit skin and none in flesh. Laws, regulations and labeling for processed longan products including limitation of chemical preservation are used for controlling the import of products.

2. Taxation Required for Longan Products

In order to import longan products to China, tax was imposed at the rate of 18% each on fresh, frozen and canned products and 22% for dried product plus 13% VAT. The bilateral free trade agreement on tax reduction between Thailand and China for fresh and dried products is shown in Table 1. There is no tax requirement for importing longan products to Hong Kong SAR and Singapore. Malaysia has imposed tax at the rate of 5% for frozen, none for dried, and 20% for canned. Rate of tax, laws and regulations of importing longan products in the target markets are shown in Table 9. China has higher import tax on frozen, canned and dried longan products as compared to Malaysia. However, in Hong Kong and Singapore, there is no import tax on longan products.

Table 9. Rate of Tax, Laws and Regulations of Importing Longan Product in Target Markets

Country	Taxation (importing tax,%)				Laws and Regulations (Not taxation)
	Fresh	Frozen	Canned	Dried	
China	-	18	18	22	- Fresh required certification for free pest - Sulphur dioxide limits 350 ppm for fruit and 30 ppm for flesh - Labeling for processed products required
Hong Kong SAR	-	-	-	-	- Fresh required certification for free pest - Sulphur dioxide limits 350 ppm on skin and none in flesh - GMP required for processed products
Malaysia	5	5	20	-	- Permission required for importing fresh - Flexible for using sulphur dioxide with fruit as long as none in flesh - Labeling required for processed products
Singapore	-	-	-	-	- Permission required for importing fresh - Sulphur dioxide limits 200-300 ppm on fruit and none in flesh - Labeling required for processed products including chemical preservative

SWOT ANALYSIS OF THAI LONGAN PRODUCTS

SWOT analysis **(**strengths, weaknesses, opportunities and threats analysis) is used to investigate prominent criteria of the products on what needs to be done to maintain the strengths, to improve the weaknesses and to build up opportunities in competitive markets. Issues on strengths and weaknesses are related to production, skills in processing, marketing, finance and organizations. Regarding the opportunities and threats, the concerns are; economic, political and laws, technology, society and culture, size of population, competition, customers, geography, and distributors. .

1. Based on strengths and weaknesses of product analysis, issues are summarized as follows:

(1) Production analysis consists of variety, planting area, production technology and capacity. The normal and off-season fruit production capacity has strength that all-year-round supplies have good response, acceptable quality and taste in most markets. One dominated variety with more than 80% of total production is considered as weakness due to less choice for selection, which advise developing more varieties for competition. Small growers are more than 60% and they have lands ranging from 0.15- 6.5 hectares resulting in high production cost and quality variation. The grower's collaboration to reduce cost by sharing labor and buying production tools is suggested. Normally, growers exchange production technology among them and learn from various available media. However, government has not made enough efforts to transfer technology. Efficient action requires government to assist the growers to meet their requirements.

As regards the production capacities, growers can produce fruits all-year-round using potassium chlorate technique to increase yield and off-season fruits. Marketing strategies of excess quantities have to explore consumer demand beyond Asian market. Extending shelf life of fresh produce using sulphur dioxide should be considered the other acceptable treatments. Drying technology, quality control, inspection procedures and price of whole dried fruits have not been developed among sellers and buyers in the market. The policies should have production zones, effective and reliable data collection pertaining to production, distribution and marketing. Development should target to standards, quality, and safety and production technology of products to all concerned stakeholders. Value added processing through product development for consumer choice would assist to further expansion of trade.

(2) Skills in producing products were analyzed. Labor in production, machine and production procedures, which strengthen skills in dried flesh products, were found successful for marketing. Labor shortage and insufficient skill in orchard management, harvesting, and processing; still exist in most products including longan. Training workshops need to be organized towards business operation to ensure growth and sustainability of products. Farmers are not using improved technology in production and there is strong need for transferring appropriate technology. Presently, the use of chemicals in production needs to be reduced in order to increase the consumer satisfaction and market opportunities.

(3) Marketing products were analyzed in terms of reputation, market share, consumer satisfaction, product quality, price effectiveness, distribution system, market promotion and coverage and product diversification. The strengths in products reputation, market share, consumer satisfaction, and packaging materials, size and design are well recognized in all markets. The weaknesses are found due to chemical residues, only niche markets compare to other fresh produce, no label of origin of product in repacked packages, some unacceptable product characteristics, unattractive price in some markets, inefficient distribution to less developed areas, and inefficient market promotion and advertising.

(4) Growers are facing problems in financing their businesses like cash flow, cash rotating finance stability and less available funds for expanding the business. Government should have supporting schemes for loans specific to sustainable production and less complicated procedures in obtaining loans.

(5) There are weaknesses associated with the organizations. These include inefficient stakeholders in developing business, marketing and flexibility to the situation, and information of technology for market decision especially for demand and supply of the markets. Training workshops specific to business development should be organized to transfer knowledge in business planning to target markets. Government should provide a supporting data for dissemination through available media and also to get feed back for further planning and establishing policies.

2. Based on opportunities and threats of product analysis, the issues are as follows:

(1) Most of the populations in target market have high income that have potential for the products to be marketed. As the Chinese markets are expected to expand in next few years, there is a need to investigate more about the market channels of the products. Bilateral free trade agreements including agricultural products between China and Thailand already implemented since 2004 have great potential to export longan to China.

(2) Political and laws analysis indicate the opportunities to import products to Chinese market without taxation under bilateral free trade agreements of China and Thailand but inspections and importing regulations of different provinces have not been standardized causing a slow down in the importing products. The threat in implementing laws and regulations of importing products in individual market is still causing problems especially markets in Malaysia and Singapore. In addition, fresh longan has high competition from other imported products in Hong Kong and Singaporean markets.

(3) Technology has provided the opportunities to food products in Hong Kong, Malaysian and Singaporean markets. In these countries emphasis has been placed toward high electronic technology and less in processing food. The threats in Chinese market would be on price competition.

(4) Social and culture has affected the import opportunities of products, because the migrants of Asian population including Chinese still believe in health benefit of longan products. The threats from young generation have changed eating habits to western styles; this may result in the reduction of consumption of the products. The collaborated studies of product properties to health should have scientific evident to sustain products consumption as all age groups.

(5) Number of people migrating to large city provides the opportunities to purchase more importing products. Chinese markets have more potential for longan products. The threats are from small markets that have fewer opportunities to expand. Market segmentation and product grading could help in expanding the import in Chinese market.

(6) As regard the competition opportunities for marketing products China is the only competitor that has potential to increase the production. Due to large market in China and sometimes less market stability, Thai products have the tendency to be imported to meet consumer demands. Several steps need to be taken to market the products and aware the consumers such as brands, varieties and specific characteristics to taste, aroma and texture.

(7) Customers consume fruits without preferential differences. The products that have more market opportunities including for young generation needs to be identified. Asian markets have high potential to expand as the consumer recognizes the products. However threats about the quality and safety have to be resolved for consumer confidence.

(8) The opportunities for cultivating, marketing and transporting products to target markets in good condition need to be improved. The threats in distribution to internal markets can be dealt by developing acceptable post harvest treatment to maintain quality requirement. Processed products could be an alternative to extend the shelf life.

(9) Distributors have the highest threat in product marketing since the payment for consignment will be made to exporters after sale finished. Market promotions are difficult to implement because of inconsistency of quantity and quality over a period of time. The exporters should have a contract with growers to assist their production plans, provide reliable data and to ensure supply to target markets.

VARIABLES INFLUENCING THE QUALITY AND UNIQUE FEATURES OF FRESH PRODUCE MARKETING

Various factors that influence the quality of product is harvesting, post harvest handling, packing-house operation, distribution and delivery, and marketing. Fresh produce growing is highly seasonal and risky business. The variables affecting quality and quantity often are difficult to predict and control. Quality varies due to skill and management of the grower. Export operation depends on sourcing from different farms of varying quality levels. For some produce, such a longan, maturity stage at harvest is one of the most

critical control points to ensure good eating quality. Many types of products remain metabolically active after harvesting and are mostly highly perishable. Quality requirements vary depending on markets. Market information requires close monitoring and feed back on a rapid and continuous base.

From farm to table, the fresh produce handling chain is fragmented and involves a large number of small players. Stakeholders consist of farmers, farm contractors, harvesters, collection center or packing-house operators, packers, and distributors to exporters, importers and consumers. The composition of the chain and how effectively it is managed have very important bearing on quality. Quality of fresh produce cannot be achieved by a single system in a single step of operation, but is the sum of contribution of component sectors/partners along the handling chain. Fresh produce production, handling, marketing, as it operates in Thailand, and where exporting firm provides grower-customer interaction is partly manufacturing and partly service, a successful operation needs to take into consideration the functional quality of the produce, technical quality of the people involved and credential and experience of the business operation. Each sector should have its own quality plan decided by what each wants out of the business operation. The strength of the chain is determined by its weakest link. There is an urgent need to devise a quality assurance system applicable under developing conditions of fresh produce in order to manage the chain effectively and to improve competitive strength of the business firm and the industry as a whole.

Total quality management has to take into consideration the inherent characteristics, features and functions of the product. It operates under a planed quality management system in response to the market-driven requirements and value process. Implementation of quality system is influenced by the changing technical, social and economical conditions against a background of broad trade politics and marketing policies (The Thai Research Fund, 2002).

CONCLUSIONS REGARDING STRATEGIC PLANS FOR MARKETING OF PRODUCTS

The products have positive response from different consumer groups in target markets. There are possibilities that their market share will increase. The new strategic marketing plans have a target for young generation with the age around 24 years old with less income for sustainable consumption of products in markets.

(1) ***Product strategy***: Products that have market opportunities both present and future are for fresh, dried flesh and frozen longan. Market segmentation for various consumers has to be developed towards specific taste, texture and aroma, where they can have their choices. The standards for product quality, hygiene and post harvest technologies are used to ensure product shelf life and also to comply with international standards. In order to increase the opportunities and potential for the fresh longan in target markets, the fresh product should have desirable characteristics like large fruit, dominant taste and aroma. Sweeter variety has more potential markets in Malaysia and Singapore. Dried flesh with large pieces, light yellow or brown, shiny and glossy without sugar or sweeteners added has the most desirable characteristics in all markets. Packaging for dried flesh can maintain good quality for at least 6 months. Partially or totally see-through packaging materials with 200-500 grams for family size and 100-200 grams for individual person size are preferred. Packaging material required are paper, plastic box, and glass. Oval, cylindrical box and expandable pouch shapes are preferred for dried flesh packed.

(2) ***Price strategy***: Product price should be related with quality. The relationship between quality and price is required in order to exercise the consumer choice. Processors should offer prices for variety of products.

(3) ***Distribution strategy***: Existing market channels of fresh markets, convenience stores and supermarkets, should be maintained for marketing the products and exploring new markets potential. Efficient transportation is recommended for shipping products to the markets so that consumers could have access to fresh, tasty and quality products. Networks of market channels would be needed to increase the sale.

(4) ***Promotion strategy***: Promotion strategies by communicating with consumers should be continuously introduced through efficient media and advertising campaign. For maintaining confidence of consumers, quality and safety of products should be emphasized through efficient selling and sale promotion.

Appropriate policies should be devised for action when over production and price reduction causes problems. Public communication should be established to inform future market trends to stakeholders and gradually to arrange products to distributing channels through out the year. The over-production problems in

season can be easily resolved through policy setting up production zone to promote longan for export. The establishment of institution or central organization to promote and support production and marketing continuously is needed. The promotion of research and development should be directed to production and meet consumer demands in target markets. Quality management system, maintaining existing markets and exploring more potential markets should be efficiently carried out continuously by offering more diversified products. New product development with medicinal properties from scientific evidence would be promoted for more consumption. Good agricultural practices, partially organic cultivation without synthetic chemicals use and orchard management should be introduced to longan growers to sustain production.

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4. CHALLENGES AND POSSIBLE OPTIONS FOR SMALL PRODUCERS TO COPE WITH INCREASING MARKET COMPETITION

Dr. Abdul Hayee Qureshi
Senior Scientific Officer (WTO)
Social Sciences Division
Pakistan Agriculture Research Council
Islamabd

INTRODUCTION

Agriculture plays an important role in generating economic growth, rural employment and poverty alleviation in most of the developing countries. It also helps in earning foreign exchange through its exports of primary and processed agricultural products to other countries. Millions of small farmers/producers/traders are engaged in such trade and earning their livelihood. International trade provides an opportunity to expand the sphere of trade across the geographical boundaries and has many advantages over the domestic or local trade. Higher and better prices at international markets provide incentives to the producers to increase their productivity in terms of yield per hectare in order to fetch good international prices for their produce. This not only brings good return to their investment but also guide producers to make production decisions for better competition in the international markets.

Challenges of Globalization

Looking at the fast growing agricultural sector and trade liberalization, competition in the international markets is becoming more and more difficult and tuff in terms of quality and price competitiveness. Countries are engaged in negotiations for removal of tariff and non-tariff barriers in order to achieve free trade among nations. This trade liberalization move has not only enhanced trade among countries but also made the markets more competitive in terms of efficiency, quality, productivity and cost. Such phenomenon is posing many threats to the farming community particularly the small and marginal producers of the developing world. Many of them have comparative advantage in production of certain agricultural products/ commodities over other but fail to exploit it. Globalization has further made it difficult for them to compete due to limited resources, competitiveness and economies of scale. Under the circumstances, it is inevitable that small producers should be made economically and professionally viable to compete with rest of the farming community in domestic as well as international arena.

Production and marketing systems in many developing countries are besieged by a number of constraints such as lack of funds, long distances to markets, poor road links and transport facilities. FAO (1996) reported that lack of physical infrastructure such as roads, storage, refrigeration units; refrigerated transport and cargo services at airports lowered the ability of the private sector to improve agriculture in developing countries. Thus, assistance to small producers in marketing of their small stock through improved handling and marketing facilities could bring prosperity in their profession. Inefficiencies at the part of small producers could lead to large and specialized producers who through the global food chain could take over control of the global food system, including agriculture (Heffernan, 1999 and Hendrickson, 2001).

Pitfalls in the Present Marketing System

Ironically, marketing technology has not grown with the pace of production technology in many developing countries due to ignorance of the subject matter at public and private levels. Resultantly, agricultural trade is being faced with many physical, financial and policy constraints. Lack of marketing competition and standards are also the reasons of inefficient production in the developing world. Poor transportation facilities (land, air and sea), inadequate cold storage and handling of fresh or frozen commodities hampered agricultural exports as well. Therefore, it is desirable that participants of agricultural marketing system should seek knowledge about modern developments in the trade and its techniques to combat the emerging challenges of competitiveness.

The competitiveness requires a good marketing system to satisfy consumer satisfaction by providing product in its required form, time, and space as well as at competitive prices. This is especially true in the process of globalization when world is becoming a global village and trade could be made with little consideration of geographical boundaries.

Characteristics of Small Producers

By and large, following are the main characteristics of small producers, hampering their market competitiveness in most of the developing countries:

- Weak bargaining power — low marketable surplus;
- Low product holding capacity — selling at glut;
- Indebtedness — urgency for cash;
- High marketing cost;
- Poor market information;
- Lack of grading and standardization; and
- Non-existence of value addition.

Considering the characteristics of small producers, it is quite understandable that a positive change in productivity of any part of the system will increase the potentiality of whole system, and failure at any level in the whole system may cause stagnation of the system. There is also a need to develop better coordination among all the participants of a system to capitalize the spill over effects of any innovation at any level.

Way Forward

To overcome the challenges of market competitiveness, following steps are important to consider:

- Provision of market and price information for better decision making;
- Adoption of grading and standardization to meet the quality requirements;
- Development of marketing infrastructure (wholesale and retail markets, transport facilities, storage and value addition, etc.) for better delivery of quality products;
- Promotion of community based marketing association for collaborative marketing of farm produce;
- Establishment of periodic rural assembly markets for cost minimization; and
- Encouragement of private-public partnership in marketing to mitigate the problems curbing the successful marketing.

MARKET AND PRICE INFORMATION SYSTEM

Small producers are generally unaware of market situation with respect to supply, demand, price, and choice of consumers due to poor communication facilities between markets and production centers. Merely, they depend upon market intermediaries for disposal of their products. Consequently, prices do not transmit clear signals to producers about the choice, type and form of product, which the consumers really want. On the other hand, producers fail to allocate their meager resources judiciously and make future production decisions in accordance with the market situation.

Many Western European countries, USA and Australia have well developed market intelligence systems. Producers and processors are utilizing the information for their long term strategic planning and decision making (Revell, 1994). Under such circumstances particularly in the wake of globalization, small producers must adopt an effective and low-cost market information service capable of providing commercially useful market information and helping in supply of desired quality products to consumers. Moreover, producers should be well aware of the international price behavior for efficient and successful marketing of their produce in international arena. Formation of Price Exchange Forums (PEFs) at village level will be the desirable intervention and use of information technology and computer are advantageous in this regard.

GRADING AND STANDARDIZATION

Grading and standardization is some kind of value addition at farm level. By selling the products in different grades at different prices could yield more profit to the producers. Poor hygiene standards and sanitation conditions and lack of quality control could severely hamper the supply of quality product to world markets from the developing countries. Hence, the concept of grading can enhance the total receipt of

small producers by putting some extra effort in the process. An independent quality control authority will be beneficial for enforcement of grades and standards. The urgency of such corrective measures is also evident in view of the agreement on application of sanitary and phytosanitary measures under the World Trade Organisation (WTO).

INFRASTRUCTURE DEVELOPMENT

Provision of following infrastructural facilities can boost competitiveness of small producers in the global trade:

- Transport facilities (roads, railways, ports, cargo and cool chain facilities);
- Communication facilities (mail, phone, internet);
- Public utility supply (water, electricity);
- Establishment of Exports Processing Zones (EPZs);
- Information and extension services; and
- Cold storage facilities.

Coulter *et al.* (1999) also advocated the need of improved marketing services in order to increase production and/or arrest declining production of traditional small producers.

COMMUNITY BASED ORGANIZATION (CBOs)

In order to minimize the production and marketing costs, farmers may form a cooperative or some kind of Community Based Organization (CBOs) for collective marketing of inputs as well as output. Vertical integration for primary raw produce to semi process or finished product will be advantageous to earn more money from their produce. Such initiatives can also be an effective way of delivering agricultural marketing services to small producers, enabling them intensification of production and diversification into more profitable cash crops and other farm enterprises. It will increase farmers' access to new market opportunities and services by providing them an enabling environment and rural infrastructure.

Supermarkets' concerns about hygiene have often served to exclude many smallholders from the supply chain. In such cases, CBOs can monitor each other actions, particularly critical issue for exports of horticultural and other perishable products to European markets, where there is a need to ensure quality and traceability of produce and to prove due diligence throughout the chain. In general terms, good communications help to foster good company-farmer relations and a sense of trust.

PERIODIC RURAL ASSEMBLY MARKETS

Scale of farmers' operations is one of the important considerations in costs reduction and competitiveness improvement ventures. High transaction costs in product delivery may tend to result in the exclusion of small producers from the main market arena. It has been observed that small producers often sell a significant portion of their farm produce locally to middlemen who in return sell the commodities at higher prices in the distant markets. Development of periodic rural assembly markets is an option to make the difference in this regard. Establishment of market linkages is the simplest way to encourage the development of these markets by bringing the service providers closer to the farmers on a given market day. Costs are likely to be minimal in such initiatives.

PUBLIC-PRIVATE PARTNERSHIP

The increased economic liberalization and institutional reforms have redefined the role of government in provision of production and marketing services and the responsibility is now shifting to emerging private sector. Kimoto (1996) pointed out that government policies and programs in developing economies often fail to address the issue of marketing system development effectively due to weak enforcement of the measures. Therefore, it is direly needed that private sector should come forward and take proactive approach in exploring and developing opportunities for the farming community in general and small producers in particular.

CONCLUSION

Sustainability of small producers in the coming time may depend on their competitiveness in production and marketing processes. For this, they need to revisit their production technologies and market decisions. Adoption of latest production technologies, quality consciousness and reducing their cost of production are the wining strategies in the competitive world. It is important to note that no solution can be permanent and inculcate the need of more research to satisfy the emerging challenges of market competitiveness and globalization.

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5. ISSUES AND CHALLENGES IN IMPROVING FRUIT AND VEGETABLE MARKETING SYSTEMS OF PAKISTAN FOR BETTER INTERNATIONAL COMPETITIVENESS

Dr. Munir Ahmad
(EADA E&M)
Agriculture Marketing Wing
Punjab, Pakistan

INTRODUCTION

Fruits and vegetables are very important component of human diet. These are good source of vitamin. The fruits and vegetables have nutritive as well as economic value. Allah Almighty has blessed Pakistan with very suitable agro-climatic conditions for successful production of different kinds of fruits and vegetables. The major fruits grown in Pakistan are mango, citrus, dates, apple, banana, water melon, musk melon, pomegranate, persimmon, peach, plum and grapes whereas potato, tomato, onion, peas, cabbage, carrot, radish, turnips, spinach, okra, garlic, fenugreek and cucurbits are main vegetables.

Due to wide range of climatic variation different fruits are produced in different areas. Punjab produces citrus, mango, guava and dates Sindh produces Mango, banana and guava. NWFP produces apple, peaches, plum, persimmon and nuts Baluchistan produces apples, grapes and dates. Vegetable supply continues from different provinces throughout the year. Trade cycles of important vegetables i.e. potato, onion and tomato are given below:

Table 1. Supply Cycle of Potato

Province	Major Producing Areas	Availability in Market
Punjab	Sialkot, Gujranwala	November – May
	Sheikhupura, Kasur, Jhang, Shraqpur, T.T. Singh Lahore, Okara, Sahiwal, Pakpattan, Khanewal	December - June
NWFP	Mansehra, Abbotabad, Bannu, Parachanar	July – September
	Sawat, Balakot, Gilgit, Skardu, Malakand, Abbotabad, Chitral, Noshera, Mardan, Sawabi, Bunir,	August – October
Bolchistan	Pishin, Mastung, Qilla Saifullah Naseerabad, Loralai, Khuzdar, Ziarat, Qalat.	October – November

Table 2. Supply Cycle of Onion

Province	Major Producing Areas	Availability in Market
Sindh	Tandoallyar, Badin, Mirpur-Khas, Hyderabad, Dadu, Nasar Pur, Tando Muhammad Khan, Nawab Shah, Shikarpur, Larkana, Sukhar Ghotki, Jacobabad.	November to April
Punjab	Multan, Khanewal, Vehari, Lodhran, Khanpur, Dera Ghazi Khan, Rohjan, Alipur, R.Y.Khan, Sahiwal, Sheikhupura, Kasur, Jhang, Gujranwala, Toba Tek Singh, Faisalabad, Bahawalpur, Okara	May to July
NWFP	Swat, Deer, Peshawar, Hazara, Kohat, Mardan, Malakand, Mohmand Agency, Bunir, Mansehra	August to October
Bolochistan	Mastung, Qalat, Kharan, Qila Saifullah, Kardgas, Panjpir, Khuzdar, Ghiasabad, Pishin, Turbet, Loralai, Kanak, Quetta, Lasbella, Chaghi.	August to October
	Naseerabad, Jaffarabad, Jhal Magsi, Bolan	October to November

Table 3. Supply Cycle of Tomato

Province	Major Areas	Availability in Market
Punjab	Sheikhupura, Gujranwala, Bahawalpur, Kasur, Okara, Rahim Yar Khan, Khushab, Khatha	April to July
NWFP	(Kharif-Summer season) Mardan Mangora, Swat Valley, Hazara, Deera, Mansehra, Haripur, Charsada, Malakand, Dera Ismaeel Khan	Aug. Nov.
	(Rabi-Winter season) Peshawar, Charsada, Noshera, Mangora Mardan, Malakand, Thank, Dera Ismaeel Khan	December
Bolochistan	(Kharif-Summer season) Quetta, Loralai, Qila Saifullah, Mastung, Khuzdar, Pishin	Nov. to February
	(Rabi) Bolan, Kharan Lasbella, Turbet, Sibi	September to October
Sindh	Badin, Hyderabad, Thatha, Karachi, Noshera Feroze, Nawab Shah, Umerkot, Mirpur Khas	Dec. to April

Fruit and vegetable marketing is in various stages of development in different provinces with some better arrangements in Punjab and Sindh, followed by Baluchistan and then NWFP. The existing marketing system of fruits and vegetables is characterized by:

- High postharvest losses ranging from 20 to 40 percent
- Severe price fluctuations both cyclical and seasonal
- High profit margins for middlemen

As a result the grower is getting low and fluctuating price which is not attractive for further investment in the sector while consumers have to face high prices which are unaffordable for at least 50 percent of population.

HIGH POSTHARVEST LOSSES

Postharvest losses have both backward and forward impact. The producer incurs all expenditure for producing and handling this portion of production, which could not fetch any returns for him. Consumers have also to pay for in terms of high prices for the produce wasted during marketing. Postharvest losses have been estimated in the range of 20 to 40 percent. The extent of losses depends on nature of the product and severity of the weather. Losses are also high during glut period. High postharvest losses in our system is mainly caused by:

a) Defective packaging
b) Un-refrigerated transport
c) Inadequate and poor market infrastructure

a) Defective Packaging

There is no standardization of packing. Fruits and vegetables are transported in bulk generally packed in wooden crates and jute bags. Wooden crates are packed in bulged condition so that when these are stacked in truck or trolley the produce is to bear weight of other crates. Similar is the condition in case of jute bags. This heavy pressure and movement on bumpy roads cause pressure injuries from where the process of decay starts quickly. Improved packing methods and materials have been introduced by Project for Horticultural Promotion in NWFP. Initially the corrugated paper cartoons were arranged from Lahore, but now three factories are running in the area and these cartoons are available on many shops in Mangora, Butkhela, Kwazakhela, Takht Bhai and other towns in the project area.

b) Un-refrigerated Transport

Reefer containers are in use for transport of citrus from Punjab to seaport but reefer transport has never been used for inland transportation of fruits and vegetables. Sometimes there is 50 to 60 hours run of a truck for transport from Peshawar to Karachi or Quetta to Lahore. A lot of heat is produced due to the respiration of the living product and as a result the process of decay is started which is further accelerated due to pressure injuries caused by defective packaging.

c) Inadequate and Poor Market Infrastructure

Under fruit and vegetable development program, 12 markets were constructed / rehabilitated in 1995 out of which six markets were constructed in Sindh at Karachi, Hyderabad, Larkana, Jacobabad Mirpur Khas and Tando Adam. Three new markets in Punjab at Sargodah, Multan and Faisalabad were completed and one at Lahore was rehabilitated. One new market at Peshawar and one at Quetta were constructed. Shifting of business in these markets was delayed on one pretext or the other. Even the business could not start in some of these markets up till now (Hyderabad, Mirpur, and Sargodah).

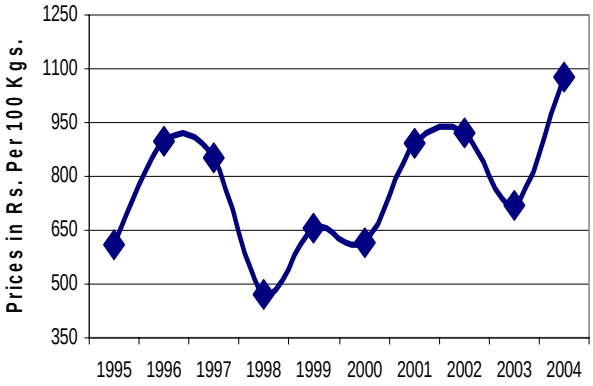
In total, there are 96 fruit and vegetable markets in Punjab but none of them except the 4 discussed above have cover plate form and the trading is done in open. Most of the markets comprised of area less than half acre and are located in congested areas of cities causing traffic problems. 50 percent of these markets are owned by private people or TMAs due to which market committees don't take any development work. Situation is worse in other provinces and in NWFP there is no proper fruit and vegetable market except one in Peshawar. Hygiene and sanitation conditions are deplorable in almost all fruit and vegetable markets and as such these markets contribute a lot in enhancement of postharvest losses.

SEVERE PRICE FLUCTUATIONS BOTH CYCLICAL AND SEASONAL

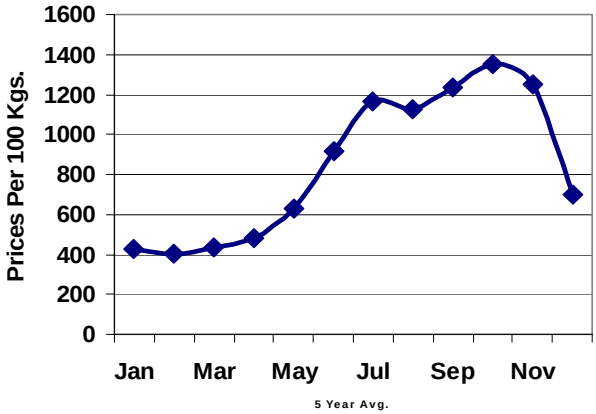
Farmers decide their production level on the basis of last year prices. If prices were higher during last season/year, production of the product will be increased. With increase in supply, prices are reduced and this seesaw situation continued. This phenomenon is more prominent in vegetables. However the supply of fruits is relatively stable. Price fluctuations are both cyclical and seasonal. Price behavior of important vegetables and fruits is shown below:

Price Behavior of Potato

Long Term

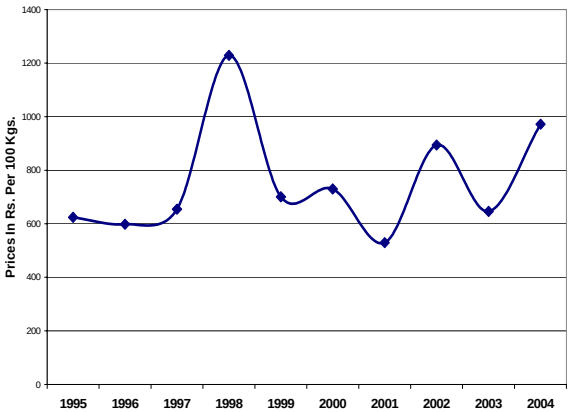


Seasonal

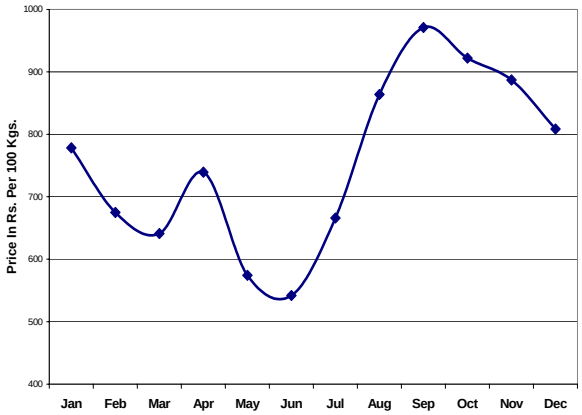


Price Behavior of Onion

Long Term

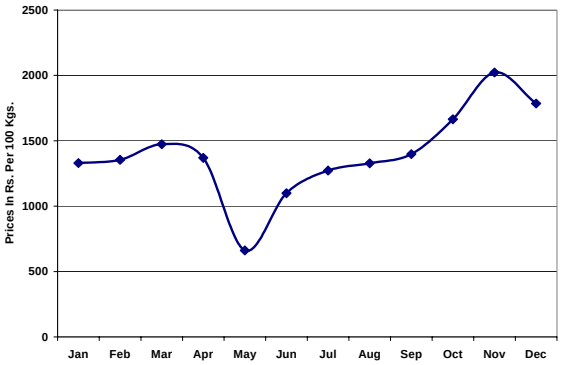


Seasonal

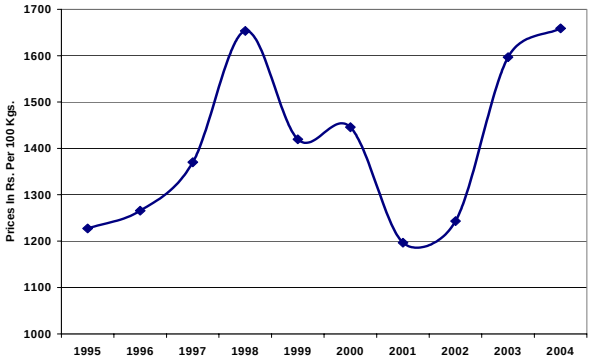


Price Behavior of Tomato

Long Term

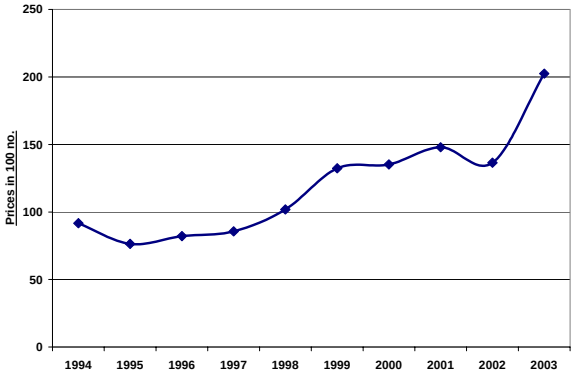


Seasonal

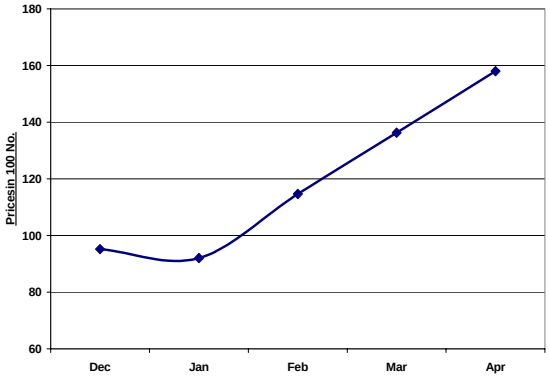


Price Behavior of Citrus

Long Term

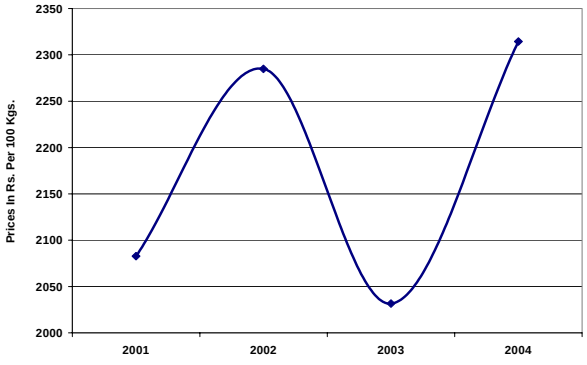


Seasonal

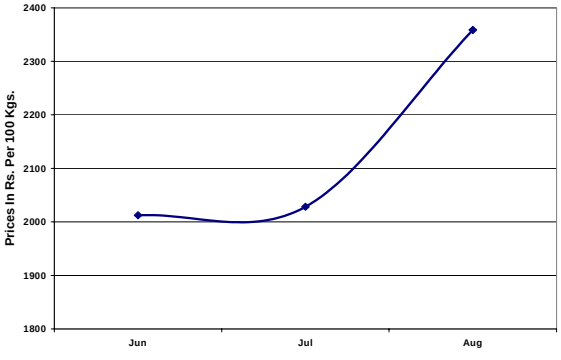


Price Behavior of Mangoes

Long Term

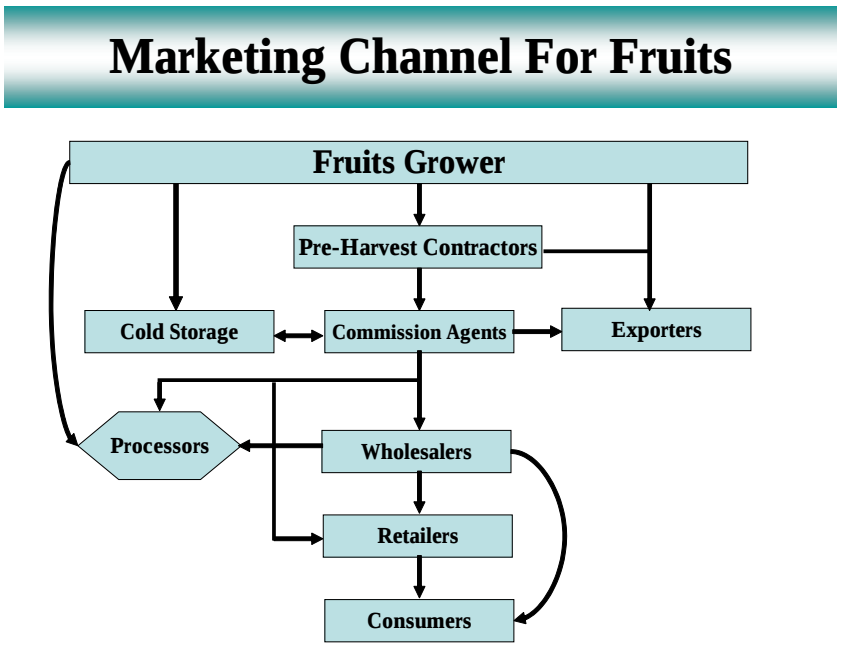


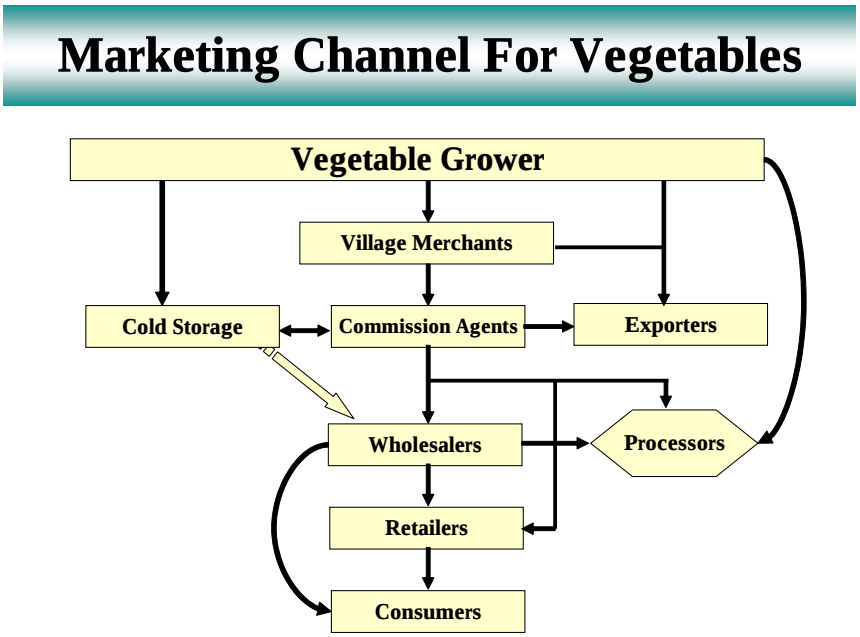
Seasonal



HIGH PROFIT MARGINS FOR MIDDLEMEN

Fruits and vegetables follow different marketing channels, which are shown below:





Contribution and behavior of different intermediaries involved in marketing channel of fruits and vegetables is discussed as follows:

Preharvest Contractor

The contractor purchases orchards after fruiting. He manages the produce and handles it to market. He possesses management and marketing skills. Generally, the preharvest contractor takes his working capital from the commission agent. Although postharvest contractor provides useful services but he treats the orchards for his short run profit and do not care for the overall health of the orchards.

Village Beopari

Village Beopari is mostly involved in the marketing process of vegetables. He collects small volumes from the villages and takes it to the markets. Village Beoparies also take their working capital from the commission agents. This man possesses better marketing skills and is more knowledgeable than a grower.

Commission Agents

Commission Agent has the pivotal role in the whole marketing system. He is the owner of space in fruit and vegetables markets. He sells on behalf of the grower. He provides accommodation to growers and traders visiting the markets. He finances to growers, beoparies, wholesalers and even retailers in the system. Due to his strong financial and entrepreneurial power, he exploits growers and wholesalers. Presently, the commission agents are charging at least double rate of commission as compared to that provided by law. He also works as trader in this way. He sells the produce of growers to himself. Thus, he arranges fake auctions and damages the interest of growers. As per existing market legislation, the wholesalers have not been provided any space in the markets, so the wholesalers, which are called "Pharia" in Punjab and "Masha Khore" in Sindh, sits in the markets as tenants of the commission agents. This collusion of commission agent and wholesalers also results into exploitation of growers.

Wholesalers

Wholesalers are called "Pharia" in Punjab and "Masha Khore" in Sindh. They are bulk brokers. They purchase from auction in bulk, grade it and divide it into small lots, which are purchased by retailers and some times by consumers.

Retailers

Retailers purchase the produce either form wholesalers or direct from the commission agents. Then, the produce is washed, cleaned and graded. Retailers sell the commodities on shops or rahries (manual and animal drawn carts), bicycles and tokras (baskets) on the head. If, there is any increase in price, the same is quickly charged from the consumers but the retailers generally resist any downward movement in price. Marketing margin of retailers is high but volume of the trade is generally small.

Cold Storages

Cold Storages are generally used for potatoes, apples, citrus and bananas. Other fruits and vegetables are also stored but in small scale. Most of the cold storages are inefficient and have ammonia-based technology. Produce in these cold storages is not properly stored on optimal temperature and humidity. The largest stored commodity potato generally losses its quality after putting in the cold stores. Commission agents, growers and wholesalers use the cold stores.

Processors

Processors purchase direct from the growers, preharvest contractor or from the markets. Processing of fruit and vegetables are limited in Pakistan, however there is ample domestic and global demand. The established processors generally follow the policy of less volume and high prices. There is a great scope of processing for citrus, potato, tomato, mango and other fruits and vegetables.

Exporter

Exporters purchase directly from growers, preharvest contractors or markets. In case of vegetables, it is difficult for the exporters to get required qualities and the commission agents and orchards owners exploit them. Only the export of citrus is going on sound footings, and then comes potato, onion and mangoes in order of priority. Mango is generally air lifted and for last 2 to 3 years special freighters are arranged by PIA in mango season, whereas for other fresh fruits and vegetables there is always cargo space problem. The availability of cargo space has proved to be a limiting factor for fruit and vegetable export. Last year, Pakistan Horticulture Development and Export Board have tried to export the mangoes through sea, which proved a half success. Next year the experiment will be repeated.

In the existing marketing channels/system, the growers get 20 to 40 percent of the consumer's price. In the province of Punjab, 120 Sunday/Friday Bazarrs are held to provide the opportunities to consumers to buy directly from wholesalers and growers on cheaper rates. Similar arrangements are also made in Islamabad and other provinces.

Major Problems of Fruit and Vegetable Markets

- Inadequate in size and number
- Difficult new entry
- Designed to be commission agent oriented and thus become a source of exploitation for all stake holders e.g. growers, traders and consumers
- Poorly regulated to allow different sort of malpractices
- Poor cleanliness and hygienic conditions
- Inadequate marketing information system

EXPORT OF FRUIT AND VEGETABLE

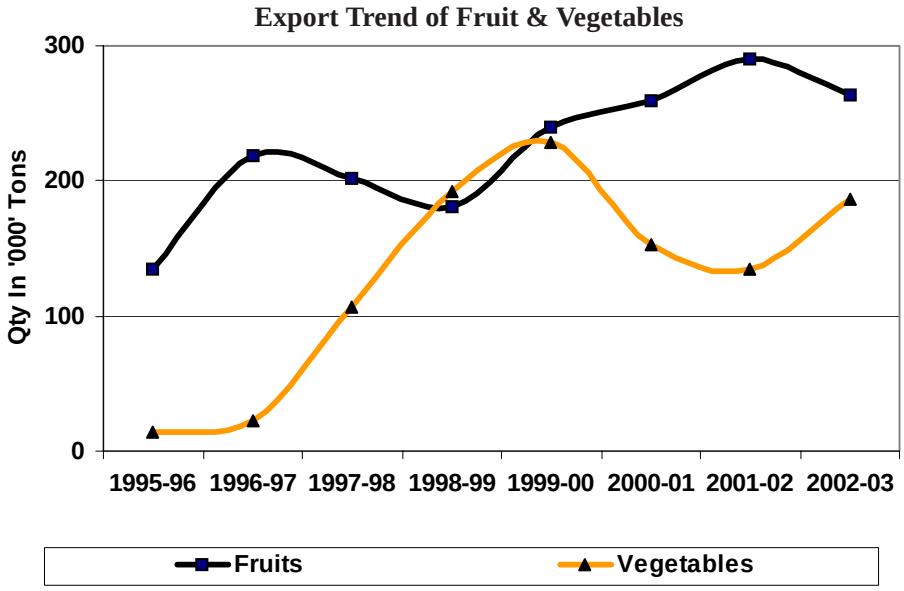
Fruits and vegetables are important sub-sectors of the agricultural economy. Approximate yearly production of fruits is 6.2 million mt and vegetables including spices 5.0 million mt. The important fruits include citrus 2 million mt, mangoes 1.00 million mt, dates 0.63 million mt and apples 0.4 million mt. In addition, there is a large variety of other fruits that are harvested around the year. Important vegetables and spices include potato, tomato, onion, chilies, garlic and large variety of leafy and root crops.

Despite the limited capacity of storage and processing, Pakistan has an increasing trend in the export of fruits and vegetables (Table 4).

Table 4. Export of Fruits and Vegetables 1995-6 to 2002-2003

'000' mt

Year	Fruits	Vegetables
1995-96	135.1	14.7
1996-97	218.8	21.8
1997-98	202.2	106.4
1998-99	180.8	192.0
1999-00	239.7	228.2
2000-01	259.9	152.5
2001-02	289.6	134.0
2002-03	263.1	186.3



Our inherent advantage lies in short duration, water conservative and labor intensive vegetables crops and fruit orchards. The progressive shift to horticulture produce would give higher productivity per unit of land and water. As they are labor intensive, so it will help in the alleviation of rural poverty. On average the export of fruits and vegetables is 3 to 4 percent of total production, whereas pre and postharvest losses are 10 times more than the exports. By proper management we can have a great exportable surplus at the same production level.

Table 5. Export of Fruit and Vegetable in 2002-2003

'000' mt

Sr. No.	Commodity	Quantity Produced	Quantity Exported	Share of export in production (%)
1	Potato	1946.30	49.95	2.57
2	Onion	1427.50	56.35	3.95
3	Apple	315.40	0.25	0.0794
4	Mangoes	1034.60	24.87	2.4037
5	Citrus	1702.30	94.65	5.56
6	Dates Dry	625.00	64.74	10.358
7	Dates Fresh		3.18	0.5081

Bottlenecks of Horticultural Exports

- Inadequate cargo space
- Indemnity bond
- No insurance and Letter of Credit (LC) for horticulture exporters
- No export financing for fruit and vegetable exporters
- Inefficient and exploitive nature of fruit and vegetable markets
- Lack of Standardization and quality certification
- Lack of cool chain facilities

What to do in WTO scenario

- Increase the productivity and quality of fruits and vegetables through research and use of modern production technologies like drip irrigation, green houses, tunnels cultivation, hybrid seeds and hydroponics
- Development of cool chain facilities and market infrastructure
- Follow international standards; Codex Alimentarius Commission & HACCP standards and those of International Plant Protection Convention
- The use of fertilizers, pesticides and other chemicals at various stages of crops may be monitored in order to ensure their levels within the internationally permissive standards.
- Disease and pest control is required to be based on modern lines to produce quality products.
- Chains of laboratories which are internationally accredited and well equipped to deal with the requirements of local exportable produce are required to be established, e.g., pesticide residue testing laboratories, testing of drug residue in the livestock products, etc.
- Need to make Pakistan National Accreditation Council (PNAC) and Pakistan Standards and Quality Control Authority (PSQCA) more efficient.
- Follow aggressive marketing strategy for increasing exports in existing as well as new markets
- Study comparative advantages of various crops in different agro-ecological regions

New Initiatives

- Government of Pakistan has established Pakistan Horticultural Development and Export Promotion Development Board (PHDEB).
- Govt. of Pakistan has launched Agriculture Business Development Project amounting to $ 20.00 million with the assistance of Asian Development Bank (ADB). In this project special emphasis has been placed on the development of horticulture and dairy sectors.
- Punjab Govt. has set up a new ministry for Agriculture Marketing.
- Agriculture marketing wing of Punjab is working on the establishment of marketing information system. A website www.punjabagmarket.ifo has already been launched
- Negotiations for establishment of FM radio and TV channel by private sector are in process.
- Punjab Agriculture Marketing Company (PAMCO) has also been established to promote the marketing of agricultural commodities including fruits and vegetables. Under this company, the cool chain system will be established to enhance the shelf life of fruits and vegetables. Further cold storages will be established at airports for the storage of agricultural commodities/ products for export purpose.
- NWFP government has completed a project for horticulture promotion. This was an integrated project for development of true to type varieties, registration of nurseries, production of vegetable seeds, improvement of packing and collective marketing. Government of Punjab has also developed a project on similar lines namely, “Development of Fruits & Vegetables in Punjab”.
- Punjab Government is amending Market legislation to allow the establishment of new fruit and vegetable markets through private sector.

Issues for Further Discussion

1. How to improve the wholesale markets
2. Design of wholesale markets to provide space for the wholesalers
3. How to limit the role of commission agents
4. How to resolve the problem of cargo space

6. PRODUCTIVITY MANAGEMENT TOOLS FOR ENHANCED EXPORT COMPETITIVENESS

Shahuren Ismail
Director
Best Practices Management Division
National Productivity Corporation
Selangor
Malaysia

INTRODUCTION

A country's global competitiveness can simply be defined as the country's share of the world markets for its products and services. Initially, a country's competitiveness may largely depend on its abilities being a low-cost producer of these goods and services. However, with the development in its economy, the country faces new challenges such as the tight labor market, rising labor cost, scarcity of prime industrial lands, scarcity of resources and over-stressed infrastructure, to name a few. Similarly, the scenario of global competition had also changed from the lure of investment through global business, open markets and transparent practices in pre 1990s to the creation of more attractive environment where enterprises can compete and the use of best brains through knowledge-based economy. These challenges make it very difficult for the country to continue being a low-cost producer, especially for a growing market where more players are joining. Therefore, it is critical for the country to seek better ways to increase its competitiveness.

With the liberation of world trade, the globalization of industries and the emergence of new market, competitiveness becomes an important key for all trading countries. However, in efforts to increase its global competitiveness by securing a bigger share of this world markets, the country cannot just simply reduces its prices or wages to be lower than that of the other countries. This will create adverse impacts on the country's growth and competitiveness in the long run. Lower prices would reduce the profitability and lower wages would reduce the prosperity of the country, the quality of life and the people's standard of living. Michael Porter, a business strategist, believes that the only meaningful concept of competitiveness lies entirely in productivity growth. In other words, for one to move from having a comparative advantage to having a competitive advantage, one must think productivity.

While the fundamental concept of productivity is relatively simple, it is only very recently that the importance of productivity has become more widely recognized and explored. Productivity has not only become the main topic of strategic discussions among the economic planners and industrialists, but it has also caught the attention and interest of fellow workers, researchers, politicians and the public at large.

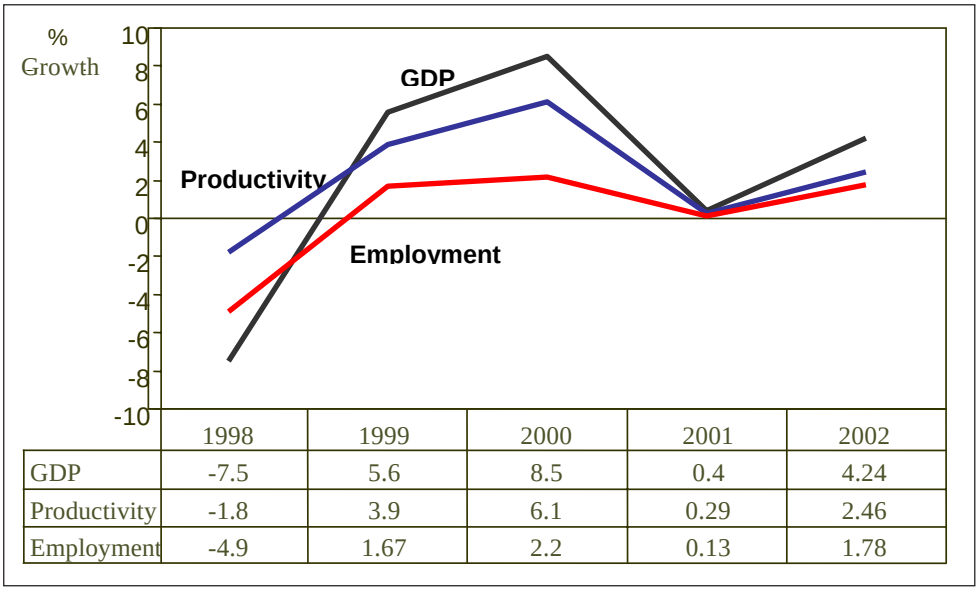
Productivity is measured by the value of goods and services that can be produced per unit of the country's resources, namely, the workforce, capital and natural resources. The nation's standard of living is determined by the productivity of its economy, where productivity allows a nation to support high wages, a strong currency and attractive returns to capital, and with a high standard of living. In this respect, productivity of the nation matters for the standard of living, not just the market, the traded goods sector or the exports per se.

Therefore, the country's competitiveness can be measured by its productivity. The challenge for the country then would be in promoting a rapid and sustainable productivity growth. The understanding that "What we cannot measure, we cannot manage" also reflect the importance of measuring the nation's productivity so that the development of its competitiveness can be monitored and strengthened.

In measuring and managing the nation's productivity, there are several measures that are readily available that can be used as the barometer to measure the country's productivity. For an example, the trend of growth in GDP, productivity and employment of the nation can be used to determine whether the country is progressing smoothly or if there are issues or problems that need to be addressed (Figure 1).

At the international levels, productivity comparisons can be made between countries so as to guide the country on their positions and to benchmark against the other well to do countries. Based on these comparisons, the country can learn on their shortcomings, identify gaps for improvements and study the best

practices for improvement processes within its economic activities. For example, the international comparisons on productivity level and growth in 2003, the country indexed as one (e.g., Malaysia) is able to identify other countries that have higher productivity levels and those that grew faster than her (Figure 2).



	1998	1999	2000	2001	2002
GDP	-7.5	5.6	8.5	0.4	4.24
Productivity	-1.8	3.9	6.1	0.29	2.46
Employment	-4.9	1.67	2.2	0.13	1.78

Figure 1. Trends of Growths in GDP, Productivity and Employment

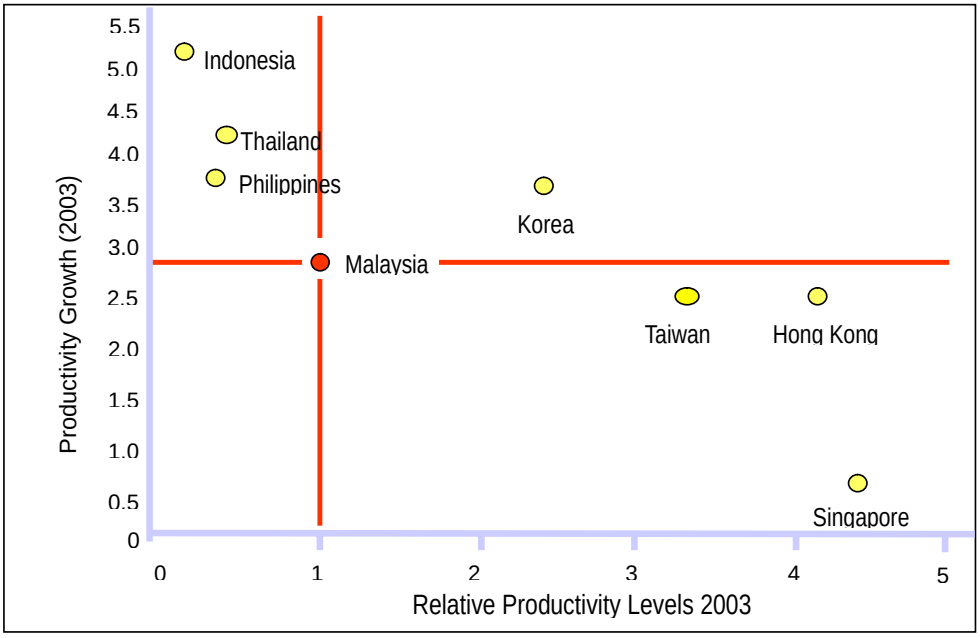


Figure 2. International Comparison on Productivity Level and Growth

Competitiveness of a country can be measured based on the survey studies by the World Competitiveness Yearbook published by the IMD in Switzerland and the Global Competitiveness Report published by the World Economic Forum, Switzerland. These two reports highlighted the rankings of each country in terms of the global competitiveness and in terms of the factors relevant to the country's competitiveness. The example below showed the rankings scored by Malaysia in the past four years. Overall, in the category of countries with more than 20 million in population, Malaysia has improved on her competitiveness ranking to achieve the 5th position in 2004 from 10th in 2001 (Table 1). The analyses on the competitiveness factors revealed that Malaysia was more competitive than some of the richer nations.

Table 1. World Competitiveness Rankings

Country	Ranking			
	2004	2003	2002	2001
USA	1	1	1	1
Taiwan	4	4	7	5
Malaysia	5	7	6	10
Japan	9	12	11	9
China	10	9	12	12
Thailand	11	11	13	14
Korea	15	13	10	11

Table 2. Rankings for Competitiveness Factors for Malaysia

Competitiveness Factors	2002	2003	2004
Economic Performance Macro-economic evaluation of the domestic economy: Domestic economy, international trade, international investment, employment and prices.	29	25	16
Government Efficiency Extend to which government policies are conducive to competitiveness: Public finance, fiscal policy, institutional framework, business legislation and societal framework.	19	14	16
Business Efficiency Extent to which enterprises are performing in an innovative, profitable and responsible manner: Productivity, attitudes & values, labor market, finance and management practices.	24	18	13
Infrastructure Extent to which basic, technological, scientific and human resources meet the needs of business: Basic infrastructure, technological infrastructure, scientific infrastructure, health and environment, and education.	31	31	30

The ranking of competitiveness factors can assist the nations to identify their strengths and weaknesses in managing their global competitiveness. Table 2 shows examples of factor ranking for Malaysia.

The Global Competitiveness Report explained the key factors that determine a country's economic growth. The competitiveness rankings were given in terms of the Global Competitiveness Index, Growth Competitiveness Index and Business Competitiveness Index. The Global Competitiveness Index combines both the microeconomic and macroeconomic foundations of competitiveness. For example, in 2004, Malaysia was ranked 23rd in Global Competitiveness Index among 104 countries, positioning her ahead of some of the high-income countries.

Malaysia was ranked 31st among 104 countries for Growth Competitiveness Index (GCI). GCI explains the ability of Malaysia to achieve sustained economic growth over the medium to long term period (5-8 years). It examines the sources of GDP per capita growth, which is more dependent on investment rates and other macro-economic policies.

Among the 103 countries, Malaysia was ranked 23rd in Business Competitiveness Index (BCI). BCI examines the bases of the nation's prosperity, which is measured by its GDP per capita. Wealth is created at the microeconomic level by the companies operating in each economy. BCI focuses on whether the current levels of prosperity are sustainable, and on the specific areas that must be addressed if GDP per capita is to achieve higher levels.

The knowledge on the country's competitiveness can be used as the bases for productivity enhancement programs in the country. Improvement can be targeted at the national, sectoral, firm or individual levels. Therefore, it is very critical for all individuals to understand the meaning of productivity and how they can assume the roles in increasing the country's productivity at the individual, firm, sectoral, national and international levels.

PRODUCTIVITY DRIVES NATIONAL DEVELOPMENT

Productivity begins with you and me – Figure 3 outlines the cyclic contribution of productivity in a nation and how productivity can promote better quality of life, higher standard of living and sustain global competitiveness. Each individual contributes towards the total productivity of the country in his or her own way, regardless of whether they are directly or indirectly involved in the economic activities. In the cycle of "productivity drives national development", the total sum of individuals' productivity will makeup the productivity of the organization they worked in. The total productivity of these organizations will form the productivity of the industries and subsequent sector they belonged to. Total productivity of the economic sectors will form the productivity or output of the nation. This output or GDP will then be given back to the individuals in the form of better quality of life, higher standard of living and better competitiveness.

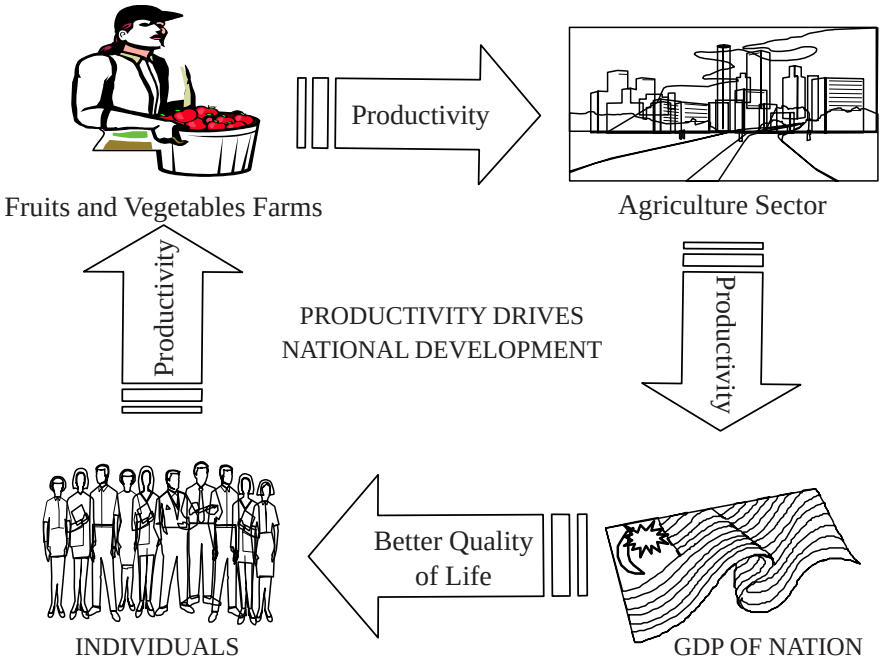


Figure 3. Productivity Drives National Development

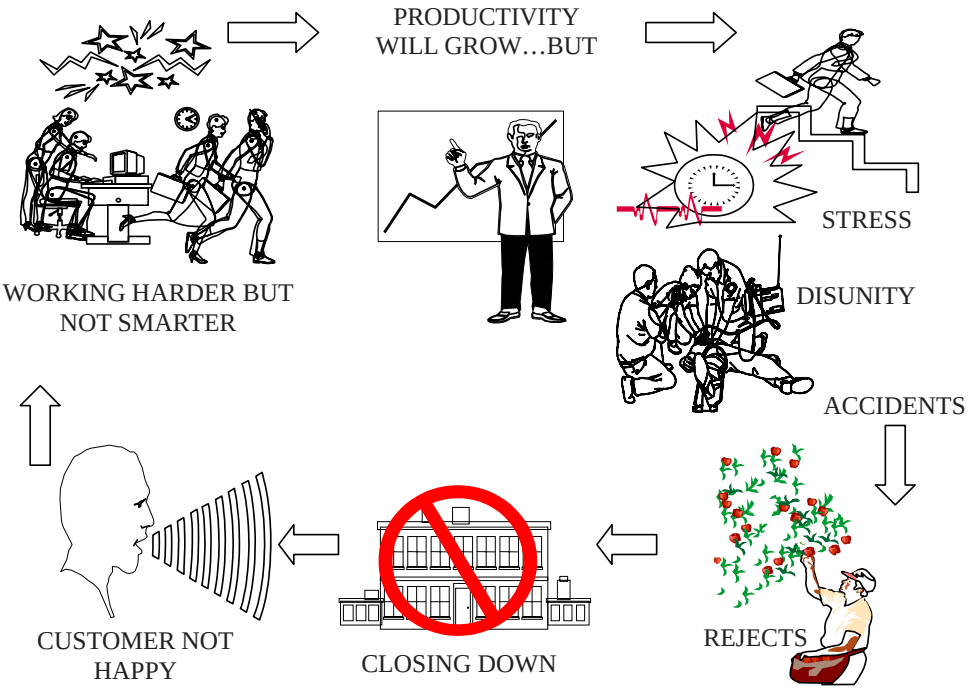


Figure 4. Productivity is Not a Mere Pursue of Efficiency

Productivity is not a Mere Pursuit of Efficiency - Figure 4 below illustrates the vicious cycle if productivity is wrongly managed. In efforts to be efficient, organizations will manage with lesser resources to achieve similar or greater productivity. However, productivity is more than just being efficient.

What is Productivity? - Productivity can simply be defined as the measure of how much output we are generating from each unit of input we used. A higher productivity means more and better output per unit of input used. Higher productivity also indicates the efficiency and effectiveness in the way we utilized our input resources. This means reduction in the cost of doing work and the creation of added value in output (Figure 5). At the same time, we are able to increase the quality, price and delivery of goods and services, the wages and salaries and the returns on investment. Therefore, a higher productivity means more wealth being generated and distributed, thus creating a better standard of living and nation's competitiveness.

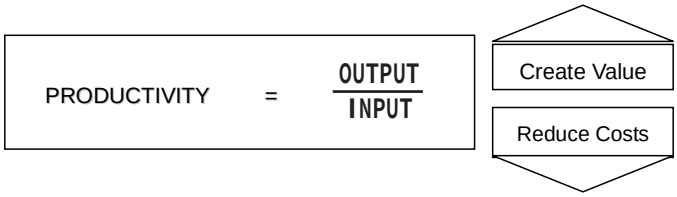


Figure 5. Definition of Productivity

Productivity Framework - Productivity growth determines the nation's future standard of living and competitiveness. This growth depends on several factors such as the quantitative expansion of physical capital per worker (or capital intensity) and the qualitative inputs of Total Factor Productivity (TFP) (Figure 6).

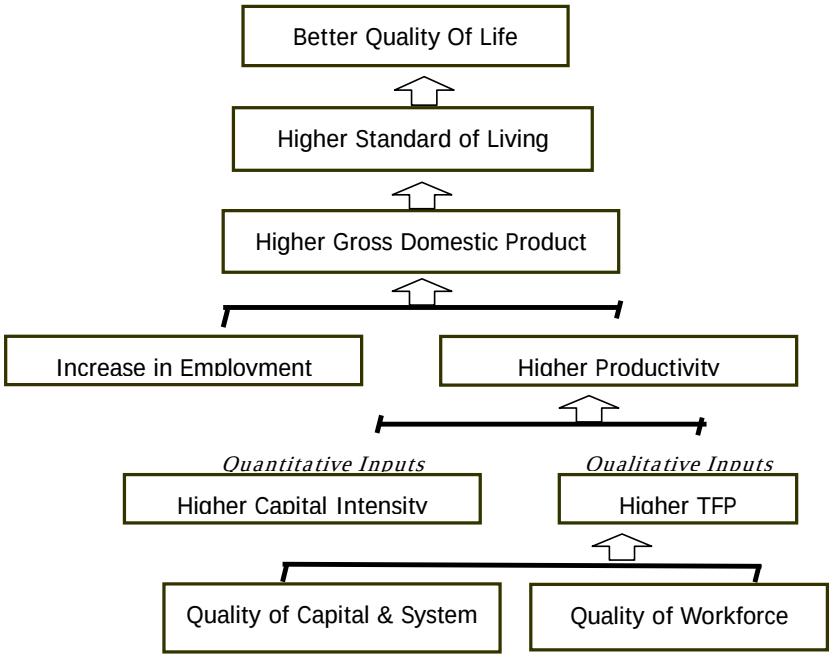


Figure 6. Productivity Framework

TFP growth measures the improvement in qualitative aspects of labor and capital inputs and the efficiency with which these inputs work together. Productivity can be improved through the six Productivity Thrusts.

Productivity Thrusts - The following six Productivity Thrusts are formulated to help organizations in managing their productivity. Organizations can use these thrusts as guidelines in developing their strategic activities in enhancing their productivity:

(1) Continuous upgrading of the quality of workforce through building of workers' capabilities in critical skills, thinking skills, positive mindset and right attitude.

(2) Enhancing effective application of productivity and quality systems throughout the value chain.
(3) Continuous investments in technology and R&D to improve productivity and competitiveness.
(4) Strengthening infrastructure support service to accelerate productivity growth.
(5) Intensifying the adoption of best practices and conformance to international requirements.
(6) Promoting the culture of excellence as a way of life.

Productivity leads to better quality of life - Higher productivity will benefit everyone in terms of a better quality of life. Higher standard of living means better facilities such as housing, schools, hospitals, recreational areas, infrastructure and info-structure facilities such as roads, ports, airport, ICT, telecommunications etc. People will also have a higher purchasing power to select a wider range of goods and services and subsequently creates a spill effect around to stimulate further growth in the domestic economy. Everyone will live in a harmonious and progressive society. The country will gain better competitiveness, larger in-flow of investments, which leads to greater export of goods and services and lesser reliance on others. The businesses will increase their sales, gain better quality, reduce cost and generate higher profit. The individuals will secure their employability, higher wages and salaries and higher standard of living.

CHALLENGES IN ENTERPRISE GLOBAL COMPETITIVENESS

At the business level, enterprises faced several challenges in their businesses (Figure 7). Awareness on these challenges, gathering information on them, identifying the strengths and weaknesses, managing and enhancing productivity will ultimately strengthen the enterprises global competitiveness.

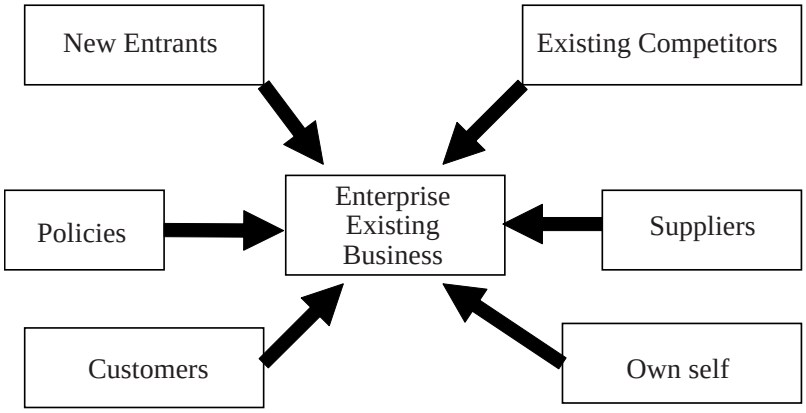


Figure 7. Challenges in Enterprise Global Competitiveness

(1) **Challenges in Enterprise**

Challenges in Marketing:
- Acceptance by customers
- Low value-added products
- Global competition
- Market penetration
- Lack of information
- Small domestic market
- Lack of marketing and distribution skills

Challenges in Technology:
- Low technology levels
- Insufficient equipment
- Lack of R&D
- Lack of synergy with research institutions
- Lack of capability in product design & innovation
- Low utilization of ICT
- Limited and low automation

Challenges in Human Resources:
- Shortage of skilled workers
- High staff turnover
- Insufficient specialized training

- Low skill competencies and not knowledge-based
- Lack of managerial skills

Challenges in Finance:

- Lack of capital
- Low utilization of public sector incentives
- Difficulties in acquiring credit

Challenges in Infrastructure:

- Increasing cost of utilities
- High costs of ICT infrastructure
- Operating on non-industrial land

Challenges in Government policies/incentives:

- Lack of understanding
- Lack of awareness
- Spread of incentives

(2) **Enhancing Enterprise Productivity and Competitiveness**

OLD ENTERPRISE	⇨	**EMERGING ENTERPRISE**
Goal	⇨	Vision
Price focused	⇨	Value focused
Production quality mindset	⇨	Total quality mindset
Production driven	⇨	Customer driven
Shareholder focused	⇨	Stakeholder focused
Cost oriented	⇨	Speed oriented
Efficient, stable	⇨	Innovative enterprise
Hierarchical	⇨	Flat, empowered
Machine based	⇨	Information based
Functional	⇨	Cross functional
Rigidly committed	⇨	Flexible, learning
Local, regional, national	⇨	Global
Vertically integrated	⇨	Networked, independent

PRODUCTIVITY MANAGEMENT TOOLS

It is critical for the country to seek better ways to increase its competitiveness. The challenges in this instance therefore would be for the country to promote a rapid and sustainable productivity growth. A country needs to produce productive people first before it can produce quality goods and services that are competitive at the world markets. Efforts should be harnessed to continuously upgrade the quality of people through the building of their capabilities in critical skills, thinking skills, positive mindset and right attitude. Productivity initiatives such as given below can be used to explain to the people the importance of productivity and to encourage them to practice continuous improvement in their activities:

(1) Productivity = Efficiency X Effectiveness

(2) Productivity = Doing the Things Right X Doing the Right Thing

(3) Productivity is the Attitude of the Heart

(4) Productivity = Able X Willing

(5) Productivity is Doing Better Today than Yesterday
And Doing Better Tomorrow than Today
(6) Work Smarter not Harder

Developing a Quality Workforce - A quality workforce is a Knowledge-based worker that can understand and move effortlessly from data to information to knowledge to wisdom.

WISDOM knows what to do next, SKILL knows how to do it, and VIRTUE is doing it right.

A K-worker is someone who looks for data and information from more sources than ever before; is not intimidated by the remoteness, cost and complexity of the source; is capable of critical thinking and analysis of the validity of the source; then able to synthesize and formulate an acceptable position which can be defended with some comfort and certainty.

K-workers must be willing and able to integrate their knowledge into all aspects of personal and professional activities and will contribute fresh insight to an ever-expanding pool of information and knowledge, so that others can benefit from their efforts and experiences.

Examples of Productivity and Quality Management Tools - Below are just a few examples of P&Q management tools that can be applied to organizations in efforts to achieve higher output and higher productivity:

P&Q Management Tools	Output
5S Practices & Kaizen Management Development Program Quality Control Circle (QCC)	Quality Workforce
Total Quality Management (TQM) Total Productive Maintenance (TPM) ISO 9000:2000 / 14000/ 18000 Balance Scorecard	Quality System and Management
Just in Time (JIT) IT/ICT Applications Benchmarking for Best Practices	Quality Capital and Technology

For the purpose of this paper, two of the P&Q techniques will be discussed below. These are the 5S Management Technique and Benchmarking.

5S MANAGEMENT TECHNIQUES

The 5S Management technique can assist the organizations in establishing the building blocks for implementing other productivity management tools within the organization and enhance productivity and competitiveness. In applying 5S, the organization has to go through a continuous and systematic process to:

- Identify, reduce and eliminate waste;
- Enhance teamwork;
- Enhance operation effectiveness in a better working environment; and
- Form the basic advanced model for Productivity and Quality Improvement.

Understanding 5S - 5S is a management tool from Japan that focuses on establishing a quality environment in the organization, ensuring adherence to standards and in the process, fosters the spirit of continual improvement. 5S focuses on the following five management techniques that are the foundation for any organization's competitive initiative:

Seiri	SORT	To sort and systematically discard items that is not needed in the workplace
Seiton	SET IN ORDER	To arrange necessary items in a neat and systematic manner so that they can be easily retrieved for use and to return after use.
Seiso	SHINE	To clean and inspect the workplace thoroughly so that there is no dirt on the floor, machines and equipments.
Seiketsu	STANDARDIZE	To maintain a high standard of workplace organization by keeping everything clean and orderly at all times.
Shitsuke	SUSTAIN	To train people to practice the 5S system continuously so that it becomes habitual and ingrained in the culture of the organization.

Why 5S

The 5S concept is easy for everyone to understand:

- It does not require the understanding of difficult terminologies.
- It is simple, driven by logic and natural to human behavior.
- It is within the reach of all type and size of industry or organization.

5S is NOT:

- A housekeeping exercise
- A way to blame people for defects
- A way to force people to do their work
- A way to make people work harder and faster
- A monthly or yearly flavor e.g. Quality Month

Benefits of 5S Implementation

- Workplace becomes cleaner and better organized.
- Shop floor and office operation becomes safer.
- Visible results enhance the generation of more and better ideas.
- Lead-time reduced.
- Changeover time reduced by streamlining operations.
- Breakdowns and minor stops eliminated on production lines.
- Defects reduced by mistake proofing.
- Clear methods and standards are established.
- In-process inventory is reduced.
- Space usage is improved.
- Customer complaints are reduced.

BENCHMARKING FOR BEST PRACTICES

What is Benchmarking?

Benchmarking is defined as the practice of being humble enough to admit that someone else is better at something and being wise enough to try to learn how to match and even surpass them at it."

(Q*uality Digest, July 1992)*

Benchmarking is a systematic and continuous process of searching, learning, adapting and implementing the best practices from within your organization or from other organizations towards attaining superior performance. *(National Productivity Corporation, Malaysia,* 1997)

Why do we do benchmarking?

(i) *Know Yourself*

The purpose of benchmarking is to improve our own performance. We must first understand our own customers, processes, organizational structure and culture. It is with this knowledge that we are ready to learn on how others perform and their best practices.

(ii) *Learning to Learn*

In a sense, it is the ultimate reality check. How can we know how well we do something unless we have a basis from which to compare ourselves with others? We can adapt what we have learned by continuously improving our performance.

(iii) *Not Mere Copying*

Benchmarking is not simply copying what works for others, nor adopting similar systems or processes in a follow-the-leader attitude. An organization could not emerge as the best-in-class by merely copying the other leaders in industry and their best practices. This is because the mere adoption of techniques and best practices would not make that particular organization most efficient, instead it just becomes "only as good as" the other organizations.

(iv) *Benchmarking as a Knowledge Management Tool*

In simple terms, benchmarking is an analytical tool used to measure and compare business operations, functions or processes against best-in-class performers. Benchmarking in it does not result in improvement. Instead, it identifies shortcomings, or inefficiencies, in the product, process, system, or organization.

The real challenge and opportunity, therefore, is to leverage the knowledge gained from benchmarking processes into competitive advantage for the organizations.

What is a Benchmark?

For process improvement purposes, a benchmark is a measured 'best-in-class' achievement, recognized as the standard of excellence for a particular process. As benchmarking implies quantitative measurement, the best results become the benchmark reference against which you assess your own company's performance. Measurement is critical to help you measure and monitor how big the gap is between your current operations/performance and that of the best practice organizations. As the wise saying goes "what you cannot measure, you cannot manage".

What are Best Practices?

Best practices are a relative term indicating outstanding business practices, which have been identified as contributing to significant improved performance in leading companies. It is a best practice when:

- It contributes to excellent business results and leads to superior performance;
- It is something that customers would view as very useful to learn about;
- It involves new or innovative use of resources such as manpower or technology;
- It is organized by a reputable individual or organization;
- It is something unique or different that others do not do;
- It is not only a plan or intent but is well deployed throughout organization;
- It is something that the organization is continually improving;
- It is something that is looked up to by peers and experts; and
- It is acknowledged by a significant number of other organizations.

Critical Success Factors for Benchmarking

- Do the right study (critically important)
- Be committed to implement the results
- Use an appropriate benchmarking process
- Choose and empower the right teams
- Know your own process first
- Choose the right partner
- Agree to a code of conduct
- Test adaptability of practices and enablers
- Verify the results of implementation

Barriers to Successful Benchmarking

- Lack of clear, visible and consistent management support
- Failure to fully understand and document own processes
- Selecting too many processes to benchmark
- No adequate staff, benchmarking team and resources
- Not implementing the best practices learnt

What to Benchmark?

Measurement is critical to help the organization to measure and monitor how big the gap is between current operations/performance and the best practices leant from the 'best-in-class' organization. However, the organization itself must identify which operations are crucial to be improved in the short-term or long-term planning. Checklist 1 shows several important issues in identifying what to benchmark in the organization.

Checklist 1: Establishment of Priorities of Benchmarking

No.		Check
Q1	What is the potential impact on the critical success areas of the organization in terms of cost, timeliness and quality?	
Q2	How do customers rank the importance of these processes?	
Q3	What specific problems have been identified?	

(To be continued)

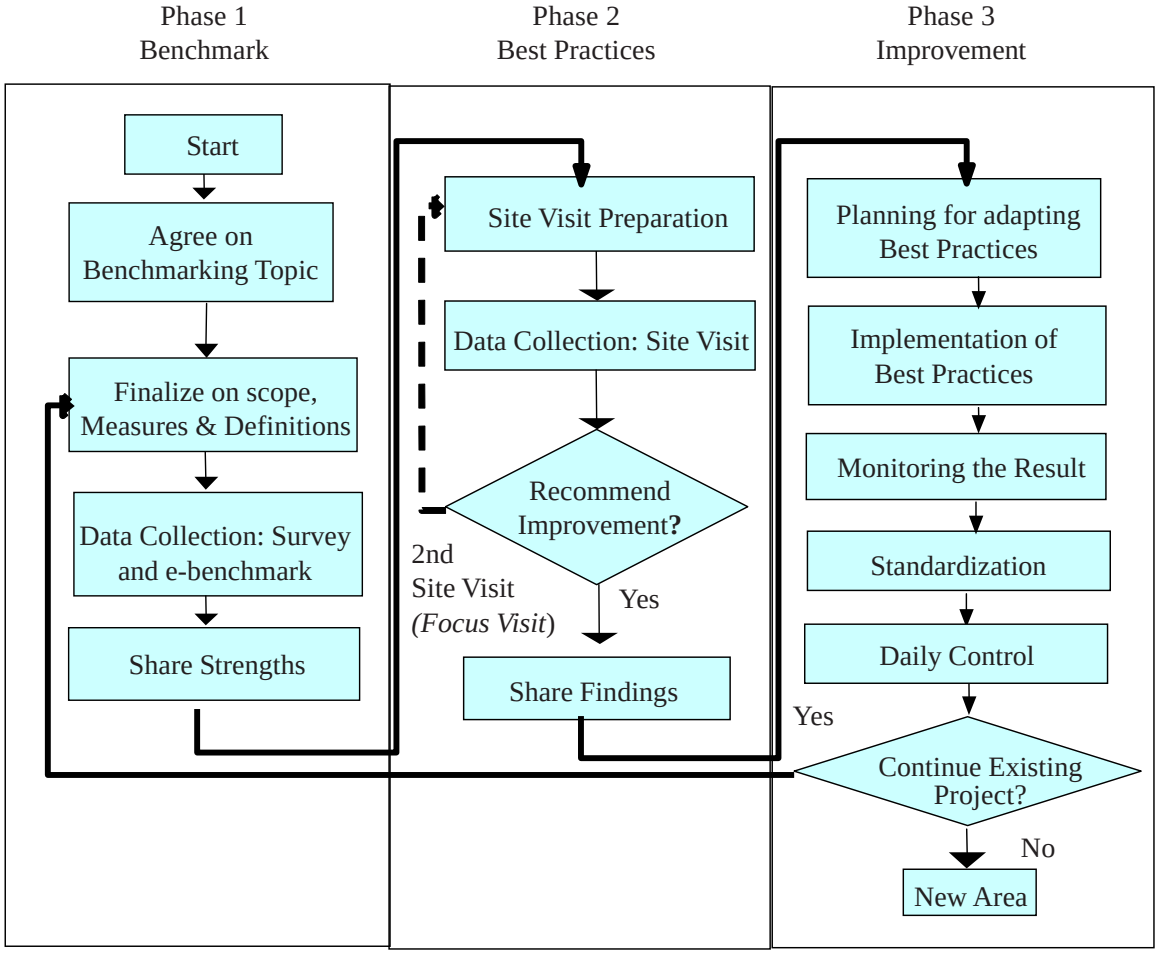
Q4	What are the major costs in the organization?	
Q5	Which functions represent the highest percentage of cost?	
Q6	Which functions have the greatest room for improvement?	
Q7	Which functions have the greatest effect or potential effect for differentiating our organization from our competitors?	
Q8	Is the organization “ready” to implement these process changes?	
Q9	Does the organization have the structural and organizational capacity to change?	

Benchmarking Code of Conduct

Benchmarking Code of Conduct is a set of ethical and legal guidelines that establish the ground rules to follow when doing benchmarking:

- Conduct yourself within legal bounds
- Participate by exchanging information
- Respect confidentiality of information
- Use of information only for the intended purpose
- Initiate contacts with designated individuals
- Obtain permission before providing contacts
- Be prepared for each benchmarking event
- Follow through with commitment to partners
- Treat information from others as they desire

NPC Benchmarking Model



Benchmarking Community of Practices (CoP)

Creating a Benchmarking Community of Practices (CoP) is an essential step before initiating on any benchmarking project. CoP is a network of individuals or organizations within similar or dissimilar industries who share some common areas of interest. Members of a CoP are grouped together on a voluntary basis to initiate some form of benchmarking activities, where NPC serves as the facilitator. Who is "best-in-class" or "How do we determine who to benchmark?" are some of the questions most often asked. Overall, do not spend too much time and energy looking for the "best". Anything that offers a major improvement over our current performance is worth learning about.

On-line Interactive e-Benchmark System

The on-line and interactive e-benchmark system speeds up the data collection and computation of benchmarks. This system allows industries to conveniently key-in data, compute indicators, rank performance and benchmark comparisons, all within a submission using the Internet (Figure 8). Confidentiality of industry's data is secured through the use of a password.

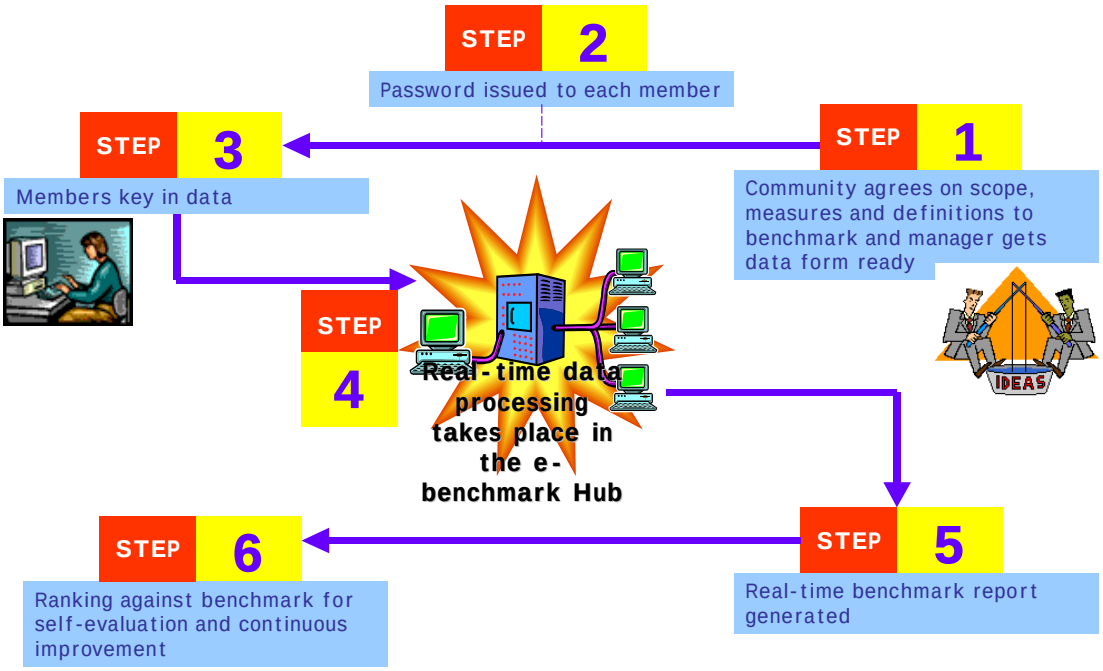
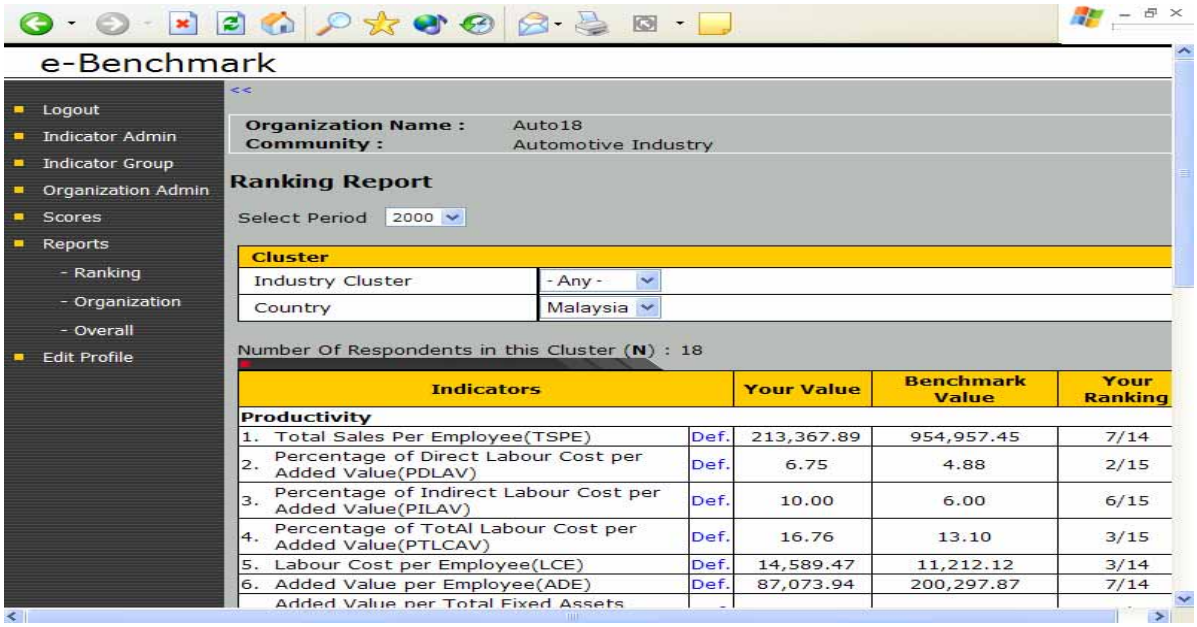


Figure 8. Data Processing Using Interactive e-Benchmark

Benefits of Using e-Benchmark

Each individual CoP member will be given login id and password. Using Internet, each member can used the CoP e-benchmark system at their own convenience, keying-in and editing data and updating information, and generating and analyzing as many KPIs available. They can further use these benchmark results to discuss in their own organizations. Data and information available can assist CoP members to evaluate own performances, identify benchmarks, measures gaps in performances, setting achievable higher targets and identify benchmarking partners for future improvement processes. This real time e-benchmark system had encouraged many industries to measure performance and benchmark comparisons in Malaysia as well as in other countries. Data, KPIs, benchmarks and gap analyses are all in real time terms.

An Example of e-Benchmark Results



Benefits of Benchmarking for Best Practices

- Thinking "outside of the box"
- Accelerate the rate of change
- Identify breakthrough improvements
- Provide fact based decisions
- Create a consensus climate
- Achieve a competitive advantage
- Improve customers satisfaction

CONCLUSION

The country's competitiveness is determined by the degree to which it can produce goods and services, which meets the tests of the international markets while its people can earn a standard of living that is both rising and sustainable over the long run. The country's competitiveness can be measured by its productivity. Therefore, to be globally competitive, the country needs to move from having a comparative advantage to having a competitive advantage, through higher growth in its productivity.

The challenge for the country then would be in promoting a rapid and sustainable productivity growth by deploying the "Productivity Drives National Development" growth strategies. Conscious efforts are required in enhancing the awareness, commitment and active implementation of productivity enhancement programs across all the economic sectors. This includes the 6 productivity thrusts of continuous upgrading of the quality of workforce; enhancing effective application of productivity and quality systems throughout the value chain; continuous investments in technology and R&D to further improve productivity and competitiveness; strengthening infrastructure support services to accelerate productivity growth; intensifying the adoption of best practices and conformance to international requirements; and promoting the culture of excellence as a way of life.

Productivity management tools can be used to create improvements and enhancing productivity contributions towards higher global competitiveness. The 5S management techniques can be used as the building block for productivity improvement efforts in the organizations. The benchmarking for best practices is one of the effective management tools in creating changes and promoting the sharing of best practices among industries.

1. CAMBODIA

Lim Saody
Chief, Agricultural Marketing Office
Department of Planning, Statistics and International Cooperation
Ministry of Agriculture, Forestry and Fisheries (MAFF)
Phnom Penh

INTRODUCTION

Cambodia has made every endeavor to recover from years of civil unrest and warfare, during which basic socio-economic as well as institutional infrastructure has been destroyed, and millions of lives lost. Per capita income was estimated at about US$ 282 per annum in 2001.

Agriculture remains the main contributor to the national economy (39%) of the GDP, and the majority of the population still depends on agriculture for the living (84%). However, agriculture productivity is consistently low. Rice, the main crop and staple food, is cultivated on about 84% of the total agricultural land.

A rapidly increasing population associated with the rise in consumption of vegetables in Phnom Penh, caused an expansion in area planted in the five provinces surrounding Phnom Penh during the 1980's and early 1990's. Areas planted to cruciferous vegetables (heading type cabbage, cauliflower etc.) and onion have declined in Cambodia due to the high cost of inputs (imported seeds, fertilizer, and pesticide) lack of improvement in traditional planting methods and lack of effective insect and disease controls.

Farmers grow all types of vegetables (pod, leafy, fruit and root) in Cambodia mainly along rivers, creeks, lakes, and open well because of easy access to water during the dry season. Lack of irrigation infrastructure during the dry season and excessive rainfall in the wet limits vegetable production.

Due to poor harvest and post-harvest handling techniques, lack of transportation infrastructure and processing facilities, production areas are concentrated near final consumption areas. Kandal, Kampot, Takeo, Siem Reap, Kompong Cham and Battambang are therefore the major vegetable growing areas in the country (Ungsa and Vanhan 1994).

REVIEW OF CURRENT PRODUCTION AND MARKETING

1. Production System

(1) Climatic Situation

Cambodia is in the humid tropics and comes under the influence of annual alternating high and low pressure systems. The climate is characterized by a cool-dry season from November to January and a hot–dry season from February to April, which leads to a wet season from May to October. Temperature varies from 22^0C to 37^0C and day length from 11 to 13 hours. The annual mean temperature is 27^0 C and the mean precipitation is 1370 mm, with considerable variation from year to year.

Overall, vegetable production is highly seasonal with a discontinuity of supply at various periods throughout the year. In the early dry season (mid October- December), the major vegetables are cabbage, Chinese cabbage, onion, leaf lettuce, tomato and chinese radish. In March/April, the weather is very hot through the entire country. It is a lean period of production and relatively few vegetables (beans and watermelon) are grown due to the lack of water. In the early wet season (May-July) farmers grow cucumber, squash, shallot, gourds, beans, leaf mustard, chinese kale, water convolvulus and hot pepper. Some farmers in Kandal grow cabbage, Chinese cabbage, sweet pepper and snap bean also (*Shams et al 1997*).

(2) Farm Management Practices

***Seed Source*:** In Cambodia majority of the farmers purchase vegetable seed from the local market. Tubers and cucurbits tend to be home-produced. Seed sold through local markets however are of imported

varieties of questionable quality, poorly packaged and often lacking information on variety, description, purity, germination rate or expiry date on the package. (*Abedullah et al, 2002).*

Planting Method: Transplanting is used by 46% of farmers, primarily for allium, heading cole, other fruit types and tubers. Farmers especially for the expensive imported seed prefer transplanting. Broadcasting by hand is mostly used for cucurbits, other stem and root, pulses and leafy vegetables.

Irrigation: Farmers apply water to vegetables mainly by hand or combination of several methods. Hand held buckets are mainly used. Water is obtained from small ponds mostly, which fill in the rainy season, or are filled from channels, lakes or open wells using pumps. Otherwise water is hand carried or pumped directly from rivers. It is estimated that only 8% of vegetables are irrigated by pump (*Abedullah et al, 2002).*

Crop yields: The difference in crop yields in the wet season compared to dry season is not great. In Cambodia, cool-dry season yields are 11.1 t/ha compared to 9.6 mt/ha in the wet season. Poor irrigation infrastructure, low input use and low crop intensity contributes to low yields in Cambodia, when compared to crop yields in South Vietnam. Despite relatively small yield differences between wet and dry seasons, there is a strong seasonality in availability and prices of vegetables. Vegetable prices can be 30% higher in the off-season compared to normal supply season prices (*AQIP 2002).*

Table 1. Area and Production of Vegetables in Dry and Wet Seasons Over Time

Production	Dry-season		Wet-season	
Year	Planted Area (Ha)	Production (mt)	Planted Area (Ha)	Production (mt)
1994	12,530	152,930	21,470	44,072
1995	13,990	78,170	25,210	114,840
1996	18,000	117,000	23,890	132,710
1997	18,900	120,000	24,000	130,000
1998	14,340	89,610	22,600	127,650
1999	8,600	53,260	22,640	128,600
2000	14,320	83,620	17,820	112,280
2001	13,690	80,290	21,620	104,350
2002	13,830	81,310	20,600	60,860
2003	16,410	62,230	19,700	77,400

Source: Agricultural Statistics Office, MAFF

Table 2: Area Under Major Fruit Crops

Unit=Hectare

Fruit Crops	2001	2002	2003
Banana	34,490	30,150	26,630
Coconut	33,950	14,640	27,050
Longan	24,990	710	1,185
Mango	27,000	9,900	14,070
Star Apple	1,170	770	1,300
Sapodilla	4,030	1,100	2,150
Durian	910	1,060	990
Jack Fruit	27,570	3,100	4,370
Custard Apple	5,830	2,270	2,420
Orange	1,980	1,760	2,371
Rambutan	280	370	370
Guava	320	1,340	1,730
Pineapple	650	820	1,570

(MAFF, Statistics yearbook)

There is very little information on fruit production techniques in Cambodia. In terms of scale of operations, cultivation is carried out under 3 main systems.

- Mixed farming: Under this system, rice is the dominant crop. Farmers harvest small quantities of fruit from a few household trees or field plantings for market, when opportunities arise.

- Large-scale farming: Specialist farmers grow crops such as oranges; pineapple, mango and papaya on a larger scale i.e. more than 0.5ha and less than 2ha.
- Very large corporate type fruit farming: Fruits are grown on 2 hectares to more than 1000 ha, which operate as a company. These farms are run by experienced technicians, and employ large number of laborers for cultivation, harvesting etc. Several of the fruit plantations established under the land concession system are not yet at bearing age (less than 5 years old).

Production figures on these three main categories are not available. However, area under major fruits is given in Table 2.

2. Marketing System

a. Marketing Channels

The markets throughout the country are disorganized and chaotic. There are many small-scale traders, so the markets are crowded with sellers with small quantities of produce. Between buying and selling activity, people are loading and unloading produce into whatever means of transport is available (Cylo, Moto, Bicycle, remorque, card). There are varieties of different marketing channels even for the same commodity.

The operators within the channel often carry out a combination of functions, for example farmer/ collector, farmer /retailer, collector/wholesaler, and retailer/ wholesaler.

The movement of produce from farmers to consumers is fast. The channel is generally short with relatively few middlemen.

The absence of a singular, central wholesale market system in Cambodia, like other Indochina countries, has resulted in a fairly weak marketing institution and structure. About 99% of vegetables produced on commercial farms are sold in the market, with less than 1 % consumed at home. This output disposal pattern suggests that vegetables are an important source of cash income, which enables families to buy the necessities of life such as education, clothing and farm equipment, etc.

As regards the source of information about supply/demand and prices in the market, 34% farmers received their information from wholesalers, 40% from collectors, 24% from others such as neighbors, and only 2% from extension workers.

Margins are small for farmers, market sellers and collectors. For instance, the typical margin for among 12 sellers of radish across four retail markets in December 2002 was only 200 R/kg, or just 12 % above the average buying price. Although this can vary considerably depending on the commodity traded, generally trade is relatively efficient and equitable, largely due to competition in the market place. Transactions tend to be fast, and transport costs and "informal" taxes imposed along the road are widely known (*MAFF/OSB Report 1997*). Because of the relative perishability of the product, marketing channels are relatively short with few middlemen.

Most popular retail outlets are in the open, and often on the periphery of major markets. Consumers tend to prefer to buy vegetables and fruits from outside the market, rather than inside (AVRDC.CIRAD,DAALI/ MAFF 2002). Despite the poor roads, and a frequently crowded, unhygienic and chaotic marketplace generally, commodities seem to move surprisingly quickly. Transportation costs are coherent and well established, even though unofficial "taxes" along the main routes add to the costs.

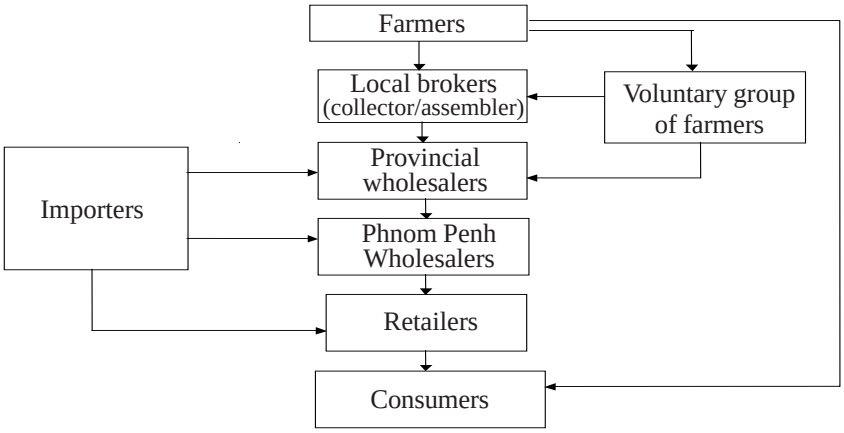


Figure 1. Vegetable Marketing Channel

The marketing channels for fruit depend on the type and whether it is imported or produced domestically. Normally farmers close to the markets transport themselves and sell to retailers, in other case the same is done by collectors.

Domestically produced fruits include banana, watermelon, mango, durian and oranges in some months. Durian and orange are also imported. Banana and watermelon undergo a lot of inter-provincial trade. Markets are generally flooded with mangoes in April/May, when farmers and collectors come into the market to sell surplus.

The major imported fruits are pineapple and orange. Traders from Vietnam supply them, although they have different market channels. Much of the pineapple imports arrive by boat at ports such as Nhak Loeng, Ta Khmao and Takeo. During peak periods, such as March-April, up to 3 boats of 5-10 tons each arrive at Ta Khmao harbor each day then transported by remorque to Dumkor market, where part of the supply is re-distributed to other markets. (*MAFF/ FAO Report 1997*)

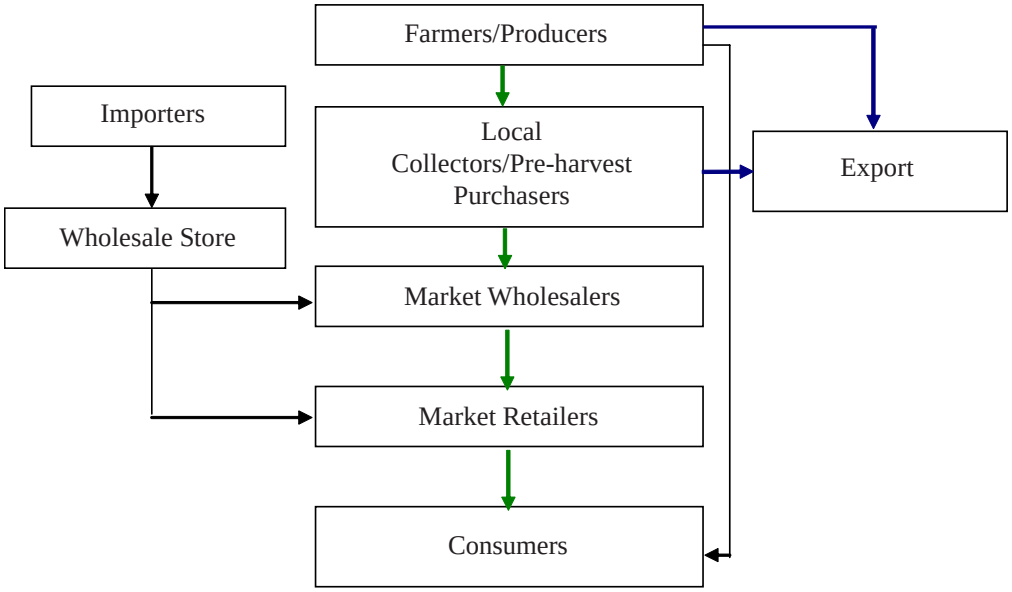
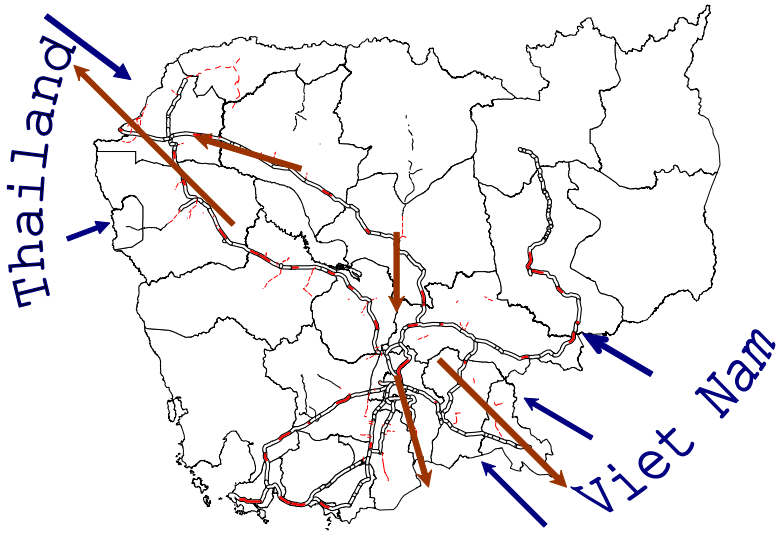


Figure 2. Fruit Marketing Channel

b. Fruit and Vegetable Trade Flow

The biggest trade flows are from the surplus producing province Phnom Penh and to neighboring countries such as Thailand, Viet Nam as well as imports from these countries. The trade flow may reserve according to the season and depend on size of production in the country and neighbors.

There is important inter-provincial trade toward deficit provincial towns/markets. The trade also flows from surplus part of the province to deficit part.



c. Fruit and Vegetable Price

The price for particular commodities does not vary consistently between dry and wet season. The price received by local growers is complicated by the supply of imported vegetable and fruit in the market place. The price is largely driven by supply and demand.

Product quality has a large influence on price. The comparison of imported and local products in the same market shows, the wholesalers/retailers tend to purchase the imported product at a higher price for some certain types of vegetable such as tomato, cabbage and cauliflower.

However, for other types of vegetable such as long bean, cucumber, leaf mustard etc., the local products are of good quality and available in year-round.

THE ISSUES AND CONSTRAINTS

Transitional problems resulting from trade liberalization were the failure of local firms or producers to compete with the imported products. The complaints rose by small producers and farmers are associated with the following issues:

- Low productivity and poor post-harvest practices that resulted in low quality (standard) and lower price offered.
- Insufficient knowledge and low technology input application in production.
- Unrecognized quality control and quality assurance, low capacity and inadequate facilities.
- High production costs resulted from high input cost, small-scale farms, high transportation cost and poor infrastructure.
- Limited accessibility to credit, high interest rate.
- Insufficient availability of high quality seed and inputs, no guarantee of secure market sales.

Major Issues of Fruit and Vegetable Sector

Narrowed Window: The sector is characterized **by** low value addition, subsistence orientation, mono-cropped farming systems on fragmented small holdings and without proper water management (irrigation and drainage), compounded by low relative productivity and inconsistent quality (due in part to low input use, limited access to improved seeds and poor post-harvest treatment). Main activities are concentrated on low value added commodities, with limited diversification to higher value commodities or conversion through processing and downstream manufacture into higher value added products.

Little Development on Fruit and Vegetable Organization/Association: The small size of production with limited technical and commercial skills suggests the need for smallholders to consolidate the production lines in the form of cooperative/association. It enhances appropriate market access and cost reduction allowing for value addition through diversification laterally and vertically to achieve higher quality and market price.

SUGGESTIONS AND RECOMMENDATIONS

1. Enhancement of Fruit and Vegetable Productivity

- Improve the supply and range of quality vegetable seeds and fruit planting material available to farmers at an affordable price.
- Improve supply and quality of inputs such as seed, fertilizer, agricultural chemicals and other appropriate materials.
- Compare seasonality of agro-ecological zones/soil categories for production to effectively compete with imported products.
- Promote agricultural diversification among small-scale farmers.
- Integrated Pest management (IPM) for fruits and vegetables are more effective and safety.
- Build up Irrigation and drainage systems for optimum growth of fruit and vegetable crops.

2. Improvement of Post-Harvest Practice

- Improve the access to appropriate storage and transport facilities to prolong shelf life of fresh vegetables and fruits and access to cool-stores for highly perishable products.
- Establish the Quality Assurance system for fresh produce for export through the appropriate testing and certifying facilities in the Country.
- Phyto-sanitary inspections for exports to be in place in order to promote the agro-based exports from Cambodia to meet internationally required quality and safety standards in overseas markets.

3. Accelerated Marketing Development

- Improve access to credit. The appropriate credit schemes may be designed for farmers, small, medium scale enterprises with low interest.
- Encourage the formation of Farmers, traders, processors and exporters groups/Association.
- Fruit and vegetable marketing promotion/Exhibition/ advertising campaigns to display the quality/ safety produce that is attractive to the consumers and for export.
- Set up the quality standards for Agricultural products.
- Research and Extension Support Services for fruits and vegetables operate through MAFF which must have strong linkages to the private sector to support farmers/growers.
- Value adding and processing industries for fruits and vegetables may be established.
- Private Investors in horticulture need a "single door" for investment inquiry, and clear knowledge of the government backed incentives available.
- Emerge niche/farmer markets for vegetable and fruit products to identify domestic demand of consumers for specific products.
- Promote Farming contract, methodology and experience related to contracting process with buyers and processors.
- Expand the Market Information Service, the utilization of the market information disseminated by extension officers.

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2. INDIA

Manish Kumar Choudhary
Marketing Officer
Directorate of Marketing and Inspection
Department of Agriculture and Cooperation
Ministry of Agriculture
Nagpur

INTRODUCTION

Since January 1995, international trade is conducted in a new environment and market economy has been integrated globally. Under the WTO regime, India has also reorganized its trade policies and has replaced Quantitative Restrictions by suitable tariffication, on many agricultural commodities and brought them under Open General License (OGL). Market access under the Agreement On Agriculture (AOA) has opened the opportunities in finding out competitive economic environment around the world. Integrated approach has been adopted for different qualitative parameters in the form of Codex Standards to over come the problems related to quality in the international trade. The Dispute Settlement Body as a non-discriminatory common platform was provided for the uniform solution to the trade related disputes. The international trade increased from 3 per cent in 2002 to 4.7 percent in 2003. UNCTAD has predicted, it will be 7 per cent in 2004. Developing countries increased their share in international trade to 31 per cent by 2004. In a better international competitive atmosphere, India visualizes good marketing prospects for fruit and vegetable.

PRODUCTION

India ranks second position in the production of fruits and vegetables in Asia (Table 1). India, blessed with varied agro-climatic conditions, produces wide range of fruits and vegetables of temperate, subtropical and tropical zones. The production of fruits in 1991-92 was 28632 thousand mt which has increased to 43001 thousand mt in 2001-02, i.e. increased by 50.18 percent over a decade as shown in Table 2.

In case of vegetables, total production has increased considerably from 58532 thousand mt to 88622 thousand mt from the year 1991-92 to 2001-02. The production has recorded an increase of 51.4 percent over a decade as shown in Table 3.

India accounts for 9.4 percent of total world fruit and 9.39 percent of world vegetable production. In Asia, India's share in fruit and vegetable production is 21.47 and 12.79 percent respectively (FAO data).

India ranks first in the world in the production of mango, banana, sapota, papaya, okra, peas and second largest producer of lemon, onion, cabbage, cauliflower and brinjal. Crop wise area, production and productivity of major fruits and vegetables during the year 2001-02 are given in Tables 4 and 5 respectively.

Table 1. Production of Fruits and Vegetables in Important Asian Countries 2004

(000 mt)

Country	Fruits (excl. Melons)	Vegetables (incl. Melons)
WORLD	497437	855074
ASIA	218715	627335
India	46971	80261
China	78228	423335
Pakistan	4987	5108
Japan	3778	11798
Korea, Republic of	2440	11020
Bangladesh	1605	2059
Sri Lanka	849	581

Source: www.faostat.org

Table 2. Area, Production and Productivity of Fruits in India

Year	Area (in 000' Ha)	Production (in 000' mt)	Productivity (in mt/Ha)
1991-92	2874	28632	10.0
1992-93	3206	32955	10.3
1993-94	3184	37255	11.7
1994-95	3246	38603	11.9
1995-96	3357	41507	12.4
1996-97	3580	40458	11.3
1997-98	3702	43263	11.7
1998-99	3727	44042	11.8
1999-00	3797	45496	12.0
2000-01	3869	43138	11.1
2001-02	4010	43001	10.7

Source: National Horticulture Board

Table 3. Area, Production and Productivity of Vegetables in India

Year	Area (in 000' Ha)	Production (in 000' mt)	Productivity (in mt/Ha)
1991-92	5593	58532	10.5
1992-93	5045	63806	12.6
1993-94	4876	65787	13.5
1994-95	5013	67286	13.4
1995-96	5335	71594	13.4
1996-97	5515	75074	13.6
1997-98	5607	72683	13.0
1998-99	5873	87536	14.9
1999-00	5991	90823	15.2
2000-01	6250	93849	15.0
2001-02	6156	88622	14.4

Source: National Horticulture Board

Table 4. Crop-wise Area, Production and Productivity of Major Fruit Crops in India (2001-02)

	Area (in 000' Ha)	Production (in 000' mt)	Productivity (in mt/Ha)
Apple	241.6	1158.4	4.8
Banana	466.2	14209.9	30.5
Citrus	618.5	4789.1	7.7
Grapes	49.4	1209.7	24.5
Guava	154.6	1715.5	11.1
Litchi	58.1	355.9	6.1
Mango	1575.8	10020.2	6.4
Papaya	73.7	2590.4	35.1
Pineapple	77.2	1182.1	15.3
Sapota	52.0	593.5	11.4
Others	643.1	5176.4	-
Total	4010.2	43001.1	10.7

Source: National Horticulture Board

Table 5. Crop-wise Area, Production and Productivity of Major Vegetables Crops (2001-02)

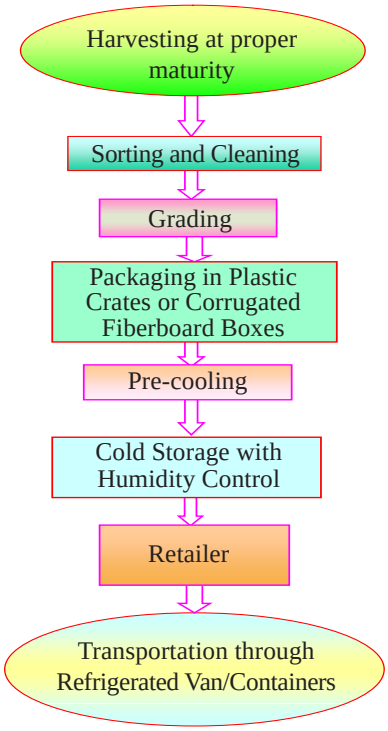
	Area (in 000' Ha)	Production (in 000' mt)	Productivity (in mt/Ha)
Brinjal	502.4	8347.7	16.6
Cabbage	258.1	5678.2	22.0
Cauliflower	269.9	4890.5	18.1
Okra	347.2	3324.7	9.6
Onion	495.8	5252.1	10.6
Peas	303.3	2038.2	6.7
Potato	1259.5	24456.0	19.4
Sweet Potato	131.9	1130.3	8.6
Tapioca	238.9	6515.9	27.3
Tomato	458.1	7462.3	16.3
Others	1890.6	19526.2	-
Total	6155.7	88622.1	14.4

Source: National Horticulture Board

POSTHARVEST LOSSES

* According to the Food and Agriculture Organization (FAO) survey of food losses in developing countries, these losses vary from 20% to 30%.
* As per the studies of Technology Information for Costing and Assessment Council (TIFAC), Department of Science and Technology (1996), postharvest losses in fruits and vegetables are nearly 25 to 30% of the total produce.
* The findings of the Uttar Pradesh Government revealed 25 to 40% postharvest losses in case of mango, guava and potato. Whereas, the study conducted by National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) in respect of onion, the postharvest losses were to the extent of 30%.
* Figure 1 shows the general line of action to minimize the postharvest losses.

Figure 1. Postharvest Management for Fruits and Vegetables



The operations involved under post-harvest management of horticultural produce start basically from the time they harvested as shown above.

RECENT DEVELOPMENTS OF FRUIT AND VEGETABLE MARKETING IN INDIA

Agri - Export Zones

In the late 1990_s, McKinsey & Company has branded India as "World's Food Factory", that shows the depth and market potential of Agro-food. The FAIDA -II (Food and Agriculture Integrated Development Action) report predicts India as world's largest food factory by 2005. Realizing the great potential and future prospects of agricultural exports, 48 Agri-Export Zones (AEZs) have been identified covering 19 states and 193 districts in the country around important producing areas with combined export facilities, which, includes developing and securing the raw materials, processing, packaging, postharvest treatment facilities and other requirements for total exports. 20 commodities were identified for promotion in these zones. For example, in Maharashtra State, AEZ are for Mango (Alphanso and kesar), Onion, Orange, Pomegranate and Banana. The District Development Mangers (DDMs) of National Agricultural Bank for Rural Development (NABARD) in 119 districts continued coordination with the nodal officers of APEDA for the promotion of AEZs.

These zones are being monitored by the agencies of Central Govt., especially in case of quality, sanitary and phyto-sanitary measures. Professional advice of ATO-DLO, Netherlands based agency and NRI (London) can be had, if required. In India, Agricultural and Processed Food Products Export Development Authority (APEDA), collects and disseminate information needed by the exporters. In the 10^{th} plan APEDA's main objective is to channelize export through these zones and grab maximum share in foreign markets for Indian exports.

Ministry of Commerce and Industry has taken up food processing industry based development program like creation of Food Parks and Agri Business Centers. The Ministry has also program for production, value addition, storage, marketing, arranging buyer-sellers meet, etc. Institutions like National Horticulture Board (NHB), APEDA, Ministry of Food Processing Industry (MFPI), Central Food Technological Research Institute (CFTRI) which has acquired accreditation under ISO 9001:2000, Indian Institute of Packaging (IIP), Directorate of Marketing & Inspection (DMI), Bureau of Indian Standard (BIS), Director General of Foreign Trade (DGFT), etc. are playing supportive role by promoting the infrastructure and technology up-gradation conducive to the marketing of these commodities in foreign countries.

Availability of proper infrastructure is basic requirement for marketing of agricultural products to curb the postharvest losses and enhance their availability to consumers at affordable price. Improved infrastructure can boost supply of fruits and vegetables in domestic market as well as provide exportable surplus. To attain these objective Government of India has launched "Capital Investment Subsidy for Development/ Strengthening of Agricultural Marketing Infrastructure, Grading and Standardization" 2003 -2007, with the objective of providing financial help and making the farmers and other functionaries aware of the requirement for marketing of the farm produce in the present global environment. The website is www.agmarknet.nic.in.

Infrastructure projects are:

- Functional Infrastructure for assembling, grading, standardization and quality certification, labeling, packaging, value addition facilities (without changing the product form);
- Infrastructure for Direct Marketing from producers to consumers/processing units/bulk buyers etc.;
- Infrastructure for E-trading, market extension and market oriented production planning; and
- Mobile infrastructure for postharvest operations viz. grading, packaging, quality testing etc. (excluding transport equipment).

Regulated Markets

India has vast network of a unique system of markets called Regulated Markets, meant for efficient transactions. The country has 7177 markets as on 30.03.2001 out of these, only 2355 are the Principal Market Yards, and the rest 4822 are sub-yards. The country also has 27,294 rural periodic markets, about 15% of which functions under the ambit of regulation.

Qualitative Competitiveness

Due to liberalization, globalization, and requirement of SPS and TBT Agreement of WTO, standards of agricultural commodities including 19 fruits and vegetables are now being harmonized with International Standards i.e. Codex Alimentarius Commission. Directorate of Marketing and Inspection (DMI) in the Ministry of Agriculture is a pioneer organization implementing the Agricultural Produce (Grading and Marking)

Act, 1937. Standards commonly known as 'Agmark standard' of 163 agricultural commodities including 19 fruits and vegetables have been framed under the provisions of the Act. Agricultural and Processed Food Products Export Development Authority (APEDA) has also developed standards for various fruits and vegetables and these standards are in coherence with the SPS.

Total Quality Management: To motivate the food processing industries for adoption of food safety and quality assurance mechanism such as Total Quality Management (TQM), ISO: 9000, IS: 15000: 1998, Hazard Analysis and Critical Control Points (HACCP), Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP) has been developed. The HACCP approach and ISO: 9000 QMS are complementary.

In India, a large number of food safety regulatory and control measures are in practice. Various legislative measures like Agricultural Produce (Grading and Marking) Act 1937, amended in 1986, Prevention of Food Adulteration Act (PFA), 1954, Fruit Products Order (FPO**)**, 1955 (amended in 1997 and 2000), Packaged Commodity Rules 1977, Standards of Weights and Measures Act 1976 and the Export (Quality Control and Inspection) Act 1963, are implemented by the authorized agencies.

Food safety is an important issue since the implementation of Agreement On Agriculture under WTO. This has restrained on the use of fertilizers, pesticides and other agro-chemicals. Now, Indian farmers are gradually moving towards Organic farming. Farmers have started adopting SPS, Good Agricultural Practices (GAPs) and Good Hygienic Practices (GHPs) during production and postharvest handling of fruits and vegetables. Codex standards have also acknowledged that the aim of the set standards is protection of health and safety.

EUREPGAP- European Retail Parties (EUREP) has developed set of standards for fruits and vegetables which incorporate the concept of quality accepted Good Agricultural Practices (GAP). These standards are called EUREPGAP standards. These standards would also promote eco-friendly agriculture and prevent degradation of soil with optimum use of water sources. To educate farmers, the Agricultural Universities have also opened centres at district level. The Federation of Indian Chambers of Commerce and Industries (FICCI) with the cooperation from Norweian Agency for Development Cooperation (NORD) has taken up a pilot project of 15 to 20 orchard farmers for implementation of these practices.

Sanitary and Phyto-sanitary measures cover food safety norms. Bio-security and SPS Import Permit based on Import Risk Analysis is issued to the traders (Exporters/Importers) by the Plants Protection and Quarantine Department under the Ministry of Agriculture. This certificate is issued under the provision of "Plants, Fruit, and Seeds order" of 1989.

Packaging

In India, the commonly used packaging materials for fruits and vegetables are gunny bags, bamboo baskets and wooden boxes. The jute gunny bags, which are normally used for packaging of potatoes, onion, cabbages, etc., can hardly withstand the pressure during handling and transportation period. Mangoes, apples, grapes, etc., are mostly packed in either wooden boxes or cardboard cartons. The cardboard cartons and ventilated Corrugated Fibreboard Boxes (CFB) are now becoming more popular for packaging of apples, mangoes, and grapes, particularly for domestic trade. Use of these packages controls the respiration and thus enhances shelf life. Some of the commonly used packing materials are Card Board Boxes, Plastic Crates, Poly Bags, Nylon Wire Bags, Controlled Atmospheres Packaging (CAP), Vaccum Packaging, and CFB. Aluminium, tetra pack, plastic and glass are mainly used for packaging of processed foods.

Corrugated Fibreboard Boxes (CFB): In view of the declining forest cover, corrugated fibreboard boxes are used as suitable alternate of the wooden boxes for packaging of fruits and vegetables. Recently CFB Boxes, made from craft paper of cotton stalk pulp with sufficient ventilation have been introduced, which is biodegradable and suitable for packing of fruits and vegetables. These boxes can be stacked up to reasonable height. Successful trials have been conducted for Nagpur oranges. These boxes can withstand humidity (85-90%) at 6-7^{o}C for more than a month during storage. CFB was designed and experimented by Directorate of Marketing and Inspection (DMI), which are widely used as shipping containers for fresh produce because of number of advantages over wooden boxes.

Plastic crates/baskets of 20-25 kg capacity have gained popularity and easy to carry the produce from field to the packaging shed. Netted plastic sacks are replacing the jute sacks for storage of potatoes. Different size and shape of packaging materials are used depending upon variety of fruits and vegetables, their intrinsic value and also depending upon market.

Labeling of packages helps handlers to keep track of the produce, as it moves through the postharvest systems. Certain information such as recommended temperature range, stacking heights, RH conditions, etc., should be mentioned on cartons, Labels also contain the name of the product, grade, designation, net weight, name and address of the producer; packer or distributor etc. Labeling of consumers packages is mandatory under FDA regulations and helps in creating a brand name for quality produce. Also it must comply the conditions stipulated in Technical Barriers to Trade (TBT) and SPS. Bar coding system on packages is adopted.

Promotion of Export

During the year 2001-2002, India exported 169556 tones of fruit valued at Rs. 2873 million. The mangoes, grapes and oranges accounted for 28.18, 20.95 and 11.1 percent respectively in terms of foreign exchange earnings. The export data of fruit for the last three years are given in Table 6.

During the year 2001-2002, India exported 611939.6 tones of vegetables earned foreign exchange of Rs. 5823 million. The Onion accounted for 57 percent of total vegetable exports in terms of value. The export data of vegetables for the last three years are given in Table 7.

Fruits and vegetables are exported to various countries as indicated in Table 8.

Table 6. Export of Fruits

Quantity: in mt / Value: in Million Rs.

Commodity	1999-2000		2000-01		2001-02	
	Quantity	Value	Quantity	Value	Quantity	Value
Mangoes	34613.18	715.5	37109.67	686.1	44429.33	809.9
Grapes	14082.58	555.4	20647.58	829.8	14606.00	602.1
Bananas	6289.74	128.0	8629.42	180.0	8099.61	158.4
Apple	5476.57	88.9	2847.03	41.7	19296.00	133.9
Guava	2101.53	27.2	670.16	12.7	889.72	17.2
Oranges	24019.23	237.5	26822.52	273.7	28522.76	318.7
Papaya	12659.99	207.6	11928.26	161.9	1975.87	28.6
Pomegranate	5726.37	115.3	4454.54	99.1	4473.70	104.1
Sapota	1572.13	24.3	910.80	16.1	1149.50	21.4
Litchi	299.15	7.3	167.108	15.1	28.70	35.9
Other fruits	14825.09	291.6	24082.17	354.7	45718.82	643
Total	121683.56	2398.1	139000.25	2670.9	169556.01	2873.2

Source: Agricultural and processed Food Products Export Development Authority

Table 7. Export of Vegetables

Quantity: in mt / Value: in Million Rs.

Commodity	1999-2000		2000-01		2001-02	
	Quantity	Value	Quantity	Value	Quantity	Value
Onion	260475.27	2027.0	343253.69	2762.2	441849.60	3324.3
Potatoes	28200.17	139.5	22636.76	116.0	8282.32	33.4
Cucumber	79804.74	139.7	7444.70	123.3	21637.66	313.2
Others Vs	7621.46	1162.3	103910.56	1669.2	14170.02	2152.2
Total	376101.64	3468.5	477245.71	4670.7	611939.6	5823.1

Source: Agricultural and Processed Food Products Export Development Authority

Table 8. Export of Fruits and Vegetables to Major Countries during 2002-03

Commodity	Countries
Potato	U.K., Sri Lanka, Mauritius, Nepal, Singapore, U.A.E., Maldives
Tomato	Bangladesh, Maldives, U.A.E., Singapore, Nepal, Korea Republic, Kenya, Ghana
Onion	Australia, Bangladesh, Bahrain, Brunei, Canada, U.K., Greece, Indonesia, Sri Lanka, Mauritius, Malaysia, Nepal, Pakistan
Radish	China, Kuwait, Qatar, Singapore
Cucumber and Gherkin Fresh	Australia, Belgium, Canada, Spain, France, U.K., Italy, Korea Republic, Sri Lanka, Netherlands, Russia, U.S.A.
Peas	Bangladesh, U.K., Iran, Jordan, Kuwait, Saudi Arabia, U.A.E.
Beans	Italy, Saudi Arabia, Switzerland, U.S.A.
Pumpkin	Nepal, U.A.E., Belgium
Other Root Fresh Vegetables	Bahrain, Kuwait, Malaysia, Oman, Saudi Arabia, U.A.E.
Mango	UAE, UK, Saudi Arab, Kuwait, Bangladesh
Grapes	UAE, Saudi Arab, Oman, Netherlands, UK
Other Fruits	Bangladesh, Saudi Arab, Oman, UAE, USA

Source: Agricultural and Processed Food Products Export Development Authority

Processing of Fruits and Vegetables

The estimated installed capacity of fruits and vegetables processing industries has increased from 0.708 million in 1990 to 2.198 million mt as on 1st January 2002, while the production of processed fruits and vegetables has increased from 0.245 million mt to 1.03 million mt during the same period. The number of licenses issued under Fruit Products Order (FPO) has increased from 5112 to 5198 during the year 1998 to 1999. The Ministry of Food Processing Industry (FPI) acts as a link between WTO Fora and the Processed Food Industry for real and meaningful opening of the market overseas.

Value in Million Rs.

Item	1996-97	1999-00	2000-01	2001-02	2002-03 (Targets)
Processed Fruits and Vegetables	4737	9936	13455	11006	14000

Source: Annual Report, Ministry of Food Processing Industries, 2002-03

Though, no industrial license is required for setting up fruits and vegetables processing industries, setting up 100% Export Oriented Units (EOUs) require specific Govt. approval. The sector is regulated by the Fruit Products Order (FPO), 1955 (amended in 1997 & 2000).

Transportation

The National Highways constituted less than 2 percent of the total road length and carried 40 percent of traffic. In view of this, a project of linking four Metro cities called "Golden Quadrilateral" with 4/6 lane expressways and connecting eight major ports has been launched and will be completed by 2009. This will speed up the efficient movement of the agro food across the country.

To economize the transportation cost, Railways should be provided with refrigerated wagons and designed to maintain the quality of perishable. It carries 1.4 million mt of goods traffic including food grains.

RECENT SUCCESSFUL MARKETING STRATEGY IN FRUITS AND VEGETABLES

Safal Fruit and Vegetable Auction Market

A high tech auction market known as Safal Fruits and Vegetables Auction Market (SAVAM) has been set up by Mother Diary Food Procuring Limited (MDFPL), a subsidiary of National Dairy Development

Board (NDDB) in Bangalore for procurement and marketing of the horticultural produce (Figure 2). The success story of this project is an eye opener for many cooperatives and others interested to venture/do some work on this line. The retail outlets of Safal in New Delhi are doing extremely well on scientific lines.

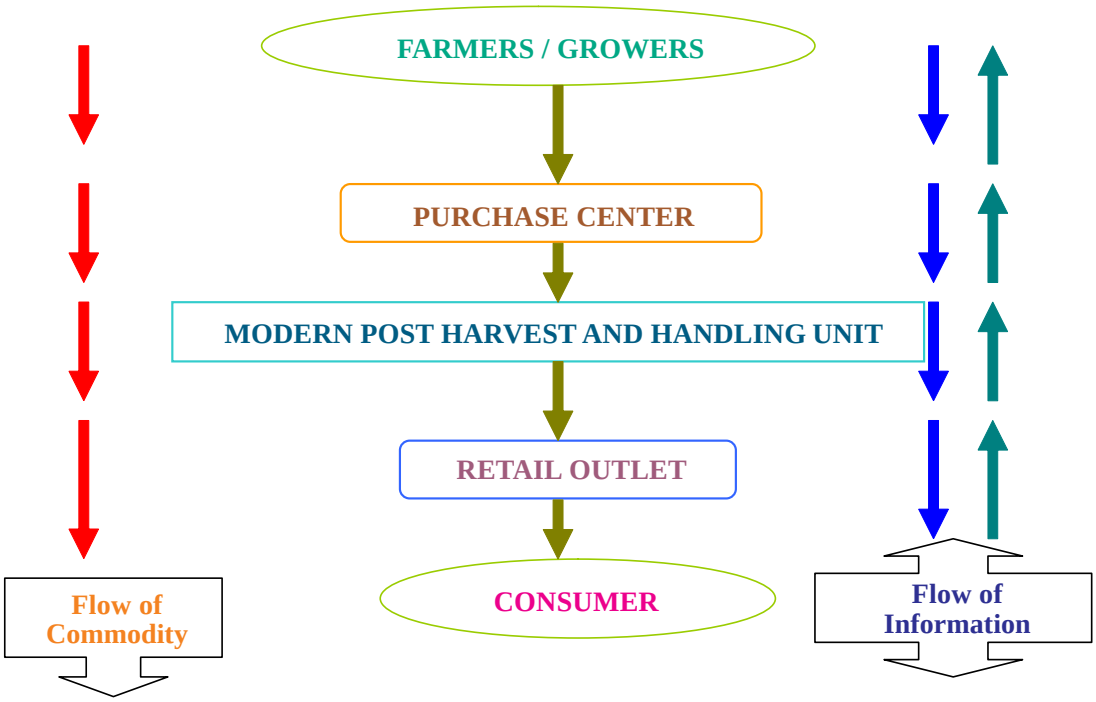


Figure 2. Modern Distribution System - Fruit and Vegetable
(National Dairy Development Board-Project)

(1) Salient Features

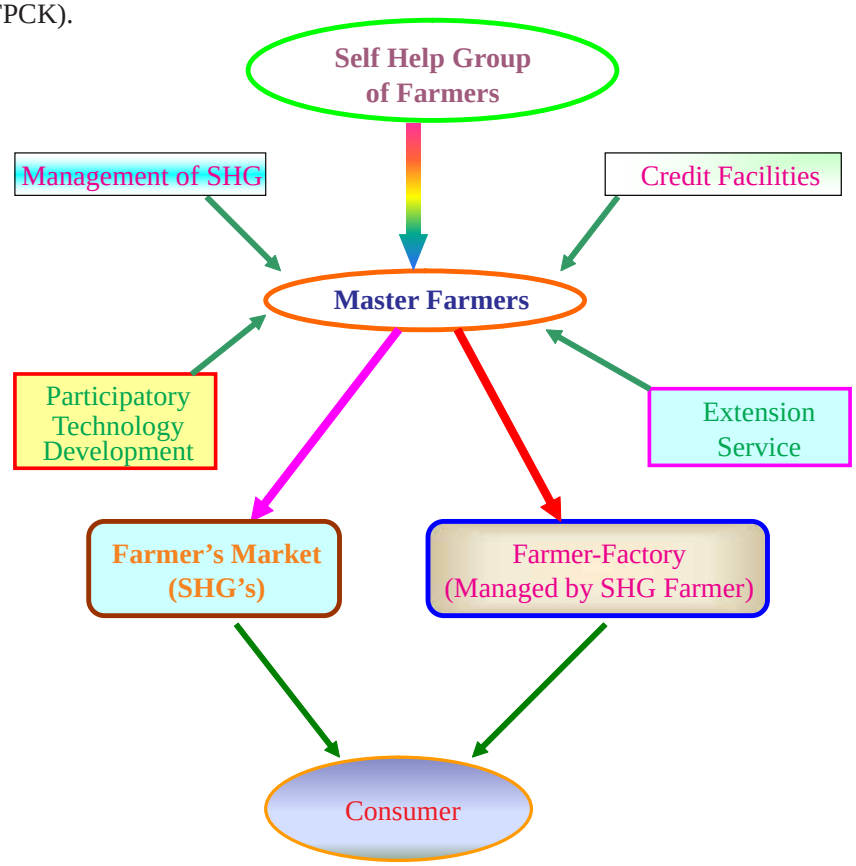
- An efficient alternative horticulture marketing structure that integrates producers, retailers and wholesalers into new marketing system.
- A single central auction system for graded produce.
- Transparency, efficiency, quality assurance, fair competition and clean and hygiene business environment.
- Professionally managed and outside the preview of the ARM Act.
- Market supported by Farmers Association (FA) thus improving farmers income.
- Two tier quality inspection systems ensure quality at the time of harvesting and at the point of sale.
- Electronic online auction system, telecommunication, cold storage and warehouse facility.

(2) Characteristics of Auction Market

- 60 acres wide area with sprawling outdoor and indoor trading facilities.
- Clean and hygienic business environment.
- Ample space for loading/unloading and parking vehicles.
- Large areas for handling less perishable items like onion, potato, mango, etc.
- Cold storage facility of 10,000 mt for potato and fruits.
- Temperature and humidity controlled storage halls for storing fresh fruits and vegetables for farmers.
- A modern cold storage complex existing and a state of the art fruits and vegetables processing plant are on the anvil to add value to the produce for domestic and export markets.
- Shops for wholesalers/business associates.
- World-class fruit ripening chambers.
- Better package and trade practice.
- Latest hi-tech international farm produce handling equipment.
- One-stop shop for all kinds of fruits and vegetables.
- Market is having common utility facilities.
- Computerized online bidding.

A Self Help Group Production and Marketing Approach

The Kerala Horticulture Development Program (KHDP) implemented a unique program through a mix of innovative public interventions and institutional/organizational mechanisms, benefiting nearly 41,000 farmers through 1886 SHGs by improving the productivity of fruits and vegetables over 50 percent and marketing the produce through farmers managed institutions like 'Farmer Markets' (Figure 3). The Apex organization which took over the functions of KHDP was named as 'Vegetable and Fruit Promotion Council, Keralam (VFPCK).



(Covering 41,000 farmers through 1886 Self Help Groups, each SHG has 3 Master Farmers.)

Figure 3. VEGETABLE AND FRUIT PROMOTION COUNCIL, KERALAM (VFPCK)
(A Self Help Group Production & Marketing Approach)

Direct Marketing

A most economic way of transaction, free from middlemen directly between farmers and consumers, which is prevailing in Apni Mandi in Punjab, Haryana, Rajasthan, Rythu Bazar in Andhra Pradesh.

Contract Farming/ Marketing

This system provides backward linkage; an integrated approach for market oriented production and assured supply of predetermined quantity and quality of the produce at predetermined price and time. It is remedy to insulate the partners from the uncertainties of the market. Contract marketing is thus, a means of allocating the distribution risk between processor and grower. For instance, experience with Indo-Bulgarian project in Karnataka for Gherkins and Pepsico, a US based multinational and Voltas in Punjab are involved in contract farming in Tomato.

Co-operatives Marketing

This is the best instrument to ensure remunerative prices to farmers for their produce and also function as an interface for stabilizing market prices. The objective of co-operative marketing is to sell the members' produce directly in the market, which fetch the best favorable prices. The other successful cooperative marketing societies are Horticulture Produce Marketing and Processing Society Limited (HOPCOMS), Bangalore, The Nilgiris Vegetable Growers Cooperative Marketing Society Ltd. (NCML), Tamil Nadu, Himachal Pradesh Processing and Cooperative Marketing Society (HPPMC), Himachal Pradesh, etc.

DISSEMINATION OF MARKET INFORMATION AND POSTHARVEST TECHNOLOGICAL PRACTICES

Market Information

In India, there are a number of sources/institutions that are directly or indirectly disseminating marketing information and providing extension services in the field of fruits and vegetables.

Online marketing services, getting assistance through marketing promotional schemes, developing infrastructure etc. are made available, especially for fruit and vegetable marketing by National Horticulture Board (NHB). These services are exclusively for export marketing of agro-food and being provided by Agricultural and Processed Food Products Development Authority (APEDA). Online need based services are also provided by Ministry of Food Processing Industries, Government of India, National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED), Directorate of Marketing & Inspection (DMI).

State Agricultural Marketing Board at different state's capitals also provides information on arrival/price, demand etc. Marketing information and extension are important for all the concerned participants of agricultural marketing i.e. Producers, Consumers, Traders and Government.

Cold Chain Supply System

Cold chain is very important to preserve the quality and freshness of the fruits and vegetables for longer period and to minimize the wastages/losses. This requires development of low cost, eco-friendly, low energy cool chambers for on farm storage for fruits and vegetables. The conceptual model of cold chain has been shown in Figure 4. The cold chain has two major components.

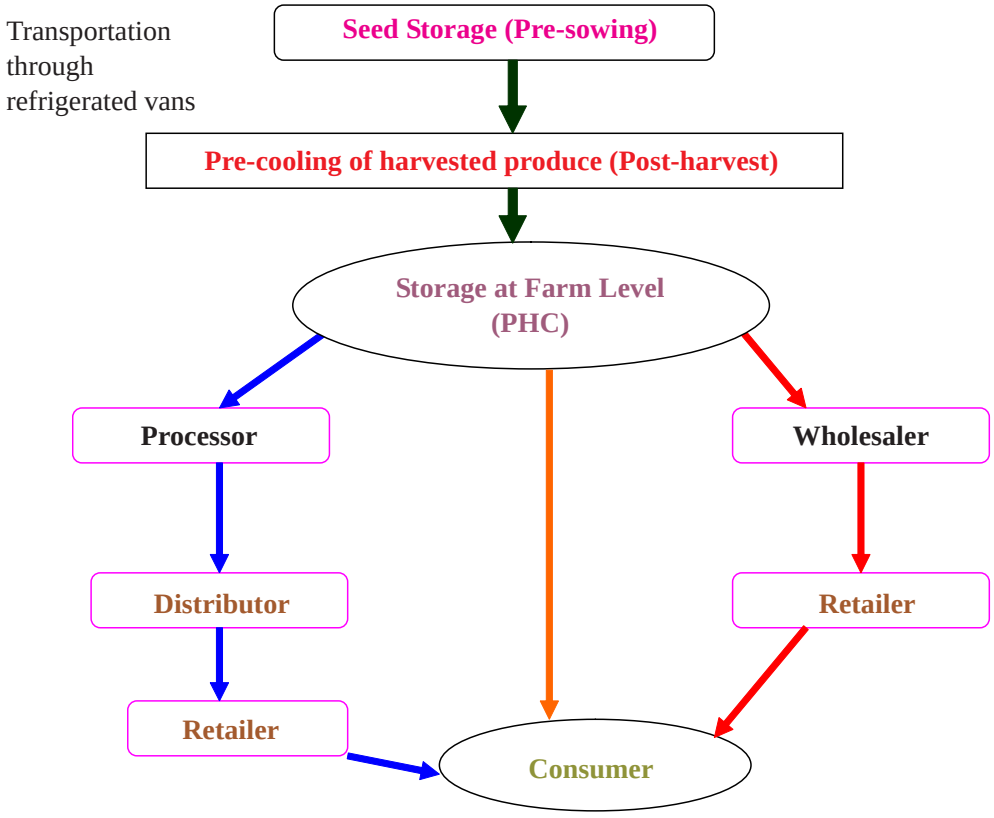


Figure 4. Conceptual Model of Cold Chain

Pre-cooling: In Mango, several methods such as room cooling, forced air cooling, hydro-cooling, vacuum cooling and evaporative cooling can be used to remove the internal heat of Mango. The produce is transported in a refrigerated or insulated truck to the cold store.

Refrigerated Transport: Refrigerated transport system provides vital link and is an integral part in the cold chain system. This preserves the quality and increases shelf life of fruits and vegetables.

Zero Energy Cool Chamber

To economize the storage cost, the Zero energy cool chamber was developed from cheap quality porous bricks and riverbed sand. It maintains a temperature between 23-26.5°C and RH between 94-97% as against the ambient temperature of 24.2-39.1°C. Evaporative cooled (EC) storage structures, due to their low initial investment and almost no energy requirement are another alternative of this kind.

Cold Storage and Warehouses

Most of the cold storage facilities are in the terminal markets and production centers are neglected. The availability of cold storage is insufficient taking into account total production of fruits and vegetables in India. Cold storage capacity has increased by 68.85% in the year 2002 as compared to the year 1997. Still, it has remained confined by and large for potatoes. Fruits and vegetables required specific temperature and specific humidity level to maintain freshness and shelf life. India has total cold storage capacity of 17.48 million mt in which maximum capacity is in private sector (Table 9). Commodity-wise utilization of cold storage capacity reveals 58 percent for potato and only 6 percent for fruits and vegetables. The National Co-operative Development Corporation (NCDC) has been making systematic and sustained efforts to assist in the construction of scientific storage facilities at co-operative level. The NCDC has also been implementing storage program through different schemes i.e. centrally sponsored scheme, corporation sponsored scheme and other internationally aided projects.

Table 9. Sector-wise Cold Storage Capacity

Sector	1997		2002		% increase over five years	
	No. / Capacity in mt		No. / Capacity in mt		No. / Capacity in mt	
Private Sector	2975	9603638	3926	16439348	32.0	71.2
Co-op. Sector	303	659638	353	955580	16.5	44.9
Public Sector	165	89814	135	82507	18.2	8.1
Total	3443	10353090	4417	17477435	28.3	68.8

Source: Directorate of Marketing & Inspection

MARKETING CONSTRAINTS AND SUGGESTIONS

- Smallholdings result into uneconomic venture. Needs adoption of GAPs, which is presently observed in contract farming only.
- Huge Postharvest losses and inadequate requisite infrastructure facilities.
- Due to social background, farmers are not able to conceive and adopt production technology.
- Grading at farm level is sporadic, which should be extended to all fruits and vegetables in all growing areas. However, during 2002-2003, 177238 mt of fruit and vegetable were graded at Producers' level in India.
- Large-scale cultivation of processable varieties is required to get maximum recovery and make value addition cost effective. Further there is high cost of adopting HACCP quality measures.
- Packaging cost needs to be reduced by using locally available resources and universal application of TBT/SPS provisions.
- Market intelligence services should be extended to all producers, as is in practice by E-Chaupal network of Indian Tobacco Company (ITC). Market intelligence should integrate information about GAPs, Pre-harvest Care and Postharvest Technology and objectives of the institutions rendering various services in the area of agricultural marketing.
- Pre-harvest contractors and farmers should operate on business ethics as in contract farming.
- Collective or co-operative markets should be strengthened.
- Formal training should be provided to the farmers through Self Help Groups to make them aware of production and marketing strategy by organizing seminars/workshops/ conferences/symposia to focus on the recent developments in fruit and vegetable marketing/ processing industries.

- Direct marketing facilities in nearby cities of producing area should be promoted to shorten the marketing channel and delivering fresh fruits and vegetables to consumers at affordable price.
- Production, Postharvest Management and Processing (3Ps) are three important area which requires immediate attention for commercialization of fruit and vegetable marketing in India.

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3. ISLAMIC REPUBLIC OF IRAN

Jafar Rajabian
Agriculture Manager, Shir & Dam Company
Agriculture and Horticulture Organization
Tehran

INTRODUCTION

Agriculture has always been a cornerstone of the Iranian civilization and that Iranians have a very long history in respecting, protecting and sustainable use of the resources.

Iran has over 18.7 million hectares in agricultural production. It provides about one fourth of the Iran's total employment. The agricultural sector in Iran is almost entirely under private ownership of one type or another. However, agriculture is currently under threat as the country is experiencing its worst drought in 30 years.

Domestic agriculture now supplies over 80 percent of the nation's food requirements, and it accounts for about 90 percent of agricultural raw materials needed by industries. The share of agriculture in non-oil exports was between 23 to 40 percent over last decade, while the share of food in total imports was only 12 percent in 2000. Furthermore, today the private sector contributes to 99 percent of agricultural production.

TYPICAL PROCEDURE FOLLOWED IN FRUITS FROM PICKING TO CONSUMPTION

In Iran, most of the big orchard fruits used to be sold on the tree. Actually gardeners don't want to be involved in the job that they have not enough experience in it. Sometimes the producer cannot afford picking, sorting, packaging, transporting and the cold storage expenses; therefore the gardeners use other people's investment.

People who buy the fruits on the tree are specialists in providing necessary facilities such as experienced human resources, packaging boxes, transportation facilities such as trucks, and they also have reliable sellers in the wholesale and main local markets. They can easily afford the needed expenses, which is not less than 12 cents per kilogram. For cold storage, they usually use 20 kilograms or 200 kilograms wooden boxes for packaging. After sorting they may be transferred to carton boxes for retail markets and export. Wooden boxes are prepared with low price in the winter season.

Usually when picked fruits are to be sent to fruit processing factories, contractual labors do the job, but when market and cold storage is the target, pickers should be daily paid labors with enough experience in preventing fruit damages and to have the best view on the top of the fruit boxes.

CLASSIFICATION OF PACKAGING BY TYPE OF CONSUMPTION

(1) Packaging is done in 20 kg or 200 kg wooden boxes to transport the fruits such as apples and pears to the cold storage. This keeps the quality for six month. This kind of packaging can be sold with good price in Norooz (Iranian New Year).
(2) Packages of 20 kg wooden boxes are to transport fruits such as apples and pears to the wholesale or local market.
(3) Packaging in high quality carton boxes are for exports.
(4) Carrying the 3rd class fruits to the fruit processing factories is usually done without packing them.

DIFFERENT KINDS OF FRUITS AND VEGETABLE MARKETS IN IRAN

1. Central Wholesale Markets

These markets normally absorb most of the fruit production. The traders working here do not pay for the fruits in cash; they sell them in smaller quantities to retail shops and get their percentage equal to 7-10% of the price in return.

Some of the traders in wholesale market for forward purchasing select the suitable orchards around the country and make contract with the gardeners.

2. Local Market Centers

It is a new governmental improvement of fruit and vegetable marketing systems. Actually these markets are newly established. The main point in these kinds of market is that fruits come directly from the garden to the market so the price is very suitable, some times less than 1/3 of retail shops. We know that when there are a lot of sellers and buyers the price can reach to the point, which is suitable for both sellers and customers.

On the other hand it will reduce the price difference from orchards to retail shops.

For small producers to cope with increasing market competition, these markets are a good opportunity. In these markets, buyers used to buy their weekly consumption. They cannot sort or select the fruits. The sellers pack the fruits for them or they can buy in boxes.

Good news indicates that the municipalities intend to establish such markets in 30 cities.

The gardeners can rent shops in these markets and sell their fruits directly to the customers. They can get more benefit from these markets than delivering fruits to the wholesale market. The prices in these markets are under municipality's control and a committee of municipality determines the price list.

Municipality is planning to develop a system under which only farmers and gardeners having their own lands can rent these markets.

At present there are one central wholesale market and 46 domestic markets in Tehran that consist of 1248 shopping place in 67000 m², they sell 46 different kinds of fruits and vegetables and also other food stuff. 400'000 people buy their needs from these markets daily. Totally 25% of Tehran fruits being sold in these markets.

3. Food Processing Industry

Iran has invested about $500 million in foreign currency for the purpose of establishing more than 300 food-processing plants. The food processing industry in its modern sense is relatively new to Iran and the Government is taking steps to promote this aspect of agro-industrial growth including the granting of low interest loans. There is still considerable room for expansion in the food processing industry notwithstanding the measures already taken however, most of the food processing plants in Iran are about 15 years old using equipment that was either imported or locally manufactured but in some cases using old technology. New investment into the food-processing sector has been mainly in the areas of date packing and the production of fruit juice concentrates as well as the manufacturing of potato crisps. The food concentrate plants are well up to international standards. However there are opportunities for companies in almost all aspects of food processing particularly in the fields of automation, packaging, instrumentation, environmental matters, food engineering and the prevention of post harvest losses.

4. Export

The exporters used to buy their fruits from suitable orchards in different regions. They buy fruits on the tree and after picking the high quality fruits carry it to the cold storage for sorting, polishing and special export packaging.

5. Retail Shops

In Tehran we can see luxury shops that have the best-sorted fruits with high prices. These shops can be seen all around the city and they are open from early morning until late at night.

SOME SUCCESSFUL STEPS IN IRAN

- Establishment of 46 wholesale and local main markets in Tehran and planning to do the same in 30 cities.
- Establishment of Agricultural Commodity Exchange.
- Practicing agriculture with wisdom and using new technology and selecting new fruit and vegetable varieties in order to increase the quality and quantity of production and decreasing the expenses.
- Better packaging methods have been encouraged in the country, even the traders use imported high quality carton boxes for packaging.

But from packaging point of view, we still have a long way to a favorite point.

- There had been some difficulty in transportation such as unsuitable roads and old trucks. During the last decade, there had been significant improvement in roads and trucks. The situation had changed. So we can transport easily with lower expenses.
- More attention is paid to the health of foodstuff, we avoid use of poison to protect the fruit from pests, and if it is necessary we use poison with high LD50. Emphasis is placed on Integrated Pest Management (IPM). Recently we have sent five experts for related training course abroad. Steps have been taken to wash the product clean and sort and package with modern machinery. Iranian farmers are very conscious of the negative effect of overuse of pesticides and chemical fertilizers and are extremely interested in developing organic produce.
- We have started pasteurization of some fruits such as pistachio.
- Producer of summer crops and vegetable have learned that if they could have early products even one day, they can fetch higher prices for their produce, so in early spring we see thousands hectares of summer crops and vegetable fields cultivated under plastic.
- Iran enjoys twelve types of climate enabling the country to produce a wide range of temperate, sub-tropical and tropical crops. Equally important is a temperature difference of between 40/50 degrees between some areas, enabling the production of a variety of crops throughout the year, particularly fruits and vegetables.

There are also a number of areas in which agriculture benefits. These include:

- Cheap energy;
- The exemption of taxes;
- A grace period for taxes for food manufacturing industries for between six and eight years, which can be doubled for plants developed in deprived regions;
- The exemption from customs duties on imported agricultural machinery; and
- The exemption from customs on imported food and packaging instruments.

The main objectives of the Iranian Government for the modernization of agro-based industries are:

1) To increase the efficiency and competitiveness of the sector;
2) To support the modernization of production and marketing techniques of agro-based products;
3) To introduce food safety and quality assurance systems in order to increase competitiveness in overseas markets;
4) To promote investment in the modernization and expansion of the date processing industry; and
5) To overcome problems associated with product quality and processing efficiencies particularly with vegetables and fruit products.

AGRICULTURE AND ANIMAL HUSBANDRY ORGANIZATION: A PRODUCER SAMPLE

The Agriculture and Animal Husbandry Organization having 24 large companies around the country is one of the largest agricultural complexes in Iran. It plays a great role in food supply and improvement of the country. Main annual fruit production achievements of the organization are given below.

Citrus: The Organization's citrus orchards encompassing 950 hectares in Mazandaran, Gilan, Kerman and Hormozgan provinces produce over 17,000 mt of citrus varieties annually. The orange varieties are Bam (local), Sanguin, Washington and Valencia. The high quality tangerine varieties include Satsuma, Clemantin, etc. The organization is proceeding with its expansion program by planting high yielding citrus varieties in large areas of the country's southern regions.

Apples: The Organization own 1,183 hectares of apple orchards, which accounts for 23% of all the orchards owned by the organization. The orchards are mainly located in Qazvin, Karaj, Mashhad, Neishabur and Shahrud regions producing more than 22,000 mt of summer and autumn apple varieties such as Golab (local). Red Delicious, Golden Delicious, Stiman Red and Granny Smith.

Kiwi fruit: The kiwi fruit with all its vitamins and minerals has gained a large market in Iran causing the Iranians to convert many of their orchards to this delicious fruit. The Organization's kiwi or-

chards in Mazandaran province produce high quality kiwi varieties, such as Hiward and Monty, competing successfully in domestic and international markets.

Other Fruits: The Organization also possesses 1,570 hectares of peach, nectarine, grape, pear, apricot, olive, quince and pomegranate orchards, all together producing over 12,300 mt of the above fruits annually. The fruits are marketed domestically and the surpluses are sent to the fruit juice and concentrate factories for processing and export purposes.

Summer Crops and Vegetables: The Organization cultivates summer crops and vegetables in over 1,200 hectares. The major crops are watermelons, cantaloupes, melons, tomato, cucumbers, potato and strawberries. The farms are located in Tehran, Khorasan, Markazi (the central), Mazandaran and Isfahan provinces. They produce about 27.000 mt annually which are marketed domestically and internationally.

New Steps of the Company

- In the last decade we used to sell fruits on the tree in tenders. Over the last two years we are going towards selling portions of our production directly to the markets or export them. We have got very good experiences and good results, especially in exporting citrus.
- It is very important for us in new orchard projects to pay more attention to the market and peoples' prospect. In this field, we find that the customers don't prefer very sweet fruits and also they avoid fruits with too much calorie. Color of fruits and vegetable become more important. It improves the demand magically and further customers prefer medium size of fruits.
- We care to package more and we use labels on each fruits such as apples and citrus in the box.

We still have some difficulties in market information system and applying successful market researches.

4. REPUBLIC OF KOREA

Dr. Dong Hwan Kim
Associate Professor
Dept. of Trade and Distribution
Anyang University, and
President
Agro-food New Marketing Institute.
Anyang City

INTRODUCTION

Efficient food marketing system is an essential factor for enhancing international competitiveness of fruits and vegetables. Modernized marketing system helps better coordination between consumption and production of fruits and vegetables. Reduced marketing cost driven by an efficient system benefit both producers and consumers. Many developing countries therefore strive to design and implement policies for improving food marketing system.

As in most Asian countries, small-scale shopkeepers dominate food distribution in Korea. People buy food products at small shops located near to their residence. One can easily find "mom-and-pop" stores on almost every corner of streets. Butcher shops and fruits stores are also found in every neighborhood.

Food products in Korea are sold to consumers through multiple marketing stages. In populous urban areas, wholesale markets play a major role in collecting and distributing food products. As a result of multiple stages, marketing margins of food products are generally higher than those of manufactured goods.

Due to small operating scale and complexity of the system, it is argued that the food marketing system in Korea is relatively inefficient. However, there are growing number of modernized food stores and western style discount stores. The Korean government invests a large sum of money to improve the food marketing system. The food marketing system is therefore in the process of fundamental changes.

In the process of fundamental changes, this paper is to examine the food marketing system in Korea. Following introduction, the structure of Korean food marketing system is discussed with the explanation of some characteristics. Sections three and four discuss changes in marketing environments and emergence of the new food marketing system. In the following section, international competitiveness of fruits and vegetables produced in Korea are analyzed, followed by summary and conclusions.

MARKETING SYSTEM OF FRUITS AND VEGETABLES IN KOREA

1. Overview

Marketing system of fruits and vegetables in Korea consists of multiple layers and complex channels. Since farming units and food retailers are so small, a large number of merchants are engaged in collecting and distributing agricultural products. Vertical coordination among marketing stages is generally carried out through markets. Most food products are traded at wholesale markets located in large urban areas. In contrast, alternative mechanisms of vertical coordination are not yet commonly adopted. Direct marketing between shippers and retailers accounts for a minor portion of marketed agricultural produce. Vertical integration and contract production is found in a few cases.

The current marketing system has been influenced by several factors, such as small operating scale of market participants, poor grade and standardization, and the lack of effective market information. It is a general view that vertical coordination through wholesale markets incurs high physical marketing costs and makes the marketing system inefficient. In wholesale markets, there are multiple layers of wholesaling firms, jobbers, and other merchants. So shippers and retailers have to pay a large amount of marketing cost when selling and buying. Marketing costs in wholesale markets include fees for auctioning, margins for jobbers, costs of loading and unloading, etc.

2. Marketing Channels

Major marketing channels of fruits and vegetables in Korea are shown in Figure 1. Fruits and vegetables are mainly distributed through local assemblers, local cooperatives, and local markets. It is

estimated that about 43% of marketed fruits and vegetables are sold through local coops, 26% through assemblers, and 15% through local markets (Agricultural and Fishery Marketing Corporation, 2004). Some large-scale producers often ship their products, on a consignment basis, directly to commission merchants in urban wholesale markets.

Some producers even sell fruits and vegetables still in the field to local assemblers before harvesting. More vegetables are sold by forward contract than fruits. Vegetable items with a high share of forward selling are Chinese cabbage, radish, carrot, potato, etc. Although these forward contract arrangements help farmers to avoid the risk of price fall and the problem of labor shortage, producers are more likely to be unfairly treated by merchants. Because there are a limited number of local assemblers, bargaining power of farmers is generally weaker than that of merchants.

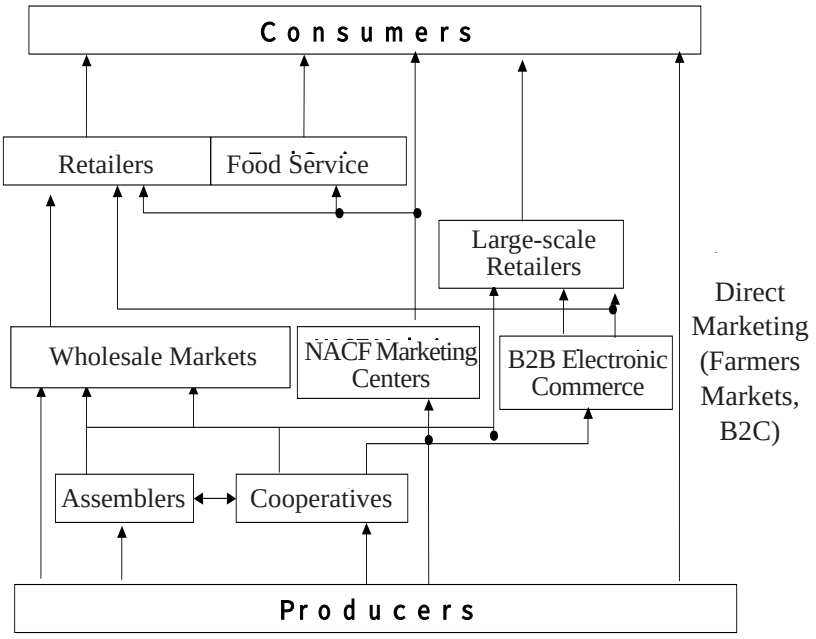

Figure 1. Marketing Channels of Fruits and Vegetables in Korea.

At the wholesale level, fruits and vegetables are distributed through wholesale markets, NACF (National Agricultural Cooperative Federation) marketing centers, and direct marketing between retailers and shippers.

Produce wholesale markets located in large urban areas play an important role in fruits and vegetable marketing. Since direct marketing between supermarket chains and shippers are in an early stage, most fruits and vegetables are distributed through wholesale markets. However, as large-scale retailers and NACF marketing centers increased the number of their stores, the importance of wholesale markets has decreased in recent years. Operated by farmers' cooperatives, NACF marketing centers engage in both large scales retailing and wholesaling.

The shares of fruits and vegetables accounted for by wholesale markets decreased from 90.2% in 1998 to 78.0% in 2002. On the contrary, the shares accounted for by NACF marketing centers and large-scale retailers increased from 1.9% and 1.7% in 1998 to 5.4% and 5.8% in 2002, respectively. Direct marketing between producers and consumers also increased from 6.2% to 10.8% during the same period.

Table 1. Estimates of Market Shares by Distribution Channel

(unit: %)

	1998	2000	2002
Public Wholesale Markets	48.2	46.2	48.5
Private Wholesale Markets	42.0	39.6	29.5
NACF Marketing Centers	1.9	3.3	5.4
Large-scale Retailers	1.7	3.2	5.8
Direct Marketing	6.2	7.7	10.8

Source: Ministry of Agriculture and Forestry, 2003.

There are two types of produce wholesale markets in Korea: public wholesale markets and private wholesale markets. Public wholesale markets are constructed by funds of the central and local governments and operated by the local governments. In 2003, there were 32 public wholesale markets in large cities. Public wholesale markets are operated by the rules specified in *the Law of Marketing and price stabilization of Agricultural and Marine Products*. The Law requires, in the public wholesale markets, all of fruits and vegetables should, in principle, be transacted by auctions in which registered jobbers and institutional buyers participate. Auctions are administered by the corporations, which are also in charge of clearing payment to shippers after the auctions. Jobbers and institutional buyers usually clear their payment in 3-15 days. Shippers pay 4-7% of fees to the corporate for their services, such as administrating auctions and clearing payments.

Private wholesale markets, once a dominant form of produce wholesale markets, have become less important in produce marketing than before as the government constructs dozens of public markets in urban areas. The number of private wholesale markets has decreased in recent years. Since private wholesale markets are owned and operated by private firms, there are no measures to regulate merchants in private wholesale markets. Private wholesale markets consist of traditional commission dealers, which operate on a consignment basis. They receive fruits and vegetables from farmers and sell to retailers or consumers, charging 8-9% of consignment to shippers. Traditional commission wholesalers have been often criticized as conducting unfair trade practices and evading taxes. This justifies government's involvement in the expansion of public wholesale markets.

In the wholesaling stage, fruits and vegetables are often going through several hands of different wholesalers. Before retailers are involved, secondary market handlers procure their products from jobbers to service small-volume accounts such as peddlers, small stores, and small restaurants.

Major retail outlets of fruits and vegetables are department stores, discount stores, supermarkets, and specialty shops. Since food stores are densely distributed in Korea, average size of food stores are small compared to advanced countries like the U.S. and Japan (Table 2). Produce is also sold at peddlers and street stalls in Korea. The importance of peddlers and street stalls is greater in fruits and vegetables than any other food items. However, as the number of department stores and discount stores increases, more fruits and vegetables are sold at modernized retailers.

Table 2. Structure of Food Stores in Korea

Year	Number of Establishments	Number of Employees	Average Number of Employees per Store	Average Store Size (m^2)
1981	241,830	392,915	1.6	19.7
1986	311,656	528,428	1.7	21.4
1991	304,971	514,430	1.7	29.0
1995	297,834	532,527	1.8	37.0
1997	293,336	529,465	1.8	48.1

Source: National Statistical Office, 2001.

3. Marketing Margins

Marketing margins of fruits and vegetable are, on average, 44.5% in 2003. In other words, farmers can get 55.5% of retail value of fruits and vegetables. Marketing margins of vegetables are generally higher than those of fruits. Marketing margins of fruits and vegetables consist of direct and indirect cost (27.5%) and profit of handlers (16.2%). In terms of distribution stages, marketing margins are distributed to the shipping stage (11.5%), the wholesaling stage (9.6%), and the retail stage (22.6%), implying that the retail stage accounts for the largest marketing margin among distribution stages.

High marketing margins are incurred by poor grading and packaging scheme. Since producers' grade and pack fruits and vegetables by themselves, products are hardly standardized and auctioned by individual account at wholesale markets. Poor physical distribution can also explain inefficiency of the Korean food marketing system. When loading or unloading fruits and vegetables, human hands are mostly used rather than using related machines like forklifts.

CHANGES IN MARKETING ENVIRONMENTS

1. Changes in Food Consumption Patterns

In terms of food items, consumption of cereals decreased, whereas consumption of meat, milk, fruits and vegetables increased over time (Table 3). Consumption increased in high-quality and safe products. Organic and low chemical products account for 2.2% of total agro-food market. Consumption also increased in consumer package products; home meal replacement (HMR) and fresh cut produce, and processed food items. Percentage of food expenditure accounted for by processed food increased from 20.6% in 1982 to 35.5% in 2000. Importance of food consumptions away from home increased in recent years. Percentage of food expenditure accounted for by food away from home increased from 5.5% in 1982 to 44.8% in 2000.

Table 3. Consumption of Major Food Items

(Unit: Kg)

Item	1980	2002
Rice	132.9	91.1
Vegetables	120.6	145.6
Fruits	16.2	41.9
Meat	13.9	39.2
Milk	10.8	52.7

2. Changes in Food Retail Structure

The number of contemporary stores such as supermarkets and hypermarkets/super centers has grown in recent years. First discount store in Korea was opened in 1993. Since then, the number of discount stores increased rapidly. The total annual sales of discount stores have increased sharply from 0.8 trillion won in 1995 to 19.5 trillion won in 2003. The number of discount stores reached 280 in 2003.

Discount stores in Korea carry both food and non-food items. Food items account for 58.6 percent of total sales: fresh food 26.4%, processed food 27.3%.

The entry of foreign retailers affects the changes in retail structure. The Korean government liberalized foreign direct investment (FDI) in distribution industries in 1996. Major foreign entrants are Carrefour (France), Tesco (UK), Wal-mart, and Costco Wholesale (US). Foreign retailers have mostly discount store formats and they account for about 30% of discount market.

4. Changes in Production Structure

Average farm size of Korea has increased from 1.0 ha in 1982 to 1.5 ha in 2002. Especially, producers specialized in fruits and vegetables increased over time. Various producer associations have been formed in recent years. Now there are 17,747 small product groups, 1,356 farming corporations, 1,130 local cooperatives, and 46 fruit and vegetable cooperatives. In terms of marketing facilities, there exist 208 APCs (agricultural product processing center) and 651 small-scale packinghouses. Most marketing facilities in producing areas are partly funded by the central and local governments.

SITUATION OF THE NEW MARKETING SYSTEM

1. Changes in Food Distribution Channels

Due to changes in marketing environments, distribution channels of fruits and vegetables have changed from the traditional system to the new marketing system. The traditional marketing system could be explained by the importance of wholesale markets, a large share of small-scale producers and small-scale retailers, poorly graded and standardized agricultural products, etc.

The new marketing system can be mainly characterized by direct transactions between large-scale retailers and local shippers (assemblers or cooperatives). Transactions through NACF marketing centers can also be included in the new marketing system. In this scheme, farm gate prices are usually higher in the new marketing system, but payment to shippers is a little delayed. It is reported that large-scale retailers purchase 17% of total fruits and vegetables directly from local shippers, such as cooperatives and assemblers (Table 4).

Large-scale retailers plan to increase direct purchase from shippers since direct procurement has some merit of low cost, good quality and safe food, quick transportation (Table 5). Therefore, it is anticipated that the importance of wholesale markets will decrease further. Instead, direct procurement from local shippers will be a major form of vertical coordination.

Table 4. Fresh Food Purchasing Patterns of Large-scale Retailers

Items	Shares by Purchasing Channel (%)			
	Purchasing Directly From Shippers	Wholesale Markets	Processors	NACF Marketing Centers
Cereals	66.1	7.9	23.1	2.9
Fruits	17.1	79.2	1.6	1.1
Vegetables	29.1	62.2	3.0	5.7
Livestock Products	15.7	9.9	74.4	-

Table 5. Characteristics of New Food Marketing System in Korea

Items	Conventional Marketing System	New Marketing System
Channel Leaders	Small scale middlemen, wholesale markets, local assemblers	Large-scale retailers, NACF marketing centers, local cooperatives
Transaction Methods	Spot market transactions	Long-run exclusive transactions
Merchandise	Undifferentiated, un-standardized products	Standardized, branded product (Application of post-harvest technology)
Physical Distribution	Loading and unloading by hands	Unit Load System Loading and unloading by machine
Information	No information system	POS, EDI

2. Performance of New Marketing System

The new marketing system shows generally better performance than the traditional one. Marketing margins of the new marketing system is lower than those of the old one. Marketing margins can be reduced by 19.7 percent compared to wholesale markets, on average of 18 fruit and vegetable items when going through the new marketing system (Agricultural and Fishery Marketing Corporation, 2004). In terms of physical distribution, new marketing system contributes to saving on marketing costs by using mechanized loading and unloading systems (Table 6).

Table 6. Performance Comparison between Conventional Marketing System and New Marketing System

	Conventional Marketing System	New Marketing System
Physical Efficiency	Low	High
Pricing Efficiency	High	Medium
Stability	Low	High
Transaction Cost	High	Low
Accessibility	High	Low

3. New Marketing Strategies

(1) Importance of Cooperative Marketing

Large-scale retailers provide better opportunities for high-quality and branded products than wholesale markets. Large-scale retailers are looking for shippers who are capable of supplying large quantities round the year. Therefore, cooperative marketing of produce becomes more important than ever. Especially, selling on a cooperative account and pooling is a fundamental requirement when producer associations try to sell their product to large-scale retailers. Large-scale retailers want to purchase large amounts of fruits and vegetables that are professionally sorted and graded.

However, there is a concern that large-scale retailers dominate the fruit and vegetable market and exercise market power. In order to protect from unbalanced market power, producers also have to improve quality and increase bargaining power by pooling members' products.

(2) Application of Postharvest Technologies

In order to produce safe and high-quality products, a variety of post-harvest technologies should be widely applied. Post-harvest technologies include pre-cooling, cold chain system, sorting, packaging, transportation, etc. (Figure 2).

Food safety is also an important agenda in the new marketing system. Adoption of GAP (Good Agriculture Practices) and a traceability system is urgently required.

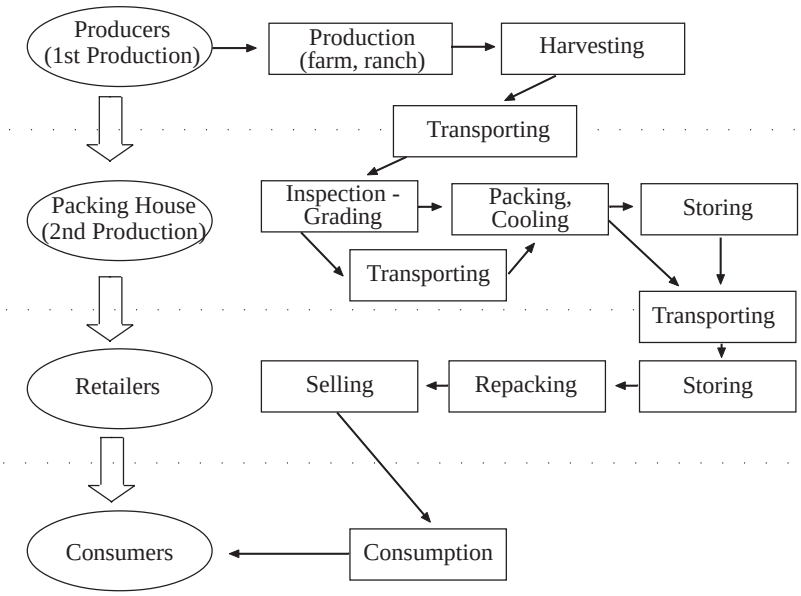

Figure 2. Structure Postharvest Technologies

INTERNATIONAL COMPETITIVENESS OF FRUITS AND VEGETABLES

International competitiveness of Korean fruit and vegetable items is basically lower than other Asian countries because of high land and labor cost. The share of fruits and vegetables accounted for by export is negligible in the Korean industry. Total export of fruits and vegetables was only 171.3 million US dollars in 2003. Fruits and vegetables accounted for 5.4% and 3.8% of total agro-food export of Korea, respectively (Table 7).

However, export of some vegetable items increased due to development of the Japanese market in recent years. Vegetable items such as cucumber, tomato, strawberry, paprika, and eggplants have been exported to Japan by supplying to supermarkets or produce wholesale markets.

Table 7. Export of Fruits and Vegetables

(unit: Million USD)

	Item	2001	2002	2003	Major Destinations
Vegetable Items	Cucumber	11.4	5.1	3.8	Japan
	Tomato	15.4	8.6	9.1	Japan
	Strawberry	11.1	5.8	4.5	Japan
	Paprika	40.3	35.8	49.6	Japan
	Eggplants	3.5	2.8	2.0	Japan
	Others	39.3	31.3	31.7	Japan
	Total	121.0	89.5	100.6	
Fruit Items	Apple	3.2	14.4	7.7	Taiwan
	Pear	19.6	34.1	30.1	USA
	Persimmon	4.4	4.6	2.3	Malaysia
	Orange	4.9	5.7	4.3	Canada
	Others	24.2	24.1	26.1	
	Total	56.3	82.8	70.7	

Source: Agricultural and Fishery Marketing Corporation

Paprika (a kind of pepper) is a good example of success in Japan. Paprika is a recently developed vegetable item, and almost all of production is exported to Japan. Export of paprika to Japan began in 1997, and export has increased significantly since then. In 2003, export of paprika reached 49.6 million dollars. It accounted for 49% of total vegetable export of Korea. It is also expected that paprika export would increase further in the future.

Most paprika exported to Japan is distributed under the Dole brand. Currently Korean paprika takes the largest share in the Japanese market, followed by Netherlands.

SUMMARY AND IMPLICATIONS

The Korean distribution system of fruits and vegetables has been dominated by a large number of small shops and wholesale markets located in urban area. Fruits and vegetables are therefore marketed through multi-stages, meaning too many small merchants and handlers are engaged in the food marketing. Due to these factors, physical efficiency in food distribution is generally low and consumers are forced to pay higher prices.

However, the food distribution system is changing to a more efficient one as western-style supermarkets and various types of discount stores emerge in recent years. As the number of stores which large-scale retailers operate increases, more fresh food items are shipped directly from shippers in producing areas to the retailers. Under this new marketing environment, domestic marketing agents, such as producers, shippers, and wholesalers, are trying to develop new practices to meet the needs of large-scale retailers. In particular, local agricultural cooperatives are trying to play a central role in selling products to the large-scale retailers by strengthening cooperative marketing practices. In addition, local cooperatives are beginning to collaborate with each other in order to improve the position in dealing with large-scale retailers.

International competitiveness of Korean fruit and vegetable items is basically lower than other Asian countries because of high land and labor cost. The share of fruits and vegetables accounts in export is negligible in the Korean industry. Total export of fruits and vegetables was only 171.3 million US dollars in 2003. However, export of some vegetable items increased due to development of the Japanese market in recent years. Paprika is a good example of success in Japan. Currently Korean paprika takes the largest share in the Japanese market, followed by Netherlands.

Some implications derived from the Korean case are as follows. First, it is shown that the structure of food distributors is one of the most important factors affecting the food marketing system. When food distributors and producers are small in scale, local markets or wholesale markets in urban areas become most effective mechanism for vertical coordination. But as food retailers become larger, alternative mechanisms like direct marketing and contracts may be more efficient. Therefore, we have to put more weight on the improvement of the structure of food distributing firms.

Second, the role of government should be reconsidered. It is fair to say that Korean government contributed significantly to the improvement of food marketing system by constructing marketing facilities and implementing various policy measures. However, excessive intervention of the government may distort changes in the marketing system and would prevent the growth of efficient food marketing firms. Because of this problem, it is preferable that government should involve in marketing infrastructure, such as collecting and dissemination market information, establishing grades and standards, rather than direct participation in the marketing process.

Third, large-scale shippers like large-scale cooperatives should be nurtured as a key player in the food marketing system. Since large-scale retailers want a large year-round supply, large-scale shippers are more desirable than small-scale and fragmented shippers. Large-scale shippers are also required in order to have countervailing power when dealing with large-scale distributors. In addition, cooperative marketing should be improved by strengthening pooling and marketing agreements with producers.

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5. LAO PEOPLE'S DEMOCRATIC REPUBLIC

Boun Oum Douangprachanh
Director of Agriculture and Forestry
Service of VIENTIANE Province
Vientiane

INTRODUCTION

The LAO People's Democratic Republic (Lao PDR) has a population of about 5.6 million and an area of 236.800 square kilometers. Two features dominate the Lao PDR, the Mountains of the North and East, and the Mekong River and its east-bank tributaries. Extensive mountain ranges with an average height of 1,200 meter cover an area of 70% of the territory and fertile flood plains embrace 30 % of the territory stretching along the left bank of the Mekong river. Lao PDR has been ASEAN Member since 23rd July 1997.

The country experiences a tropical, monsoon climate with alternative wet and dry seasons. Typically, the wet season extends from April to October and is dominated by the southwest monsoon with high rainfall, temperature and humidity. The annual rainfall is less than 1,300 mm/year. The dry season extends from November to March, a period that typically includes both the coolest month (January) and warmest month (March).

The government of Lao people's Democratic Republic (GOL) in its new strategic vision for the Agricultural sector and the National Poverty Eradication Program is committed to helping farmers to move rapidly towards agricultural diversification in field and horticultural cash crops especially in the Mekong corridor. This vision included increased land productivity; value added processing, expanded marketing, and improved livelihood for smallholder farmers.

Since the liberation of country in 1975, the Government implemented a number of reforms. In 1986, the LAO P D R adopted comprehensive program of economic reform called the New Economic Mechanism (N E M), to move from a centralized planned economy towards a more market-oriented and open economy. The key reforms implemented are: decontrol of prices and distribution of goods and services, establishment of market determined exchange rate, reform of the tax and tariff system, introduction of a two-tier banking system, restructuring of the public administration and reform of the state enterprise sector.

The development of the socio-economy of the LAO PDR has improved quite significantly. Agriculture, which is the main sector of the national economy, had shown a remarkable success especially during 1997-2000 in spite of the negative impact of the financial crisis in this period. The share of GDP of this sector has increased to 48 % in the year 2004; its average growth rate was about 3.2 %/ year.

The 5th 5-year Plan for 2001-2005 included principal agricultural development policies, strategies and measures supported by Ministry of Agriculture and Forestry in the short, medium and long terms. The macro-level objective was to contribute toward expansion of Lao economy in a consistent and sustainable manner. This was to be achieved through public sector support for growth-orientated measures including:

(1) Production of rice and other staples to ensure food security;
(2) Diversification of agricultural development;
(3) Stabilizing shifting cultivation in upland areas;
(4) Investments in human resources development focused on decentralized agricultural extension and bottom up planning processes;
(5) Investment in human resource development at the farmer, household and community levels to introduce post harvest handling and household based processing for food and agricultural products for purpose of adding value prior to marketing;
(6) Restructuring of research and extension functions;
(7) Promotion of small and medium scale enterprise (SMSE); and
(8) Promotion of environmental friendly and market oriented agricultural development.

Per capita consumption of fruit is estimated at 15-30 kg compared to 40-50 kg in Europe and 100-120 kg in Australia. The GOL currently imports most of its fruit. Lao PDR with its diverse range of Agro ecological zones has the potential to produce much of fruit currently being imported and possibly to generate export.

Fruit production is very seasonal compared to adjacent countries. Use of a range of cultivars and management practices would enable fruit to be available over a long period. A year round supply of quality fruit and vegetable will improve human nutrition .As women often grow most of the vegetables, successful programs will help them generate income and provide improved nutrition to the family.

Although Lao PDR farmer grows much of the vegetables. However they are imported especially during the rainy season in the cities along the Mekong corridor. There is a good opportunity for local production of most imported produce. Costs of production, however, need to be reduced.

Lao PDR farmers lack assured access to good quality planting material and the technology packages to produce high quality fruits and vegetables. Many fruit trees have been imported in the past but in a disorganized manner. Frequently the true identity is not known and farmers have often planted interior material. Farmers and those who supply plant material to them need a source of good quality material of known and proven origin. With the market economy farmers are keen to increase income.

Fruit production in particular is a long-term proposition. It cannot happen overnight. Farmers lack the technical knowledge to compete with imported fruit of superior quality.

There is a large demand for good quality vegetable seed. This need is not being satisfied locally and much of the seed used is imported and often of poor quality. Part of this seed could be produced locally and the prospects of export exist.

At certain time the local market is glutted with excess produce, opportunities exist to value addition with home and/or large scale processing.

For farmer to adopt new technologies and perennial fruit tree production, they need access to a suitable credit scheme. Commercial or semi commercial farming requires development of business skill. Most farmers lack such skill and need help in developing these.

LAND USE

Of the total land area of 236.800 square km or 23 million hectares, total arable land for rice cultivation is about 640,000 ha and total irrigable area is around 120,000 ha, where double cropping of rice is possible. In the rainy season, nearly 100% of all lowlands are cropped with rice. An increasing area is coming under irrigation during the dry season producing either a second rice crop or cash crops such as vegetables, maize, tobacco and annual fruit.

About 13% of the country is under shifting cultivation, which is practiced by 43% of the rural population. Stabilizing and/or reducing shifting cultivation is a major government priority.

AGRICULTURE SECTOR

The Agriculture in Lao PDR is dominated by three main farming systems:

(1) Dry land shifting rice cultivation in the northern and eastern mountain region
(2) Paddy rice cultivation in the flatter land along a Mekong river
(3) Cultivation of horticulture crops (especially coffee) in the high land areas of the south

The different farming systems require different agricultural and rural development strategies. According to the Lao poverty focused agricultural development plan (January 2003), the country's food needs are currently being adequately met from domestic production, however, a stable supply of food remains a constant challenge because of inappropriate farming systems and poor functioning of the market and transport systems.

Crop production has increased at an overall rate of 3.9% / year in recent times with paddy rice per capital averaging 442 kg/year/head.

Since 1997, with favorable weather patterns and improved irrigation facilities and services, agriculture received a boost, especially for rice and cash crop production. However, food availability varies with only eight of 18 provinces able to meet their rice consumption requirement from their own production. Many of the poorer areas have up to a six-month rice deficit.

Access to modern farming technologies has been limited and it is only recently that the government has begun to take meaningful steps to improve commercial agricultural systems through appropriate intervention programs. Thus with a few exceptions, commercial agricultural production is still practiced on a limited scale.

CROP DIVERSIFICATION

Rice cultivation is the dominant agricultural activity of the country and will remain so for many years to come. Support for this sector is assured despite the fact that it is a heavy investment on the part of the government requiring heavy subsidies on irrigation and credit as resource allocations are made to achieve self-sufficiency.

Fruit and vegetable growers also play a major part in improving the country's balance of trade and foreign exchange earnings. At the farmer level, production of these high value crops will help alleviate poverty of small farmer households. Diversifying into fruit and vegetable production help the rural economy, increasing non-farm employment opportunities and source of incomes, as well as promoting small and medium scale enterprises and agro industries.

VEGETABLE CROPS

Common leafy vegetables grown include lettuce, kale, pakchoy, mustard, coriander, leaf onion, water spinach, and celery. Fruit vegetables include cucumber, yard long bean, tomato, watermelon, and squash. Cauliflower, cabbage, radish, chili, eggplant, luffa, pumpkin, snakegourd are also popular. Cabbage has been exported for years to Thailand. Watermelon and sweet peppers have been exported to China. A processing industry has started with baby corn, inger, mango, garlic.

FRUIT CROPS

Lao PDR does not presently grow sufficient fruit to satisfy its markets. It has been estimated that over 50% of fruits in the major centers are imported, mainly from Thailand but also from China and Vietnam.

Most fruit production is confined to home gardens other than newer larger plantings such as durians in the Boliven's region of the south and a few citrus orchards, such as the state Rural Development enterprise in Bolikhamsay and Vientiane Provinces.

Currently, there is limited fruit processing. Lao Agro-industry Company has started processing mango, garlic, and bamboo shoot in Vientiane province. Due to a shortage of local material, mostly mango is imported. Several Government nurseries have started production of a very large number of mango seedlings to increase future supply for processing.

CONCLUSIONS

(1) Most vegetables in Laos are produced during the cool-dry season. This creates strong seasonality in vegetable supply and price. The off-season prices are more than double compared to the peak season. There is need to support the off-season vegetable production in Laos by developing off-season production technologies. Moreover, the output from the efficient vegetable producing region in the country needs to be connected to the urban demand centers. This requires efficient transport and communication systems.

(2) Except in a few exported vegetables, seed used in vegetable production in Laos is often home produced which results to low germination rate. Therefore, improving the access of farmer to good quality seed should be the first step to improve productivity of the vegetable sector. Moreover, some basic training of farmer on how to prepare nurseries will help to boost vegetable production in the country.

(3) As vegetable are mainly grown under irrigated conditions, proper method of applying irrigation water is important. In Laos, mostly fields are flooded and furrows are rarely made. This reduces water use efficiency and limits water availability for large area. It may even damage the crop and reduce its yield.

(4) Vegetable cultivation in Laos is the least input intensive. Furrows are rarely made, few vegetable parcels receive mulching and staking, and fertilizer and pesticide use is low. Farmers seem to lack the knowledge of effective insect pest control. There is a large need to improve vegetable yield by encouraging input intensity to optimum level, and improving management practices in vegetable cultivation in Laos.

(5) The results of the household consumption survey indicate that not only the quantity of food consumed in Laos is insufficient, but the quality is poor as well. Therefore, Laotian people are deficient in almost every micronutrient.

6. PAKISTAN (1)

Mian Sabir Hussain *(Director)*
Saleem Abid (*Scientific Assistant)*
Directorate of Agribusiness & Marketing
Social Sciences Division
Pakistan Agricultural Research Council
Islamabad

INTRODUCTION

Marketing in the private sector varies from commodity to commodity and is characterized by the presence of numerous intermediaries performing at various distribution stages, thus adding to marketing costs and directly affecting the price received by the farmer and paid by the consumer (Hamid and Wouter, 1990). A typical marketing chain may involve some form of contract buyer (including harvesting contractors in the case of fruits, and local traders in the case of grain and cotton), commission agents, wholesalers, and retailers. Marketing of vegetables and fruits is carried out exclusively by private organizations and individuals. It is commonly believed that vegetables and fruits are highly perishable in nature. The quality of these commodities begins to deteriorate when they are harvested and continues throughout the marketing process. The entire distribution process is geared towards rapid marketing. It has been reported that value of fresh fruits and vegetables is lost up to 10 to 40 percent in the marketing process (Kohls and Ulh, 1985). Generally, producers share in consumers' expenditure is not only low but also fluctuates according to the commodity, perishability and degree of collusion among marketing intermediaries (Iqbal, 1989).

In Pakistan like other developing countries, marketing functions are performed in a traditional way and markets for agricultural products may not function efficiently, such that there are great differences between prices paid by consumers and received by the producers (Qureshi, 1974, Siddiqui, 1977, Memon, 1978, Siddiqui, 1979, Abid, 1980). Producers always complain that the major portion of consumer prices goes to the market intermediaries. On the other hand, the middlemen claim that they get the right reward for their services provided in adding form, time, place and possession utilities. In addition, there are popular views among the economists of the country that there are some other problems, which may reduce the efficiency of the agricultural markets. These are:

- Long chain of market intermediaries results in high marketing costs;
- Inefficient information system which results in price information from internal and external markets not being effectively communicated to producers;
- Inadequate physical facilities, which reduce the ability to handle rapid growth of agricultural products surplus; and
- Monopolistic power of a few traders.

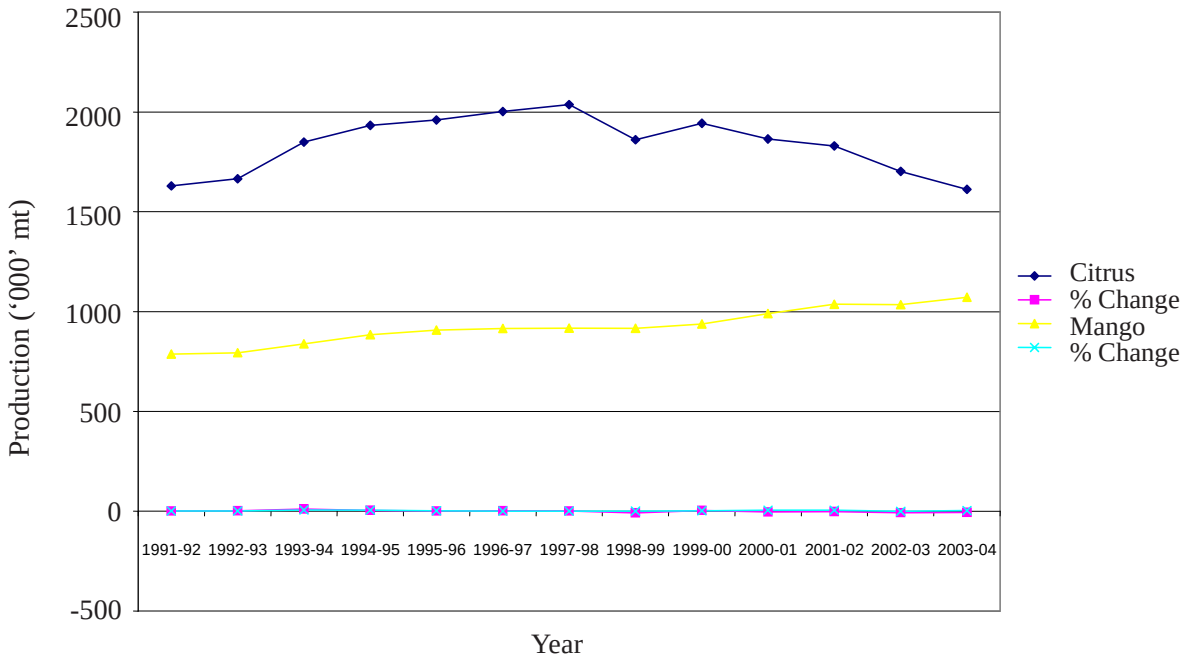
SITUATIONS OF FRUITS IN PAKISTAN

The major fruits grown in the country include citrus, mango, guava, apple, banana, apricot, almonds and grapes. The area under fruits in Pakistan is estimated around 640,000 hectares with a production of about 6,296 thousand mt. Although the climate, soil and irrigation facilities are quite adequate and suitable but the productivity of most of the fruits is quite low (about 10 mt per hectare). There could be many reasons of low productivity but the most important could be listed as under:

- Use of un-certified nursery plants.
- Defective orchard management practices particularly fertilizer use, pruning, interculturing, weed control, etc.
- Inadequate information about insect pest and disease control.

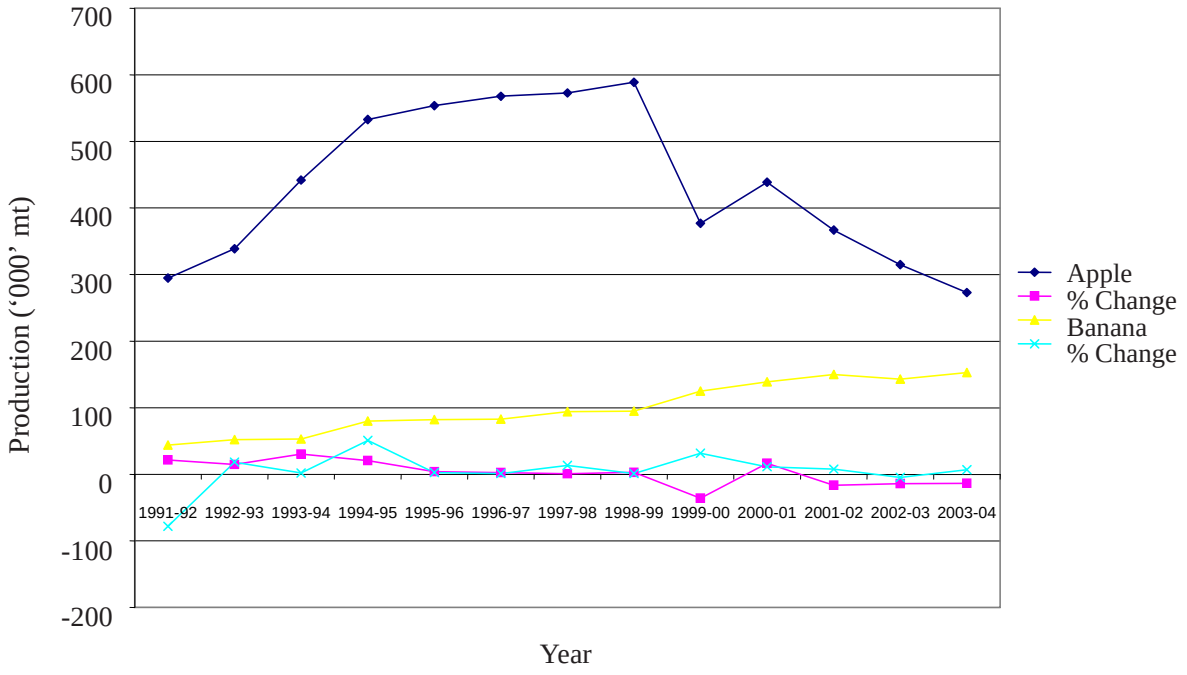
It is understood that there are many general and specific problems of different fruit species, which result in low productivity and quality. If these issues are addressed and technologies developed, demonstrated and transferred to end-users it can result in a positive change in the productivity.

The production of major fruits in Pakistan over time is depicted in Figures 1-4.



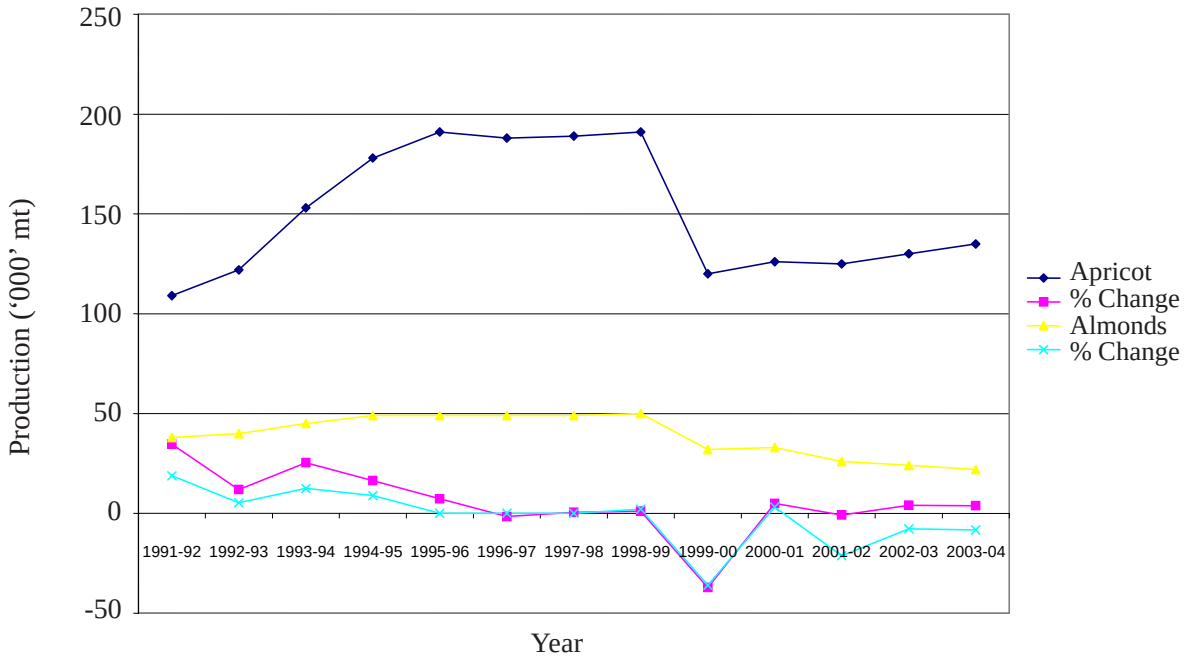
Source: Ministry of Food, Agriculture & Livestock, Federal Bureau of Statistics

Figure 1. Production of Citrus and Mango in Pakistan Over Time



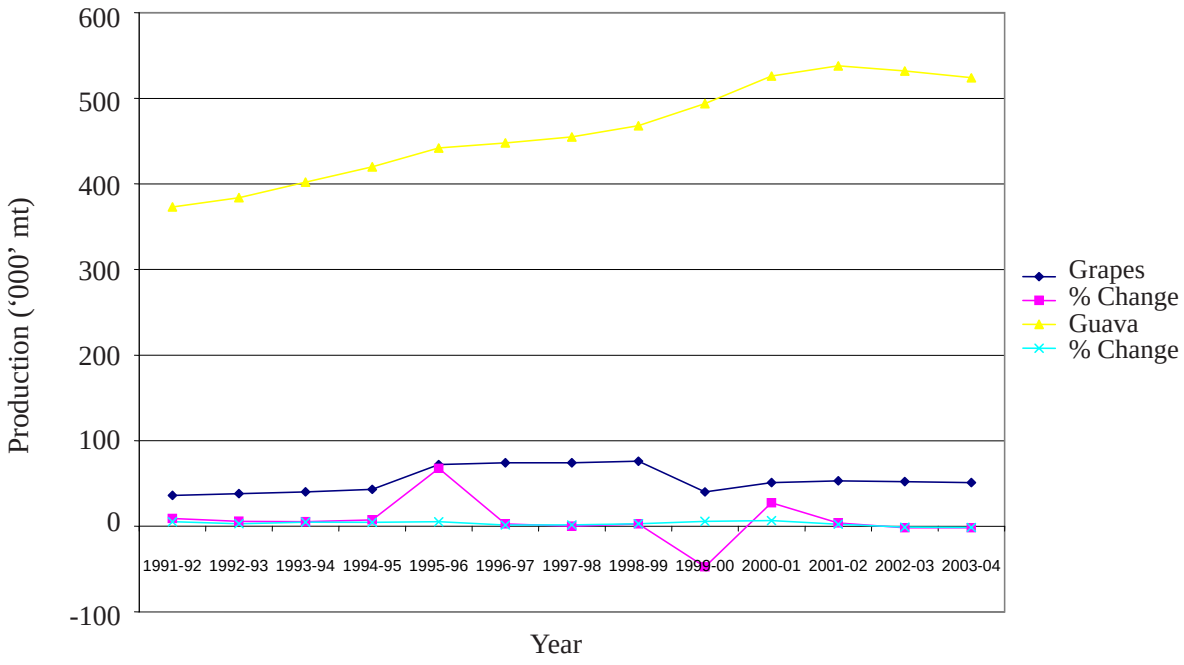
Source: Ministry of Food, Agriculture & Livestock, Federal Bureau of Statistics

Figure 2. Production of Apple and Banana in Pakistan Over Time



Source: Ministry of Food, Agriculture & Livestock, Federal Bureau of Statistics

Figure 3. Production of Apricot and Almonds in Pakistan Over Time

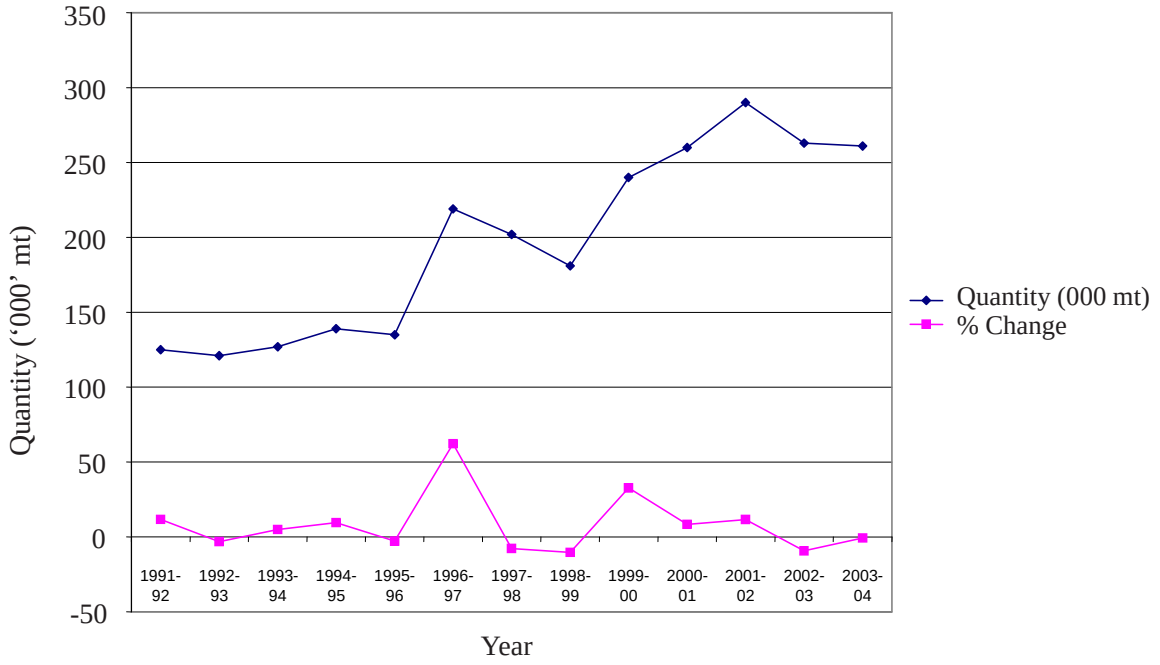


Source: Ministry of Food, Agriculture & Livestock, Federal Bureau of Statistics

Figure 4. Production of Grapes and Guava in Pakistan Over Time

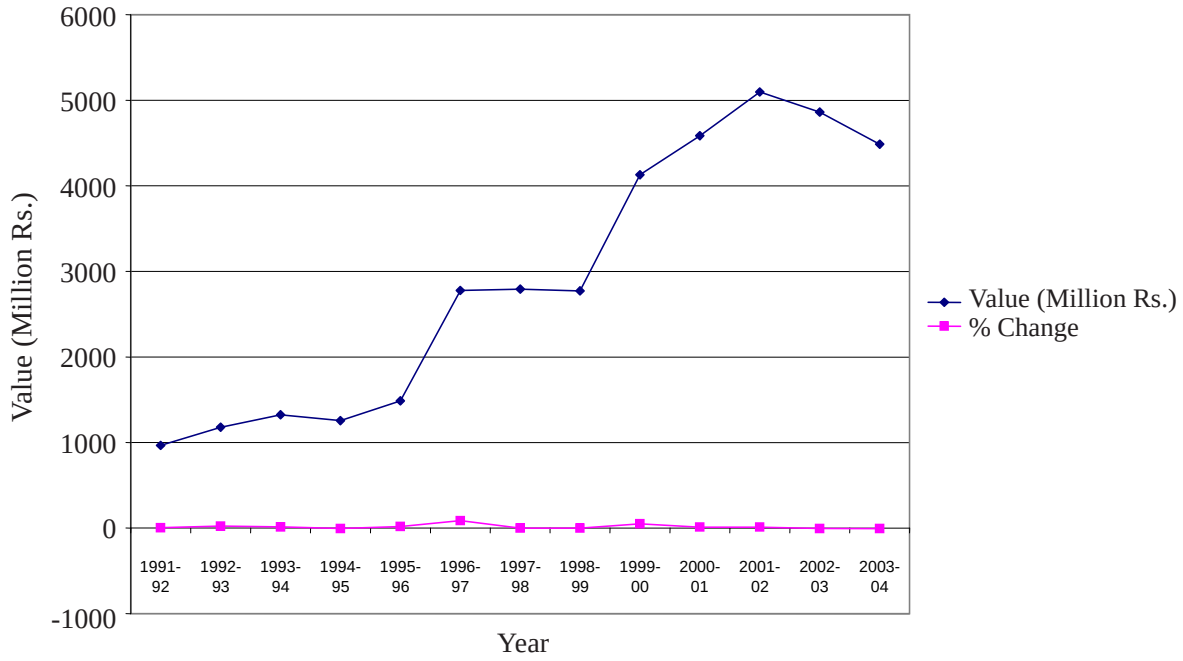
Exports of Fruits of Pakistan

The exports of fruits during 2003-04 were about 261 thousand mt, which witnessed the decrease of 0.8 per cent over the year 2002-03 (Figure 5). The value of export of fruits was about 4486 million Rupees during fiscal year 2003-04, which also went down by 7.7 per cent compared with fiscal year 2002-03 (Figure 6).



Source: Ministry of Food, Agriculture & Livestock, Federal Bureau of Statistics

Figure 5. Quantity of Export of Fruits of Pakistan Over Time



Source: Ministry of Food, Agriculture & Livestock, Federal Bureau of Statistics

Figure 6. Value of Export of Fruits of Pakistan

SITUATIONS OF VEGETABLES IN PAKISTAN

Vegetables form a group of specialized crops and are important economically and from health point of view. The ideal climate of the country has provided an opportunity to grow variety of vegetables round the year. They fit well in most farming systems due to shorter maturity period. However, in the past, development efforts in agriculture sector were primarily focused on production and development of cereal crops in spite of the fact that vegetables provide maximum output and hence more production per unit area. Hence, the vegetable crops have not made matching success in the past, because of less concerted efforts devoted to research and development of vegetables, Potato, Onion and Tomato are the main vegetables grown in the country.

The Production and percentage change of Potato and Tomato in Pakistan is given in Table 1.

Table 1. Production of Potato and Tomato in Pakistan over time

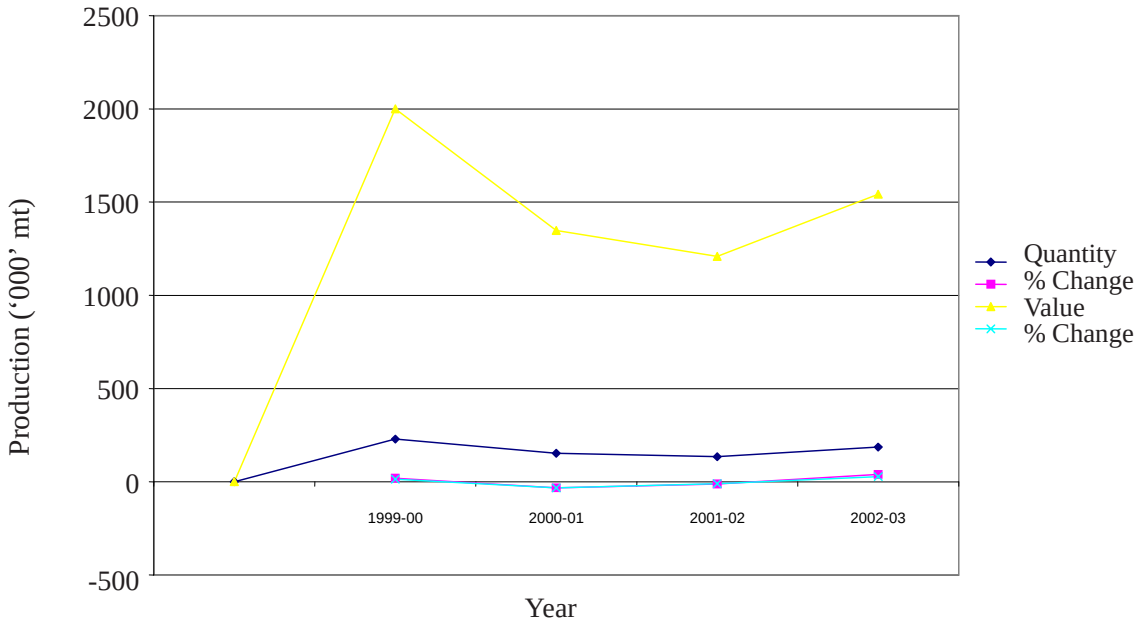
('000' mt)

Year	Potato	% Change	Tomato	% Change
1991-92	859.8	14.4	237.9	11.4
1992-93	932.8	8.5	243.3	2.3
1993-94	1056.2	13.2	254.3	4.5
1994-95	1105	4.6	275.8	8.5
1995-96	1063.5	-3.8	304.6	10.4
1996-97	963.6	-9.4	313.1	2.8
1997-98	1425.5	47.9	325.3	3.9
1998-99	1810.4	27.0	332	2.1
1999-00	1868.4	3.2	283.2	-14.7
2000-01	1665	-10.9	268.8	-5.1
2001-02	1730.7	3.9	294.1	9.4
2002-03	1946.3	12.5	306.3	4.1

Source: Ministry of Food, Agriculture & Livestock, Federal Bureau of Statistics

Exports of Vegetables of Pakistan

The exports of vegetables during 2002-03 were about 192 thousand mt, which witnessed the increase of 43.3 per cent over the year 2001-02. The value of exports of vegetables was about 2313 million Rupees during fiscal year 2002-03, increased by 91.2 per cent compared with fiscal year 2001-02 (Figure 7). Two main export vegetables were potato and onion.



Source: Agricultural Statistics of Pakistan 2004

Figure 7. Quantity and Value of Exports of all Vegetables of Pakistan Over Time

EXISTING VEGETABLES AND FRUITS MARKETING SYSTEM

The existing marketing system can be distinguished on the basis of market place and the nature of trade activities. These are briefly discussed here under:

Assembly Market

Assembly markets are often situated close to farm gate, generally in a small town, where farmers bring the major portion of the marketable surplus. Shopkeepers, traders and retailers participate as buyers in these markets. Most of the transactions involve small quantities of agricultural produce. Traders in assembly markets are not approved by any government agency, although in some cases town committees (created by the local government) charge an entry fee from traders. Usually, these traders maintain no systematic record of transactions. The price formation process is very simple, based on direct negotiation between the traders and the farmers. Since the quantities involved are small, a farmer may not mind small price differentials (compared to wholesale markets). However, for larger quantities farmers prefer to go to wholesale markets, or at least try to compare prices with those markets before selling the produce. Recently, due to better transport facilities and availability of larger quantities of marketable surplus, it has become feasible for farmers to take produce to wholesale markets.

Wholesale Market

Wholesale markets are usually located in a district town or a major sub-division town. These markets are the main assembly centers for the fruit and vegetable surplus of surrounding areas. Wholesale markets have better storage, transportation, communication and working conditions for both buyers and sellers than those in the assembly markets. In these markets permanent offices and auction floors have been built by traders who hold an official permit for their activities. Almost every trader (commission agent) has sufficient space in the market to store produce for a few days (free of cost) or for longer periods for a nominal charge. Also there is easy access of transport, which makes it convenient both for growers and market traders to move agricultural produce from one market to another.

Commission agents also often provide lodging and boarding facilities to the contractors and producers, who bring their produce from long distance. In these markets arrangements also exist to settle disputes over pricing, weighing of produce, commission charges and other market practices. Market Committee members monitor traders' activities in these markets (Bureau of Supply and Prices, 1992). Traders are required to keep records of their daily transactions and report them to the Market Committee. Market participants including commission agents, wholesalers, retailers, shopkeepers and weighing men are also registered and licensed by Market Committees. Introduction of these measures have resulted in some improvements in these markets. For example, under weighing of agricultural produce was reportedly a common problem during the pre-partition period. This problem has been significantly reduced, because of replacement of old weighing scales with semi-automatic scales, which are more convenient and transparent for both buyers and sellers. In wholesale market, commission agents charged 8 to 10% commission on the sale revenue. In the wholesale market the major players are commission agents, wholesalers, retailers and shopkeepers.

Terminal Market

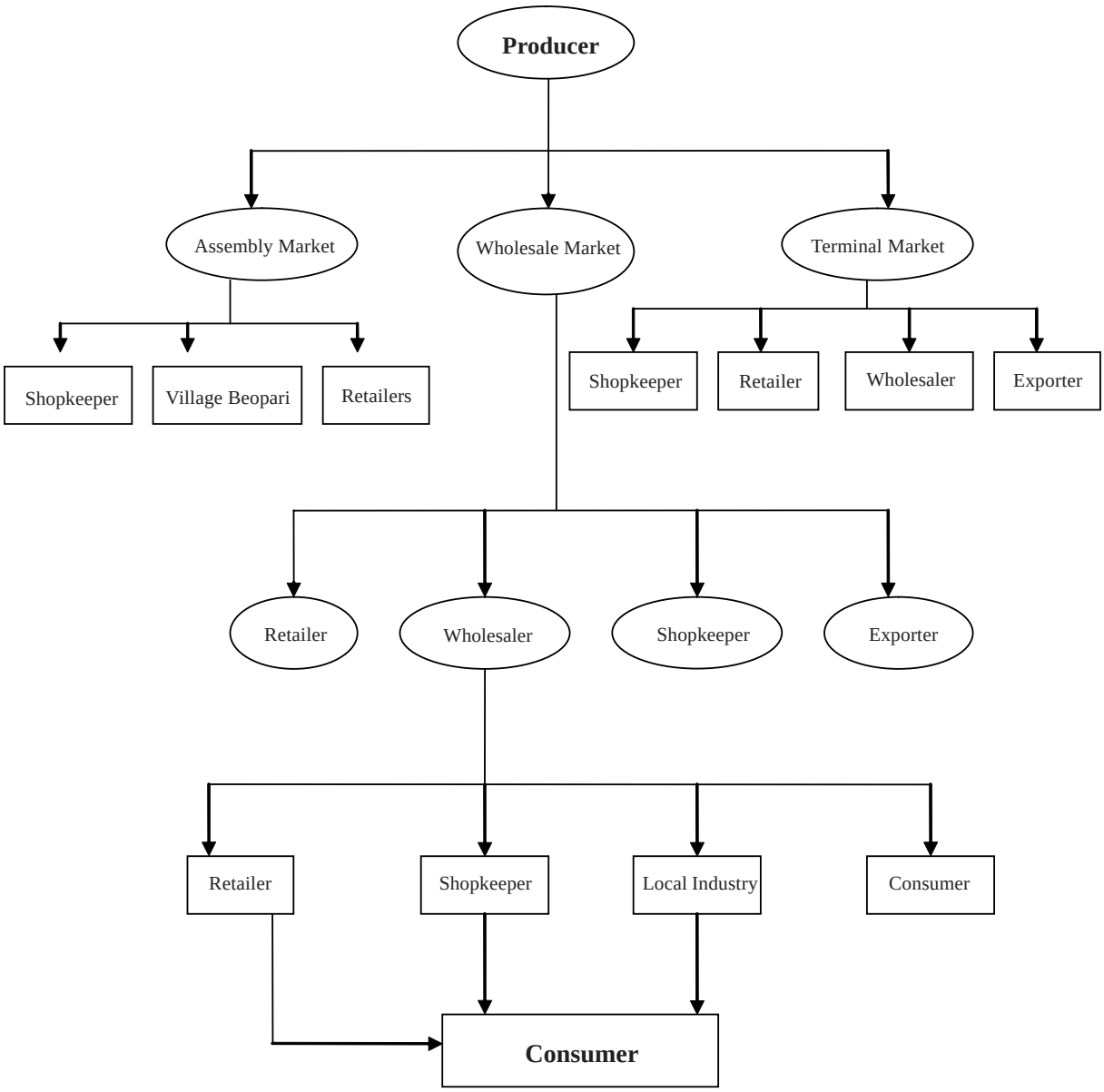
Terminal markets are generally situated in large urban centers. The Karachi market is one of the best examples of this kind of market in Pakistan. Most of the marketable surplus of agricultural commodities is ultimately routed to this market. Foreign trade is another reason for the flow of the marketable surplus to this market. Traders in terminal markets are usually wholesalers who supply agricultural products to firms and industries for processing and to the retailers and shopkeepers. The majority of traders are buying agents, who buy from other wholesale markets through their agents or directly when the produce is brought there from other regions.

This market is well equipped with traders who are well established and mostly depending on supplies from growers and other wholesale markets. They have access to all modern facilities for approaching their agents in lower level markets. Many traders have their own trucking companies. Telephone and telegraph services are easily available for them.

Vegetables and Fruits Marketing Channels

Agricultural marketing channels are concerned with the concept of "marketable" or "marketed" surplus of farm commodities that enter the process of circulation and exchange. The purpose of exchange of

commodities for money and vice-versa is to have access to a variety of products. Here agricultural marketing channels refer to the outlets or routes through which commodities pass to reach final consumers. The existing vegetables and fruits marketing channels in Pakistan are presented in Figure 8.



Source: Survey Data, 1998

Figure 8. Marketing Channels in Pakistan

BARRIERS TO ENTRY IN THE MARKETS

One of the conditions for perfect competition is that there are no significant barriers for new entrants into market. If entry is restricted by physical obstacles, technology, capital, government restraints, etc., the theory holds that competitive effectiveness is hampered. Attempts have been made to assess the barriers to entry for new market intermediaries at each stage of the marketing chain in Pakistan.

Contractor

There are no fixed criteria for entry and exit as a contractor in the fruit marketing. Anyone who has contact with a commission agent and is able to receive advances for contracting the orchard could enter the business. Contracting of fruit orchards is not an easy job for every one. The established contractors possess

a wide knowledge of orchards management and marketing practices. At the time of contracting an orchard, they have to estimate crop yield, available varieties, road and transport facilities. They also inquire about the attitude and social standing of the owner of the orchard. It was investigated that experienced contractors can accurately estimate orchard output based on appreciation of the natural environment and disease attack incidence. Also they estimate supply and demand based on market conditions. Due to long experience in this business, they are able to build strong relations with large landlords and commission agents in the market. This enables them to obtain almost unlimited credit from commission agents at a lower commission rate compared to new contractors. They also have more respect and facilities available from commission agents when they visit the market.

Commission Agents

Entrance of new persons into the market as a commission agent requires a license, space, initial capital and business experience. A license is the first requirement for starting the business in the market. New commission agents are required to obtain a license from the 'Market Committee'. A license can be obtained in a few days if there is a vacancy of shop and auction floor in the market. Once a new commission agent receives a license, he must register himself with the Commission Agent's association to establish cooperation and gain access to market information system to run business smoothly. The available physical facilities in these markets are not sufficient to fulfill current requirements. This indicates that at present lack of space in the market is a main factor restricting the entry of new competitors.

Initial capital is another requirement for a new commission agent in the market. A large amount of working capital is required to cover the initial operating costs, until a profitable business and good reputation could be built up among buyers and sellers. This is particularly so because of advance credit facilities provided by commission agents to contractors and wholesalers. Business experience and knowledge are also important. New commission agents are faced with the problems of competing with well-established and experienced commission agents.

It appears that obtaining space in the market and having business contacts, experience and inheritance of a family business represent the major barriers to entry for commission agents. Whilst, having a sufficient amount of initial capital is a great asset, it is not necessarily a limiting factor restricting entry into the market.

Wholesaler

A wholesaler requires a license, space, experience and contacts to enter in the market. A license for a wholesaler is the first requisite for entry into the wholesale business. A license can be obtained with little difficulties and at a relatively nominal official cost, but may require payment of a bribe to officials of the Market committee.

Retailer

Retailers do not require a license but experience is more important to enter in the business. There are large numbers of retailers and as a result each faces strong competition in buying and selling of produce. Retailers do not require much in the way of capital to start the business, because usually they buy fruit from wholesalers on credit for one to two days. A new retailer has to provide one-third party guarantor to wholesalers to become entitled to buy produce on a credit basis.

Exporter

Fruit exporters require a license, experience, contacts and capital to enter in the business. An export license is the first condition for entry into the export business. There is no difficulty to obtain the license from the Export Promotion Bureau (EPB) however a new entrant has to apply on the prescribed form along with payment of the official fee. In practice a license will be ready within a week but some commission agents pay a bribe to the concerned official to obtain the license the same or next day. However, barriers to entry for different market intermediaries reveal that existing marketing system is potentially competitive with few barriers resulting from state intervention. Regulation of entry through licensing is weakly enforced because of corruption. The following section will address the causes of corruption in agricultural markets.

Causes of Corruption in Markets

Constraints to private sector activity identified in the marketing chains for fresh produce include bureaucratic delays and corruption; poor law and order; slow, expensive and corrupt legal system; poor transport and communications and dissemination of market information (Produce Studies Ltd., 1999). Regu-

lation of these markets is governed by the Agricultural Produce Markets Act of 1939 (Bureau of supply and Prices, 1992). Under this Act a Market Committee comprised of government officials and representatives of growers, traders and consumers, is established for every notified market area. The Committee is responsible for arranging an open auction of produce, supervision of weights and measures and prompt payments, licensing of all traders, allotment of shops or trading floors for new entrants, dissemination of market information and levying of market fees or taxes.

Market Fees

The government levies market fees on agricultural produce brought or sold in a notified market area, fifteen percent of which are retained by the local Market Committee with the intention that this revenue will be utilized primarily to improve the physical infrastructure of the market. Collection of market fees is contracted out to private agencies that compete in an annual open auction for this, but in reality, political influence and bribes determine the award of the contract.

After obtaining the contract, the investment in bribes is recovered by charging fees higher than the government scheduled rates. The fee collecting agencies collude with local police in intimidating traders reluctant to pay such fee rates. Typically trucks are held at a police checkpoint resulting in spoilage of the produce. Growers who transport and market their own produce are officially exempt from market fees (Director General, 1995), but in practice they pay the same as contractor.

Issue and Renewal of Licenses

All traders (growers are exempt) engaged in the purchase, storage or sale of agricultural produce in the notified area are required to be licensed by the local Market Committee (Bureau, 1992). The power to issue, renew and to cancel licenses, in cases of violation of Market Rules, provides further means to obtain bribes from traders. This particularly applies to new entrants to the market. Whereas the official criteria for obtaining a license centre around solvency, past experience, competency and absence of recent criminal convictions. In practice this is determined by payment of bribe, family and social ties, support from the local Commission Agent's association and often ethnicity.

Similarly, the export of vegetables and fruits is regulated and licensed by the Export Promotion Bureau (EPB). There are only few permanent and licensed exporters, while a number of these were operating on a temporary and informal basis with the collusion of EPB. The mandate of the EPB is to control the export of ungraded and low quality produce. Licensed exporters complained that other exporters are frequently not properly grading, resulting in a decline in the reputation of the Pakistani fruits particularly mango in the Middle East and Europe. They alleged that substantial bribes pass from some commission agents to EPB in facilitating export of ungraded fruits direct from the auction floor[1], whereas licensed exporters have warehouse facilities for grading and packing for export[2].

Allotment of Shops in the Markets

The shops and auction floors in wholesale markets are the property of the Market Committee. Because of their limited number they tend to be fully occupied by commission agents and wholesalers. New entrants to the market have to invest significant capital in "goodwill"[3] payments to the existing shop holders (amounts paid vary between markets, ranging from Rs.1 to 2 million), as well as a bribe to the Market Committee for allotment of the shop. New entrants are not common, and shops tend to remain with the same family business for a long period.

CONCLUSION AND RECOMMENDATIONS

Government has left vegetables and fruits marketing completely in the hands of the private sector, with no restriction on their movement, and prices being determined through supply and demand. Three types of markets exist; assembly, wholesale and terminal markets. The major marketing intermediaries are producers, contractors (in case of fruits), commission agents, wholesalers and retailers. There are a large number of

1. Taking advantage of a "loophole" in the legislation unlicensed exports that allows mango to be sent abroad as a "gift".
2. A further constraint to quality exports are inadequate government testing and laboratory facilities to provide 'health safety certificates' required by some North American and European markets.
3. An amount without legal requirement, agreed between parties.

buyers and sellers in the markets and spread of information in respect of quantity and prices is quick among all marketing intermediaries except producers.

The existing marketing operations are performed by traditional way such as, rough harvesting and handling methods, rudimentary grading, and poor quality packing, which reduce its marketability, leading to lower prices in the market. The non-availability of refrigerated lorries/trucks to transport vegetables and fruits from farm to distant markets increases the spoilage rate and reduces the bargaining position of the sellers. Therefore, there is a need to encourage modern technology and investment on it to improve the marketing operations.

There is a lack of access of institutional credit for growers and market participants. Particularly for commission agents it is a serious problem constraining the efficient operations of the marketing system. This is mainly because all activities of commission agents are linked with capital availability such as, provision of seasonal credit to contractors to pay installments to producers and other advances for labor and packing material. Therefore, there is a need of timely availability of institutional credit for market participants to enhance the efficiency of the marketing system by constraining investment in improved methods.

There are number of barriers for new entrants as commission agents and wholesalers in the market. The availability of a shop and auction floor, and access to sufficient working capital are necessary for commission agents to enter the market. Inheritance of a family business and business contacts are also highly advantageous. Corrupt practices associated with licensing of market traders and allotment of shops and auction floors; reinforce barriers to entry for new market entrants, particularly as commission agents. Therefore, there is a need to reduce the existing barriers to entry for new entrants to improve the competitiveness of the marketing system.

It is concluded that vegetables and fruits marketing system is not perfectively competitive, but it is sufficiently competitive to prevent market traders from reaping excessive access to large supplies. There is a competition at each stage of the marketing chain. Spread of information regarding quantity and price is rapid amongst all agencies other than producers.

In the current environment, with a public sector almost incapable of cost effective and non-corrupt intervention it is difficult to recommend feasible means for improvement of the marketing system in Pakistan. Encouraging at least some entrepreneurial producers and grower organizations to market their output would introduce more competition into the marketing chain and help to ensure that margins gained by contractors and commission agents are not excessive. This requires better access to credit to finance improved use of inputs in orchards and working capital for labor, packing material and transport, and a source of market information for growers independent of commission agents.

Licensing of traders and market fees should be scrapped to gain reduce transaction costs. The objectives of licensing are in any case questionable, while the abuses taking place clearly invalidate the policy. Similarly export licensing should be abandoned, reinforced by the proposition that increasing openness to foreign trade will help to inhibit corruption (Acts, 1996). Technical assistance to the private sector may be needed to develop improved grading and health certification procedures. Market Committees should be restricted to the role of regulation of commercial malpractices, such as secret auctions and provision of public goods such as market information and good order in the market area. They need to be transparent and accountable and hence liberalization of markets may be inadequate without parallel processes that improve governance and democratization.

Overall given the high risk and high transaction costs, environment, poor transport and communications infrastructure, poor security, a dis-functional legal system for the enforcement of agreements and widespread corruption, it is unrealistic to conclude that existing fruits and vegetables marketing system is inefficient, as has tended to be the trend in the past.

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7. PAKISTAN (2)

Sikandar Shah *(Project Director)*

Mohammad Ilyas Anjum *(SMO)*

Agricultural and Livestock Products Marketing and Grading Department
Government of Pakistan
Islamabad

INTRODUCTION

Pakistan's economy has undergone considerable diversification over the years, yet the agricultural sector is still the largest sector. With its present contribution to GDP at 23.3 percent, it accounts for 42.1 percent of the total employed labor force and is the largest source of foreign exchange earning by serving as the base sector for the country's major industries like textile and sugar. It provides raw materials as well as a market for industrial products. In all situations, agriculture is bound to have a substantial impact on the growth of over all GDP.

The horticulture sector has great potential to be a source of economic growth and income generation with small farmers as major beneficiaries. Pakistan has a comparative advantage in the production and export of high value and non-traditional crops. This advantage is not being fully exploited specially at farm level. Due to various constraints such as absence of policies favoring growers and effective and varying approaches towards regulation of product quality, farmers have not been able to reap the benefits they deserve. Further the market structure in the country is so complex that the whole system is under the control of few players.

Market information system in a country can play vital role in increasing returns to the growers, especially for highly perishable commodities such as Fruits and Vegetables. Strengthening of market information system in a country can play major role in enhancement of farmer income, which can ultimately improve the living standard of the rural population and bring prosperity in the country.

MARKET STRUCTURE IN PAKISTAN

The domestic market structure of fruits and vegetables in Pakistan is complex, and in practice, four main categories of wholesale markets exist; primary (terminal), secondary, district wholesale markets and rural assembly markets. The market players include farmers, commission agents, contractors, wholesalers, inter-market traders and many other retailers. The processes involve the determination of price and payment of a fixed commission fee and other charges. In general intermediaries dominate the system and there is little direct market participation of the farmers, particularly small farmers. On the export side, raw material procurement is made mainly from wholesale markets. The market structures in Bangladesh, India, Nepal and Sri Lanka are virtually identical to Pakistan. Lack of market information system in the country has increased the complexity of the marketing system in the country on one hand and brought less return to the farmers on the other.

With a rapidly growing population, the domestic demand for fruits and vegetables is expanding, as indeed is the market for processed products. The production of products is highly seasonal, storage facilities are limited, and price variation and cyclic trends are common which lead to the import of fruits and vegetables. At the same time Pakistan is exporting a range of fruits and vegetables to various regions of the world, with the major markets being India, Dubai and Indonesia. Pakistan's key export markets and products have not changed and exports are considered as a means of surplus disposal mainly channeled from the wholesale markets. Exports endeavors need to be supported by a "grow-for-export" strategy. Again a well-established market information system can play a vital role in this connection.

Pakistan exports different horticulture commodities to different countries in international market. For example, it exports mangoes to various countries of the world, which include Dubai, Saudi Arabia,

United Kingdom, Germany, France, Norway, and many Fareast Countries. Figure 1 provides percentage share of Pakistani mangoes to these markets.

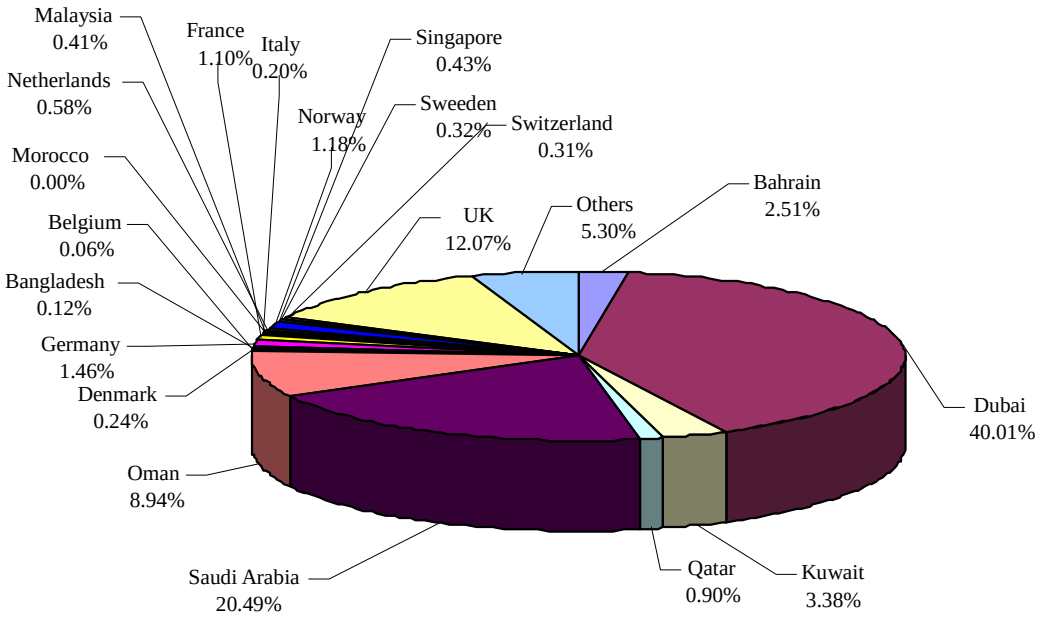

Figure 1. Pakistan Exports of Mangoes by Market in 2003-04 (Value 000 $)

Vegetables Wholesale Markets

Vegetables being a perishable, the sale procedure vary from market to market. At village level, sales take place only for relatively less perishables like onion, potato and some other vegetables. The perishables are taken to the wholesale markets for sale to wholesalers or through commission agents. There are generally three stages through which the vegetables pass i.e. commission agents, wholesalers and retailers. Commission agents sell for commission while the wholesalers purchase through open auction and sell to the retailers in small lots. The margins between the prices received by farmers and the wholesaler's prices, at one end, and between the wholesalers and retailer's prices, at the other end, are among the widest in whole area of agricultural marketing. In Pakistan every small city has an access to vegetable wholesale market but most of these markets particularly in big cities, due to their space requirement and turnover are located out of the city centers. The business activities normally take place early in the morning at 0300 hours. The mode of these activities is open auction. The auctions take place in small, medium and large bulks depending upon the requirement of the bidder and the nature of the commodity. The sub-wholesalers based in the vicinity purchase the vegetable in bulk and resale in small quantity grade wise to the retailers at different prices.

Fruits Wholesale Markets

In the case of fruit marketing, pre-harvest contractors play an important role. The contractors purchase the standing fruit crops at the flowering stage and look after it till it is matured. They harvest the fruit, pack it and sell directly to commission agents and wholesalers in the wholesale markets. In Pakistan, fruits wholesale market and vegetables wholesale market operate at the same place and thus are called Fruits and vegetables wholesale markets. The reason behind is to facilitate the retailers by providing them required agricultural commodities in the same vicinity. The business activities of fruits as in the case of vegetables, also take place early in the morning. The mode of these activities is open auction. The auctions take place in small, medium and large bulks depending upon the requirement of the bidder and the nature of the commodity. The sub-wholesaler purchases the fruits in bulk and resale in small quantity grade wise to the retailer at different price levels.

MARKETING INFORMATION SYSTEM IN PAKISTAN

The lack of regular market information has been identified as a significant constraint by stakeholders in the understanding of markets and determining what to grow and process. Although market information

is usually regarded as a public service, there is an increasing interest in the development of information services in the private sector particularly in response to the commercial needs of traders and exporters. Agritel in South Africa and Jaangda Agencies in Pakistan are commercial service providers in market information. In addition Integrated Marketing and Enterprise Service (IMES) a spin-off of the Pak-Swiss Project for Horticulture Promotion (PHP) and Jamal yellow pages also have the relevant experience. Presently both at federal and provincial level, there is a set-up dials with market information for agricultural commodities but their major beneficiaries are policy makers.

Marketing Information at Federal Level

At the federal level, the Department of Agricultural and Livestock Products Marketing & Grading (DALPMG) under the Ministry of Food, Agriculture and Livestock, through its marketing intelligence services collects, compiles and disseminates the wholesale prices of about 200 commodities prevailing in about 40 important markets for the benefit of the consumers, traders and policy makers. The Department also collects daily wholesale and retail prices of 22 essential food items in 11 important markets and supplies to Economic Ministries with market commentary on weekly basis. Daily wholesale prices of 180 items are collected and supplied to the Press, Custom Department, State Bank of Pakistan, Military Authorities, Federal Bureau of Statistics and Planning and Development Department of Sindh Government and several interested private agencies. Wholesale and retail prices of 80 items from Karachi market are collected and supplied to Radio Pakistan, Karachi daily for broadcasting. Monthly price summary on potato, onion and pulses is supplied to Food and Agriculture Division for onward transmission to Economic Coordination Committee (ECC).

Marketing Information at Provincial Level

In the Provinces, a full fledge Department of Agriculture (Economics & Marketing) exits which plays very important role for coordination among the existing market committees and with federal government. The Marketing Sections of the Agricultural Department are responsible for marketing improvement and marketing information services in the province. They conduct marketing surveys, gather and publish price statistics and enforce marketing laws, rules and regulation. So far 132 markets in Punjab, 68 markets in Sindh, 2 in Balochistan and 1 in NWFP have been regulated under the Agricultural Produce Market Act being administered by the provincial agricultural marketing directorates/sections etc. The Punjab province leads in all respect of marketing activities. Recently a full-fledge Agricultural Marketing Department has been established. An advanced marketing information system has been developed to generate timely market information for the target groups and all beneficiaries in the chain but the remaining provinces are lagging behind.

The importance of Marketing Information System (MIS) is advocated, by national and international organizations involved with development of agricultural marketing, as a means of increasing the efficiency of marketing system and promoting improved price formation. Marketing information facilitates marketing decisions, regulates the competitive market process and simplifies marketing mechanisms. Regular, reliable and timely marketing information helps farmers in taking efficient production and marketing decisions. It also helps other market participants in arriving at optimal trading decisions. Further, a reliable marketing information system also bring transparency i.e. a full awareness of all stakeholders of prevailing market prices and other relevant information.

Marketing of agricultural commodities is witnessing major changes world over, owing to liberalization and globalization of markets. In this context, agriculture in farm economies has to be market driven, more cost effective, competitive, innovative and responsive to high tech and IT applications. “Marketing” information being a wider concept than “Market” information, the system has to include details on potential market channels, payment requirements, packaging, quality and a whole host of information required by producers, traders, processors and consumers. Efficient Marketing Information System of a country leads to high returns for the farmers, on one hand, and on the other hand, plays very important role in providing the agricultural products to the growing large population at stable prices, particularly in the urban centers of the country. Secondly, the Marketing Information System also helps as trendsetter of prices for the agricultural commodities.

ISSUES

The absence of detailed market information and intelligence about domestic and export markets constrains producers, traders, exporters and policy makers in rational decision making and thus hampers the efficiency of the market system. Lack of information increases the price risk for producer and becomes a reason for the exploitative role of the middlemen in the market system. Whilst personal contacts and internet searches are reported as the most frequent means of identifying potential markets, the lack of regular market information is cited as a significant constraint in the understanding of market potential.

The present market information system does not deliver goods to meet the specific needs of the stakeholders. All the information collected at federal, provincial and district levels does not correspond to the specific needs (strategic, tactical and operational) of the various stakeholders. It is mainly for the consumption of the public sector. In addition, there is dearth of information about the exports and export markets as well. In the past efforts have been made to establish market information system, mainly with the donor's support, but such initiatives have mainly failed. Various issues that have impaired the development, implementation and sustainability of the market information services include; i) variation in grades and weights; ii) complex format, inability to analyze data and disseminate results; iii) lack of appropriate mechanisms for monitoring and feedback; iv) limited attention to capacity building; v) inability to reach financial sustainability; and, vi) irrelevant data generation and limited coverage.

The absence of detailed market intelligence constrains both existing and potential exporters of produce. Whilst existing exporters use known sources and personal contacts to identify market opportunities, but their ability to access or penetrate new markets, or develop and introduce alternative products is severely constrained. As market intelligence is a dynamic phenomenon, rather than static one, it should be subject to periodic review or refinement.

The collection of market information and market price data, particularly on the domestic markets, is often misconstrued as being of little benefit to producers. This misconception arises due to the fact that market price data are mainly used for historic reference purposes, typically for incorporation into annual or regular statistical summaries and reports. Accordingly, market information and market prices are thought of as being for statistical purpose, mainly historical, or for commercial purpose, ideally reflecting the current situation. An awareness and provision of market information can assist the producers to improve their returns through the effective use of this information. For example, regional price differences can be exploited to maximize the added-value potential, enabling the producer to make valid judgments as to when and where to market produce. Similarly, even with historical trends, rational assessments can be made on the benefits associated with prolonging the supply season, either through the adoption of alternative varieties, earlier production with protected cropping techniques or extending the period of availability with cold storage.

FUTURE PLAN

The need for market information has been strongly maintained by all the stakeholders although at present it does not reflect the demand for the service. There is a need to strengthen the existing department that provides Market Information Service to target beneficiaries. There is a proposal to support the private service provider and market committees to establish the market information system. Under these arrangements, the market committees will be responsible for the collection of data and transmission to private service provider and DALPMG, which will be analyzed and disseminated by the private service provider on a commercial basis. For export purposes, information collaboration will be in place with Export Promotion Bureau, Pakistan Horticulture Development and Export Board (PHDEB), Customs Department and International Organizations. The project will help DALPMG, market committees and private service provider in upgrading their facilities for establishing a market information service which meet the articulated needs of various stakeholders in horticulture. The aims of this project are to restructure and strengthen agriculture marketing information mechanisms in a manner which would make agriculture more remunerative for the producers, while at the same time, assure fair returns for the traders and more stable supply of commodities and their prices for the consumers. It will also positively impact on national income; export earnings, and creation of opportunities. Further it will generate improved environment for private sector investment in agriculture and other agribusiness related activities.

The Improvement of Marketing Information Services project combines the objective of poverty eradication; good governance through access to information for transparency and accountability with the

goal of developing a more market oriented private trade and agricultural sectors. Under this project, for the awareness of growers, Digital Display Board in all the major wholesale markets is recommended. These boards will enable the growers to know about the overall situation of the prices in various markets in the country. This will help the growers in efficient decision making for the disposal of their products at markets where they can get higher prices for their commodities.

There is a need to develop market information system in the country with an aim to provide reliable market information to all the stockholders. Presently the Asian Development Bank is helping Pakistan under Agribusiness development project to strengthen market information system in the Department of Agricultural and Livestock Products Marketing & Grading under Ministry Food, Agriculture and Livestock. The Project will improve the availability of market information, identified as major constraint to agro enterprise expansion. The Project will promote the development of private sector market information provision through outsourcing, for which the potential exists on a commercially viable basis. An appropriate private sector provider will be supported to develop the system that will initially focus on the 11 major wholesale markets in the country, and Pakistan's major export markets for fruits and vegetables. Through the provision of a diminishing level of project funding, the service provider will, in the medium-term, cover its operational costs based on fees generated by commercial sponsorship and a service charge for information provided to target beneficiaries. DALPMG will continue to provide market information for other horticultural crops not covered by the private sector provider and will have access to the market statistics collected in the 11-targeted wholesale markets. The outputs of this subcomponent will be to:

(i) Establish a private sector market information system providing reliable, impartial market information on a commercially viable and sustainable basis;
(ii) Provide growers, traders, development projects, non-government organizations (NGOs), exporters and policy makers with market information that meets their needs; and
(iii) Improve market efficiency and competitiveness by providing easily available and improved market information.

It is proposed under this project that DALPMG will be strengthened to support the private service provider and market committees to establish the MIS. Under these arrangements the market committees will be responsible for the collection of data and transmission to the private service provider and DALPMG, which will be analyzed and disseminated by the private service provider on a commercial basis. For export information, collaboration will be in place with the Export Promotion Bureau (EPB), PHDEB, Customs Department and International Organizations. The Federal Ministry of Food, Agriculture and Livestock has developed a web portal for providing E-Services to the citizens and also started automation of its allied departments. This facility will enable all stakeholders to get benefit by the services of marketing information, rules and standards of fruits and vegetable, along with all other related information.

Market Information System can play very important role in transparent transactions of commodities in the marketing procedure of the country on one hand and a means of increasing the efficiency of marketing system and promoting improved price formation on the other. Marketing information provides facilitates for marketing decisions, regulates the competitive market process and simplifies marketing mechanisms. Regular, reliable and timely marketing information helps farmers in taking efficient production and marketing decisions.

8. PHILIPPINES

Julieta A. Delos Reyes
University Researcher II
Department of Agricultural Economics,
College of Economics and Management
University of the Philippines Los Banos
Laguna

INTRODUCTION

The Philippines is predominantly an agricultural country with approximately 70 percent of its people still dependent on agriculture for their main source of livelihood. Agriculture contributes about 15 percent to Gross National Product and approximately 16 percent to Gross Domestic Product (Philippines Statistical Yearbook, 2000). Meanwhile, small farmers characterize Philippine agriculture with diverse crops for subsistence and little surplus for marketing. In the case of vegetable farms, the small area is further subdivided into tiny parcels of land devoted to different types and varieties. Despite this, the vegetable industry has developed and contributed much to the improvements in both nutritional well-being and economic status of the Filipino people. The industry was able to generate an average of P24 billion annually and about $32 million in foreign exchange earnings.

Tropical fruits on the other hand, are increasingly becoming important in the global market. These fruits industry is now emerging as a viable investment option to generate higher income, alleviate poverty, enhance food security at the same time improve human nutrition and health (Deomampo, 2002). This in essence caused a surge in growth in the industry during the last decade with world production increasing by as much as 40 percent for all varieties of tropical fruits (FAOSTAT) resulting in significant growth both in volume and value traded.

However, with the full ratification of the GATT-WTO and for a country like the Philippines, there is much that needs to be learned and addressed both in the production and marketing aspects of fruits and vegetables domestically and more importantly in the international market. From the traditional crops grown, the focus now is on high value fruits and vegetables, which can command higher prices and therefore generate higher income for the farmers. As it is, even with high value vegetables, the main challenge is still on how to transform the fragmented smallholder farm production into market-oriented and highly competitive business operations. The same thing goes with the fruits industry.

BRIEF OVERVIEW OF THE FRUITS AND VEGETABLES INDUSTRY

Volume of Production and Area Harvested

Production of agricultural crops follows a generally increasing trend albeit at a very minimal rate (Table 1). Production rose from about 64M metric tons in 1991 to 68M metric tons in 2000 with a registered average of only 66M metric tons. The average was pulled down by declines experienced in 1992, 1995 and 1998. Least volume was recorded in 1998 at only 58M metric tons. The same trend could be observed for agricultural area, which reached an average of 13M hectares, the lowest being in 1998 also at 12M hectares (Table 2) and the highest in 1997 at 13M hectares.

Meanwhile, the share of vegetables to total agricultural crops dropped considerably both in terms of volume of production and area harvested. In terms of crop area, vegetables had an average captured share of only 2.95 percent equivalent to 375 hectares with the highest in 1994 at 5.19 percent (663.3 hectares) while the lowest recorded was 1.40 percent (81.40 hectares) in 1999. Production-wise, the average captured share of vegetables to total agricultural crops was 3.79 percent or 2484.31 thousand tons achieving its peak in 1992 at a level of 7.09 percent and its minimum in 1996 and 2000 at 1.60 percent.

When it comes to area devoted to fruits, the average was noted at 645.55 thousand hectares with the lowest found to be about 624 thousand hectares and the highest reaching 669 thousand hectares. The mean share of fruits in total area planted to agricultural crops was 5.08 percent, whereas its average share in total agricultural production was 10.44 percent (Table 3).

Table 1. Production of Various Vegetables Over Time (in ’000 metric tons)

ITEM	1992	1995	1998	1999	2000	Average (1991-2000)
Agricultural Crops	63837.4	62164.8	57931.5	68124.6	68112.1	65600.17
Vegetables						
Peanut	34.00	36.20	24.70	25.80	25.70	30.77
Mongo	23.20	26.70	28.50	29.20	27.40	26.20
Onion	56.70	88.40	87.00	85.00	84.30	76.55
Garlic	11.80	17.20	12.80	9.30	13.70	14.40
Tomato	165.40	155.80	133.00	145.40	148.10	154.30
Eggplant	110.40	130.70	163.80	159.70	166.10	142.25
Cabbage	150.80	130.00	85.80	87.50	87.60	121.30
Fruit bearing Vegetables	2895.40	280.80	278.50	292.60	285.90	1344.33
Leaf/Stem Vegetables	1041.90	140.20	174.30	178.80	181.70	528.09
Other Legumes	34.70	52.60	50.50	53.70	51.70	46.12
Total Vegetables	4524.30	1058.60	1038.90	1067.00	1072.20	2484.31
Share of Vegetables to Crops	7.09	1.70	1.80	1.60	1.60	3.79

Source: Bureau of Agricultural Statistics

Table 2. Area of Various Vegetables Over Time (in ‘000 has)

ITEM	1992	1995	1998	1999	2000	Average (1991-2000)
Agricultural Crops	12520.4	12574.8	11664.6	13074.6	12891.6	12708.87
Vegetables						
Peanut	44.60	47.60	25.40	27.20	26.70	35.79
Mongo	32.70	34.90	37.70	39.20	40.20	35.80
Onion	5.80	8.70	12.80	9.60	9.60	8.87
Garlic	4.20	6.30	5.20	3.80	5.20	5.35
Tomato	18.20	17.90	14.90	16.80	16.10	17.05
Eggplant	15.50	17.60	16.00	19.40	20.00	17.53
Cabbage	10.10	8.50	7.50	7.60	7.70	8.94
Fruit bearing Vegetables	313.90	29.50	27.90	29.90	29.90	143.28
Leaf/Stem Vegetables	170.60	12.70	16.30	17.10	17.60	77.97
Other Legumes	31.20	19.70	18.30	18.80	17.60	24.45
Total Vegetables	646.80	203.40	182.00	189.40	190.60	375.03
Share of Vegetables to Crops	5.17	1.62	1.60	1.40	1.50	2.95

Source: Bureau of Agricultural Statistics

Table 3. Area and Production of Fruits in Philippines Over Time

FRUIT	1996		1998		2000	
	Area (ha)	Production (MT)	Area (ha)	Production (MT)	Area (ha)	Production (MT)
Banana	326,913	3,311,836	327,695	3,492,565	348,049	4,155,668
Pineapple	45,046	1,542,202	37,714	1,491,144	43,449	1,523,791
Mango	112,923	787,160	125,041	994,002	128,927	855,375
Cashew	29,845	61,299	29,930	164,683	29,096	104,055
Papaya	5,630	61,412	5,851	62,748	6,121	74,713
Calamansi	11,504	53,588	12,785	51,736	15,764	69,504
Watermelon	5,523	71,599	4,436	72,173	4,057	59,391
Jackfruit	10,483	51,441	12,091	48,776	11,919	51,266
Lanzones	13,954	107,757	13,025	111,257	16,186	43,353
Pummelo	4,432	48,799	4,737	46,868	4,626	42,288
Avocado	5,112	46,303	5,325	37,548	5,251	38,086
Santol	6,561	39,579	6,676	37,365	6,629	35,625
Starapple	7,131	28,607	7,195	26,154	7,336	26,754
Durian	4,205	27,287	4,828	29,063	7,013	25,208
Mandarin	8,692	27,114	9,099	23,997	9,087	18,588
Guava	5,519	13,763	5,968	15,869	3,439	16,806
Rambutan	2,850	10,292	4,436	15,443	5,066	11,892
Guyabano	2,575	8,125	2,618	8,244	2,649	7,861
Orange	2,109	8,705	2,219	8,531	2,302	7,692
Chico	2,270	7,234	2,345	7,119	2,353	6,574
Atis	2,948	9,923	2,982	7,547	3,043	5,307
Mangosteen	1,152	5,049	1,202	5,237	1,354	4,610
Sineguelas	1,247	3,650	1,321	4,021	1,389	3,454
Breadfruit	775	2,286	816	2,425	817	2,595
Duhat	2,552	2,925	2,571	2,813	1,112	2,304
Lime	459	1,032	452	1,747	456	1,532
Mabolo	147	1,260	144	1,336	155	1,398
Makopa	232	990	232	824	225	782
Camatchili	887	780	887	727	866	709
Lemon	221	663	258	620	270	615
Grapes	331	361	349	345	368	203
Passion Fruit	52	274	40	210	39	135
TOTAL	624,280	6,343,295	635,268	6,773,137	669,413	7,198,134
Agriculture	13,015,600	69,128,500	11,664,600	57,931,500	12,891,600	68,112,100
SHARE (%)	4.80	9.18	5.45	11.69	5.19	10.57

Source: Bureau of Agricultural Statistics, Department of Agricultue, Philippines

Exports and Imports

The country's fruit exports during 1996-2000 showed a declining trend both in volume and value although the rate was minimal. As to be expected, the traditional export winners, which included banana, mango and pineapple, topped the list. Declines however, were noted and these were attributable to bad weather conditions and the declining prices of agricultural commodities in the world market.

Vegetable exports on the other hand, are dominated by shallots, which posted the highest volume and value in 1997 at 24,541.80 metric tons and US$8,064.30, respectively (Data not shown). By year 2000, however, its volume and value was only 11,143.51 metric tons and US$2,332.77, respectively. Other exported vegetables include onions, asparagus, and mongo beans (Table 4).

The top five fruit imports of the Philippines include apples, oranges, grapes, mandarins, and lychees. Mandarins dominated the fruit import scene in 2000 by registering 35,906.69 metric tons in volume and US$4,347.39 million (Table 5). Although the country is exporting minimal volume of mongo beans, the same topped the major vegetable imports in year 2000 with 38,628 metric tons valued at US$9,288 million (Table 6).

Table 4. Volume and Value of Philippine Vegetables Export Over Time

VEGETABLE	1996		1998		2000	
	Volume (MT)	Value (USD)	Volume (MT)	Value (USD)	Volume (MT)	Value (USD)
Beans, Mongo	15.57	25.94	4.26	5.91	8.23	13.30
Onion	7,296.66	4,202.07	5,253.06	2,205.60	3,724.25	1,719.87
Asparagus	5,660.43	13,725.00	3,236.39	7,834.63	3,973.69	9,616.30
Green peas	0.09	0.38	0.30	0.30		
Tomatoes	4.33	3.33				
Shallots	19,930.59	7,204.00	12,412.72	3,788.07	11,143.51	2,332.77
Aubergines	2.32	4.23	24.62	59.72	8.66	20.49
Banana Blossoms	0.76	3.76	1.28	9.14	6.15	21.47
Cabbage						
Chick peas	1.48	3.72				
TOTAL	32,912.23	25,172.43	20,932.63	13,903.37	18,864.49	13,724.20

Table 5. Volume and Value of Philippine Fruit Import Over Time

FRUIT	1996		1998		2000	
	Volume (MT)	Value (Million USD)	Volume (MT)	Value (Million USD)	Volume (MT)	Value (Million USD)
Apples	62,610.87	64,724.26	48,455.85	10,860.26		
Avocado	2.40	1.31	1.24	0.42	0.14	0.13
Oranges	27,591.08	8,169.58	19,500.88	3,907.80	14,770.07	2,556.96
Mandarins	4,671.55	1,251.75	27,850.12	3,583.32	35,906.69	4,347.39
Melon	97.70	88.56	9.56	8.15	55.66	5.86
Watermelon	55.56	44.34	5.03	4.57	2.74	0.26
Grapes	16,348.98	10,688.81	11,310.43	3,855.74	12,517.65	2,950.14
Pears & quinces	1,445.76	398.14	3,799.27	732.49	8,086.32	1,311.73
Apricots	10.80	16.61	17.47	17.65		
Cherries	44.10	41.15	13.62	12.49	33.03	14.61
Lemon/Lime	49.94	51.63	95.98	29.64	229.51	29.29
Grapefruit	35.33	12.41	16.14	8.39	166.83	30.74
Lychee	3,225.11	1,129.40	65.88	22.89	1,082.25	178.62
Peaches	35.58	12.95	2.58	2.34	31.65	30.13
Plums/Sloes	19.64	13.31	0.44	0.54	22.52	5.01
Strawberry	17.91	25.54	26.40	4.01	139.78	11.00
Pummelo			10.00	2.07	49.94	6.32
Dates	5.49	2.02	26.26	11.62	36.07	12.36
TOTAL	116,267.80	86,671.77	111,207.15	23,064.39	73,130.85	11,490.55

Table 6. Volume and Value of Vegetables Import Over Time

VEGETABLE	1996 Volume (MT)	1996 Value (Million USD)	1998 Volume (MT)	1998 Value (Million USD)	2000 Volume (MT)	2000 Value (Million USD)
White kidney beans	521	296				
Mongo beans	28,140	12,153	24,713	8,474	38,628	9,288
Red beans	3,415	1,379	1,500	691		
Pink beans	1	1		4	1	0
White beans	3	3	2	2		
Cabbage	2	3	5	4	151	44
Carrots	7	8	6	5	57	21
Cauliflower/Brococoli	123	69	154	102	6,726	704
Celery	21	23	22	21	17	7
Lettuce	139	210	302	179	691	258
Spinach	6	6	4	4	1	1
Witloof Chicory	15	6	4	2	6	2
Green peas	58	18	83	17	92	11
Green peas	12,966	3,663	16,325	4,365		
Leeks	9	8	4	3	10	7
Brussel Sprouts	3	1	1	1	5	2
Cabbage Lettuce	7	9	28	17	151	44
Chick peas	844	664	376	238	658	354
Truffles						
Radishes	20	27	11	11	3	2
Asparagus			6	4	4	3
Globe artichokes	7	3	12	5		
Tomatoes	1	1	0	0	91	29
Garlic, dried	2,283	2	1	1	5,114	892
Garlic, fresh	1,651	1	13,855	3	1,119	1,186
Onions	1,374	145	11,408	1,875	6,291	1,114
TOTAL	51,616	18,698	68,823	16,029	59,815	13,968

EXPERIENCES IN PROMOTING COMPETITIVENESS

The Philippines has been promoting exports of mangoes (fresh, dried, juice), Cavendish banana (fresh), and pineapples (fresh and canned) because of the country's inherent comparative advantage in these fruits. Indeed the country has been quite successful in its promotion efforts although there was years when considerable declines in volume and value of exports were experienced. This was mainly due to bad weather conditions that affected production as well as the decline in the prices of agricultural commodities in the world market (Deomampo, 2002).

Government-led (Department of Trade and Industry and Department of Agriculture) promotion activities and strategies included:

1. Export potential diagnosis through monitoring of supply and demand in other exporting countries;
2. Dissemination of market research findings, market information and information regarding the implications for business of WTO agreements;
3. Holding of trade promotion activities such as trade fairs, missions, and in-store promotions;
4. Organization of business roundtable discussions at the regional, national and international levels;
5. Provision of direct assistance to trade associations and/or selected exporters on developing marketing strategies and business plan;

6. Publication of handbooks, trading guides, market surveys and technical papers covering major aspects of world trade in selected product sectors;
7. Capacity building in market development through:
   - Tailor-made, sector specific training programs for government officials and private enterprise managers;
   - Specialized in-service training for traders and exporters.
8. Improving international trade and business advocacy; and
9. Corporate networking through internet-based business matching and exchange of information on best export practices.

The Bukidnon Lettuce Cluster (BCL) is another case worth emulating for it proved that through dedicated collaborative efforts, nothing is insurmountable. Uy (2003) reported how the BCL, a group of five growers, adopted a common marketing plan for lettuce. Located in four municipalities in Bukidnon, Northern Mindanao, all the five growers are members of the Northern Mindanao Vegetable Producers Association, Inc.

The cluster was formed in answer to the need to fulfill the quantity and quality requirements for lettuce of an institutional buyer in Manila after a very enterprising and innovative grower finally had a good supply contract with him. The lone supplier found it hard to satisfy the agreed upon volume and quality because she was also going through the learning process in post harvest handling. Furthermore, the very long distance from the production site to the Manila markets resulted in higher rate of deterioration on the marketable lettuce because they had to be transported by air without refrigeration.

Through a series of learning experiences and by working hand in hand with the institutional buyers, the initial supplier and eventually the group progressed and were able to deliver larger volumes of better quality lettuce. To address the problem of large losses during transit, the group was able to consolidate a weekly volume of 3.5 tons lettuce to fill up one 20-footer refrigerated van for sea transport to Manila. They were also able to avail of plastic leasing service and tried for themselves plastic crate packing for vegetables. The group realized that refrigeration of already cleaned and/or trimmed vegetables placed neatly in sturdy, ventilated plastic crates directly addressed mechanical damage, temperature and humidity-related problems encountered before during transit. They also brought the value added service of delivery direct to the buyer's cold storage to maintain the cold chain. There was not much difference in terms of cost with the new packing and transport facilities, however, benefits were obtained through the reduction in rejects caused by damage or spoilage.

For proper management of the cluster, cluster mapping was done to identify the key players and stakeholders and to analyze roles and responsibilities and external expertise needed. A supply chain was also constructed which facilitated cost and returns analysis and helped identify opportunities to improve efficiency with collaboration. Aside from lettuce cluster, clusters for five new products were formed, namely: sweet corn, bell pepper, salad tomato, broccoli, and carrots. The experience of the lettuce cluster was used as benchmark for the other clusters.

By March 2004, the group is able to supply a weekly volume of 9,500-10,000 kgs of lettuce to Manila and other market outlets. This volume was allocated at varying volumes to each and every member. Figure 1 shows the Bukidnon Lettuce Cluster Map.

If previously the farmers were being paid P25 for a kilogram of lettuce, the formation of the cluster enabled them to receive a net income of P27.77/kg. The value chain analysis in Figure 2 shows that due to the improvement in quality and because they are selling directly to the buyers, the farmers had a gross income of P60/kg of lettuce.

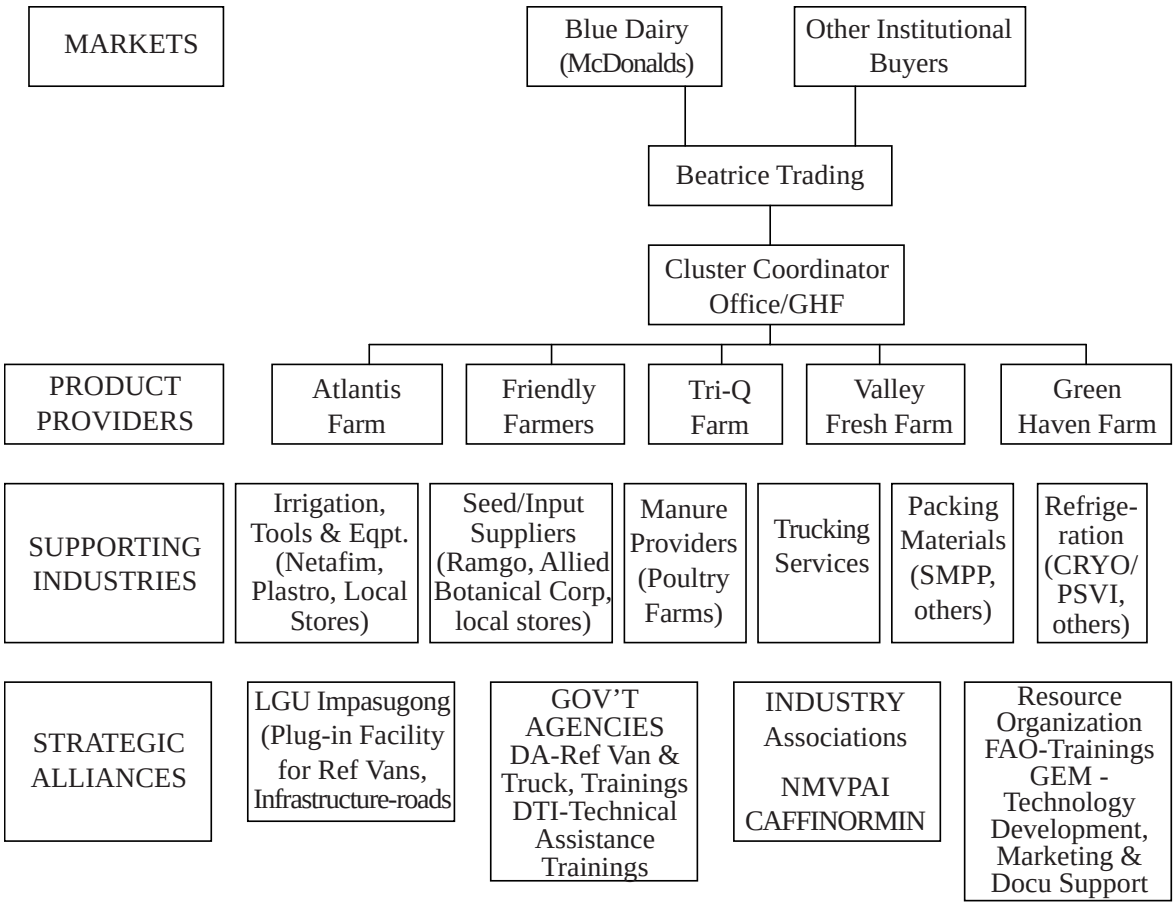

Figure 1. The Bukidnon Lettuce Cluster Map

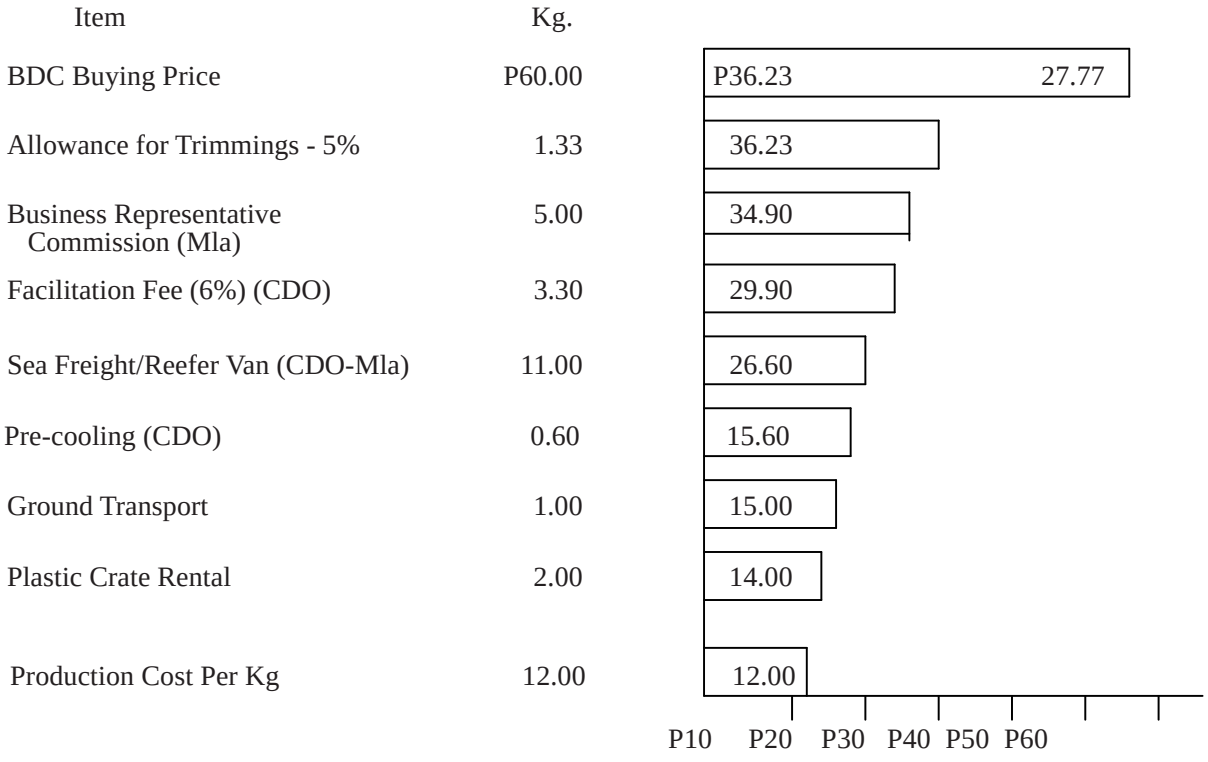

Figure 2. Lettuce Value Chain Analysis (Uy, 2003)

Of considerable importance at this point are the following key factors that contributed to the success of the cluster (Uy, 2003):

1. Growers' commitment to work together and make cluster succeed
2. Integration of an entire agribusiness value chain as indicated below:

   Input/service Supply Infra Credit → Primary Production → Post harvest → Marketing
3. Extensive market information (product requirement, preferences, business environment
4. Good business partnership (market, business representative, supporting industries)
5. Presence of strategic alliances (government and resource organization)
6. Reliable business representative
7. Professional cluster management with cost sharing among growers (facilitation fees)
8. Vision for growth in the industry

PROBLEMS ENCOUNTERED

1. No stable market and unstable prices for the produce: This is particularly true in the domestic market. Sometimes when production is so large then the price is so low, products are left unharvested and allowed to rot in the field simply because the farmers wanted to minimize their losses by avoiding labor cost for harvesting.
2. Lack of technologies for wide-scale production and processing: Small-scale pili nut processing for example, in Bicol has flourished in the Bicol region but commercialization has not taken off because of the lack of complementary technologies for large-scale ventures (Roperos, 2000).
3. Inadequate knowledge on post harvest handling and packaging: The BCL experienced higher percentage of lettuce deterioration due to high transit temperature, wilting due to insufficient relative humidity and mechanical injury due to packing tightly in boxes considering that airfreight was based on volume rather than on actual weights for light, bulky types of products (Uy, 2003).
4. Inadequate post harvest and processing facilities: Due to the perishable and seasonal nature of agricultural commodities, cold storage facilities are very much needed. In the Philippines, there is a bias in the distribution of cold storage against the production areas as almost 63 percent of cold storage facilities are located at the National Capital Region and very little nearer the production areas. There is also a glaring need for a cold chain because of the relatively high temperature in the country.
5. Inadequate transportation facilities: Inadequate transportation facilities tend to nullify the gains from increased production. The road network of the country especially in the countryside is far from being ideal. Around 40 percent of the national road is still gravel and concreted roads comprised about 36 percent. Furthermore, most of these roads are not capable of bearing the wear and tear imposed by an increasing number of vehicles due to low quality and substandard construction and inadequate maintenance. The roll-on-roll off vessel, which, was launched and made operational in 2003, is yet to gain wide acceptance from the traders because of the difficulty of finding back hauls that will help reduce the cost of transportation.
6. Lack of access to market information: This causes the farmers to rely on the prices set by the buyers, which are oftentimes very low. In the case of vegetable farmers in Laguna and Quezon, 98 percent of them reported that it was the buyers who determine the price of their produce and about 92 percent claimed that the buyers were their source of price information. Lack of market information also causes problems when e-trading is to be resorted to because there is breakdown in information on where to source the much-needed products to be e-traded.
7. Inadequate communication facilities: The physical telecommunication structure in the country is still widely concentrated in the urban centers with the national Capital Region, where Manila belongs capturing about 29 percent. However, the increasing number of mobile phone owners in the country for short messaging service is a welcome development.

8. Inadequate capital and credit facilities: For a farmer to be internationally competitive, the per unit cost of production must be at its lowest and this could only be achieved if the economies of scale can be reached. However, in most cases, attaining economies of scale requires a lot of capital and an average farmer does not have adequate capital.

9. Difficulty in complying with international standards: There are difficulties in complying with international standards set forth for agricultural exports specifically those set by Codex Alimentarius, Sanitary and Phytosanitary Standards (SPS), the International Organization of Standards (ISO), Hazard Analysis of Critical Control Points (HACCP) and Good Manufacturing Practices (GMP). Technical standards such as dimensional measurements, packaging, etc., can also hinder trade because of the varying concept of standardization from one country to another (Romualdo, 2002).

MEASURES/OPTIONS TO IMPROVE COMPETITIVENESS

1. There must be a well-equipped trading center whereby the flow of goods can be monitored and controlled based on the prevailing market prices. This trading center will serve as a clearinghouse where quality can be monitored also and the grading and standardization system can be implemented uniformly. The overuse of pesticides and other chemicals is widely noted in major vegetable producing areas (e.g. Benguet, La Trinidad).

2. There is a need to improve the quality and safety standards of agricultural products and this is true for both fresh and processed ones. In the Philippines, many of the agricultural products do not meet the requirements of the international market due to the failure of the farmers to follow good agricultural practices (Deomampo, 2002). This is particularly useful for agro based industries or value addition because supply of raw materials is assured.

3. Promote strategic alliances between big businesses and small business within the country to ensure continued supply of quality products at the same time taking into account the product and quality requirements of foreign countries as target markets.

4. Passing of right and adequate national policies to foster industry growth and development. Provision of safety nets for the farmers who are still in their initial take-off stages is an urgent need.

5. Strict monitoring and implementation of legislations already in place to support agriculture (Agriculture and Fisheries Modernization Act, Anti-Dumping, etc.) (Romualdo, 2002).

6. Increase investments in rural infrastructure and prioritize strategic public investments focusing on facilities that would promote efficient and less costly handling of agricultural produce.

7. There should be strong support for farmers' groups/associations. This may come in the form of bank procedures simplification, information on funding availability, new technologies to improve efficiency, assistance on the linkage requirements with other related businesses as well as on capability building (Delos Reyes and Genete, 2003).

8. A public cold chain association should be established in the context of the experience of Bukidnon Lettuce Cluster (Delos Reyes and Genete, 2003) as this will address the problem of high capital requirement.

9. The ins and outs of supply chain management for a product must be carefully studied first specifically if it is to be e-traded. Downstream and upstream services and activities must be well coordinated so that there is complete cycle of successful trading (Delos Reyes and Genete, 2003). The rigors of adequate and proper post harvest handling procedures must be taken into consideration also.

10. To address the lack of market information, the Market Information Network in the country must be revitalized and this cannot be done unless funding support from the government is made available at the right time.

11. Information dissemination and holding of seminars and trainings related to international standards compliance must be given priority. Retooling of people who are directly connected with standards and quarantine maintenance procedures must be done with emphasis on country-specific requirements.

12. Good agricultural practices must be promoted among farmers through the assistance of agricultural extension workers. In this case, retooling of agricultural extension workers is also called for.

CONCLUSION

While the presented cases are only two, it is still clear that to compete in the international market for agricultural products, the joint efforts of the government and the private sector, is a necessity. The private sector needs the assistance of the government specifically in providing the right environment for promoting competitiveness. Policy reforms and provision of the much- needed infrastructure are to be expected from good governance. Efficient management and application of good agricultural practices on the other hand, are good enough reasons for the active participation of the private sector in the promotion of international competitiveness. Collaboration is the name of the game not only between the private sector and the government but also among the key players within the private sector itself and among the different government agencies. "Two heads are better than one," as the saying goes.

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9. SRI LANKA

C.A.K. Dissanayake
Research and Development Centre
Institute of Post Harvest Technology
Anuradhapura

T. Ravichandran
Hector kobbekaduwa Agrarian Research and Training Institute, Colombo

INTRODUCTION

The island of Sri Lanka is located in Indian Ocean and few kilometers down wards to South India. It is a tropical country with highly favorable conditions for cultivation of crops. At the time of independence, Sri Lanka was heavily dependent on Agriculture sector in terms of output and employment. However as time went on, it's importance declined compared to service and industrial sector. The importance of Agriculture sector for employment and export earning has substantially declined. At present its contribution is nearly 20 percent to Gross Domestic Product. However a considerable portion of the population still directly or indirectly depends on agriculture sector for livelihood.

The Sri Lankan agriculture sector is divided into two main sectors such as plantation and non-plantation sector. The plantation sector mainly comprises of three-export crops; tea, rubber and coconut. The non plantation sector which consist of paddy, other field crops, vegetables, fruits and livestock sub sectors and provides livelihood for a significant proportion of the population in the country who mainly reside in the rural areas.

Within the domestic food sector or non-plantation agriculture sector, the paddy cultivation plays an important role, as rice is the stable food for the nation. Next to paddy sector, the vegetable sub sector is the most prominent in the agriculture sector, as vegetables are grown through out the country and large number of farmers are involved in vegetable cultivation. Main vegetables grown in Sri Lanka are classified into two main categories such as upcountry vegetables and low country vegetables. The upcountry vegetables are leeks, beans, cabbage, beetroot, carrot, etc., which are mainly cultivated in hilly areas located in the central part of the country. The low country vegetables are brinjals, ladies finger, bitter gourd, snake gourd, long beans, leafy vegetables, luffa, drumstick, capsicum, etc., which are mostly cultivated in low lands, paddy fields and chenas of low country areas. Entire local demand for the vegetables is met through local production. Only negligible share of vegetables has been imported to meet the special demand of tourist hotels.

When considering the fruit sector, the commercial cultivation is reported only for few numbers of fruits such as banana, pineapple, papaw, passion fruit and rambuttan. Other fruit varieties such as mango, wood apple, guava, pomegranate, avocado, etc. are supplied mainly from home gardens. Moreover, a considerable proportion of supply of banana, papaw, passion fruit and rambuttan is coming from home gardens as well. The demand for local fruits such as banana, mango, pineapple, papaw, etc. is met mainly through local production. Only negligible quantity of these fruits has been imported to meet specific requirements of tourist hotels. However the local demands for certain fruits such as apples, oranges, grapes and dates are met through imports. During 2003, Sri Lanka imported more than 52, 600 metric tons of fresh and dried fruits valued at Rs.1.8 billion and out of total value of imports, apples accounted for 43 percent (Annual report of Central Bank Sri Lanka, 2003).

VEGETABLE PRODUCTION

According to statistics, the overall vegetable production was 552, 000 metric tons in 2003. Almost all the production is consumed domestically; only one percent of that total production of vegetables is being exported (Central Bank Report, 2003). Table 1 reveals that production of main upcountry vegetables has increased during last ten years. Table 2 discloses unsatisfactory trends in production of main low country vegetables. The production of main low country vegetables has either declined or stagnated during last ten years.

Table 1. Production of Up Country Vegetables in Sri Lanka Over Time

(Mt)

Year	Cabbage	Tomato	Beans	Carrot	Reddish	Leeks
1994	34781	31746	26158	23415	19929	15590
1995	34836	31986	27595	24668	18551	13941
1996	40114	42415	28931	24374	19830	15227
1997	37513	32442	30148	25109	21606	18730
1998	47385	36435	28687	25137	22139	17568
1999	52436	39579	31524	26668	24843	19827
2000	53419	43976	34646	25942	26039	21969
2001	53935	40378	30891	28424	25327	24189
2002	49339	41238	32648	28160	22426	23152
2003	50000	44974	31687	27210	20079	22420
Average	45598	38517	30292	25911	22077	19261

Source: Dept. of Census and Statistics

Table 2: Production of Low Country Vegetables Over Time

(Mt)

Year	Ash Plantain	Brinjal	Pumpkin	Ladies Fingers	Bitter Gourd	Cucumber	Snake Gourd
1994	39982	62601	58247	37653	20683	17838	20828
1995	75224	65158	64443	38716	22093	18955	20836
1996	75478	67653	60964	37020	20310	18002	19293
1997	72504	66795	60487	36735	19583	18247	19017
1998	78985	68853	54301	38480	20556	19081	18197
1999	79067	74443	56296	39727	20547	19415	18197
2000	84221	76522	62309	40723	20796	20127	18100
2001	71434	67409	58529	35905	18322	18451	19121
2002	68317	70634	59578	37665	20878	20994	17376
2003	72937	74469	63830	36786	20119	23389	19388
Average	71815	69454	59898	37941	20389	19450	19034

Source: Census and Statistic Department

FRUIT PRODUCTION

The growth of production of main fruit varieties remains unimpressive. According to the available statistics, the production of main fruit varieties has shown either decline or stagnation with fluctuation.

Table 3: Production of Fruits Over Time

Year	Mango (000'nos)	Pineapple (000'nos)	Papaw (000'nos)	Orange (000'nos)	Passion Fruit (000'nos)	Banana (000'bunches)
1994	540119	33274	37443	27529	13769	42453
1995	540478	40656	36233	27443	14090	38636
1996	489683	41063	33120	27147	9018	34397
1997	427946	39578	31517	24293	7534	33735
1998	472683	36825	27367	25095	5771	32072
1999	431214	32626	26874	23998	6202	33106
2000	431047	34603	24317	26620	10260	33617
2001	458987	42594	22632	26644	7072	30575
2002	487228	42432	26310	28083	13400	31719
2003	500577	40712	29641	25274	5332	32997
Average	477996	38437	29545	26213	9245	34331

Source: Census and Statistic Department

MARKETING OF VEGETABLES AND FRUITS

The agricultural marketing is not confined to merely buying and selling activities. The agricultural marketing is a complex process with series of services and functions involved in moving a product or commodity from the producer to the consumer. In the process of movement of product from point of its production to final consumption various marketing functions are involved.

Both the annual average wholesale and retail prices have increased continuously through out the last twenty-five years. Moreover high fluctuation of monthly average wholesale and retail prices is observed during a year. This is mainly because of the high supply variation between off and peak harvesting seasons of the vegetables and fruits (Figure 1).

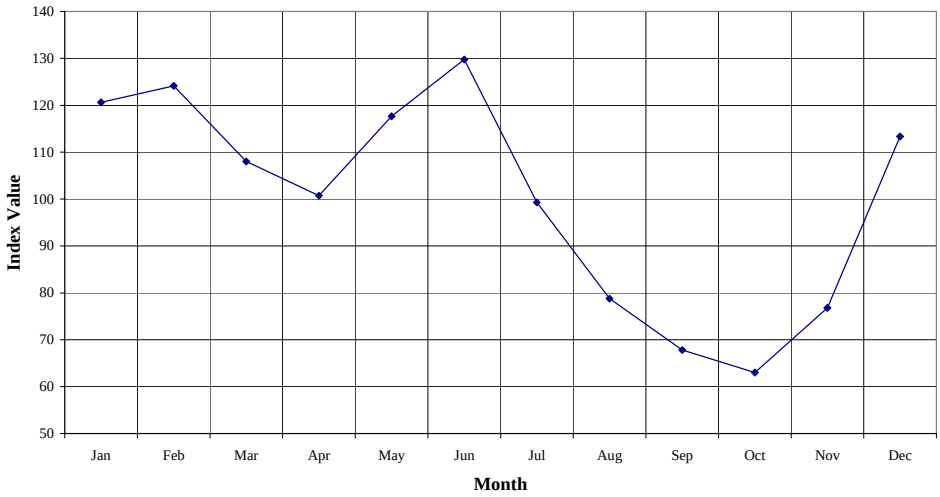

Figure 1: Seasonal Price Fluctuation in Carrots

As already noted, only small amount of vegetables was exported. The quantity and value of the vegetables exported remained negligible as compared to other main agricultural commodities. Export of vegetables and fruits remained at low level (Table 4). Moreover both the export quantity and value of vegetables and fruits fluctuated. Gherkin has contributed as the main part of the total vegetable exports (Table 5). The pineapple was prominent among fresh fruit exports. Export of other fruits such as banana, and mango remained negligible (Table 6). The fruit juice exports also remained at low level (Table 7).

Table 4: Volume and Value of Exports of Vegetables and Fruits Over Time

Year	Vegetables		Fruits	
	Value in Million Rs.	Volume ('000 Kg)	Value in Million Rs.	Volume ('000 Kg)
1994	616	16,299	127	5774
1997	276	6,869	213	9886
2000	617	10,675	339	5709
2003	679	9,437	605	7706

Source: Sri Lanka Custom

Table 5: Exports of Selected Vegetables Over Time

Year	Cucumber		Gherkin (preserved in Vinegar/Acetic acid)		Gherkin (preserved in Brines)	
	Qty (Kg)	Value (Rs)	Qty (Kg)	Value (Rs)	Qty (Kg)	Value (Rs)
1998	346	17755	781480	67050607	5068717	20544077
1999	2045	40563	432725	61874926	2356897	86929628
2000	560	85659	527246	57344888	2046155	121286098
2001	6815	738034	1937237	231858596	1481603	55481145
2002	1390	91568	2296151	219520115	2613553	99558494
2003	2151	308338	3361085	297034020	1646883	66936446

Source: Sri Lanka Customs

Table 6. Exports of Selected Fruits Over Time

Year	Banana		Pineapple		Mango	
	Qty (Kg)	Value (Rs)	Qty (Kg)	Value (Rs)	Qty (Kg)	Value (Rs)
1998	2482	120239	1780796	61733330	17526	512094
1999	1250	231963	2108627	85542421	3658	1136324
2000	2756	677365	2400247	107843172	21022	4610491
2001	35933	2168720	2314412	165184710	38562	8822048
2002	7164	1001794	2574538	156484656	14477	3214272
2003	6088	1747299	2521587	131653816	4115	1245599

Source: Sri Lanka Customs

Table 7. Exports of Selected Fruits Juice Over Time

Year	Pineapple		Passion Fruit		Mixture of Juice	
	Qty (Kg)	Value (Rs)	Qty (Kg)	Value (Rs)	Qty (Kg)	Value (Rs)
1998	6343	641565	60024	7279249	101607	3770981
1999	18745	1728768	81866	11003111	36155	4242693
2000	43228	6078481	81229	11082441	16428	1813618
2001	111617	13321830	55215	8038220	23181	3760845
2002	22656	2477845	88192	14099833	50133	14230978
2003	9525	1210863	57293	10077283	121172	64343043

Source: Sri Lanka Customs

Many factors mainly the marketed product, its quality, quantity and the people involved, etc. affect the marketing system. Pre-harvest practices and especially post-production practices have a major effect on the quality as well as the quantity of these fresh products marketed each day. For example the postharvest quantitative loss of fruits and vegetables amounts to about 30 - 40%. The value of the total loss in these crops has been estimated to be approximately Rs.13 billion annually. Apart from this quantitative loss, the quality decreases due to the use of improper techniques in postharvest activities. Minimizing these losses by introducing and using improved technologies would not only lead to a substantial increase in the income at the point of marketing of the farming population, but also in the gross national product of Sri Lanka.

In Sri Lanka, new opportunities have been created for sale of agricultural commodities in the open market at competitive prices under the liberalized marketing policies presently existing in the country. Therefore, many imported products are available in the local and export markets and the similar locally produced products have to compete with them in term of quality and the price. This situation has resulted in growing awareness and increasing demand for better quality among consumers as well as the producers or growers.

MARKETING CHAIN OF FRUITS AND VEGETABLES IN SRI LANKA

When considering the marketing channel of fruits and vegetables, a change is observed during recent period. Twenty years ago, fruits and vegetables from all over the country were mainly supplied to Colombo wholesale market (Colombo manning market) and they were distributed through out the country from this wholesale market. Therefore the Colombo wholesale market played an important role in vegetable marketing. However this situation has changed with the development of regional wholesale markets. At present, the importance of regional wholesale markets is growing in fruit and vegetable marketing and a considerable portion of fruits and vegetables is brought to regional wholesale markets and from where the vegetables are directly supplied to consuming areas.

At present, many people are involved in the marketing chain of fruits and vegetables. These fruits and vegetables are marketed as fresh and processed products. The fresh fruits and vegetables produced at farm level are brought into the market through a chain of activities. Therefore, this chain of events involves

many people and they can be categorized in to different categories according to the activities they are involved with. The categories are shown below.

1. Grower
2. Collector
3. Transporter
4. Wholesaler
5. Retailer
6. Exporter
7. Consumer

1. Grower

Most of the time, the grower harvests the produce at the farm by himself. He some times sells his produce to the collector who comes to his farm or he transports the produce to the collector's place. Farmer some times takes his harvest straight to the wholesale market or to the retail shops. He might even sell his produce to the consumer directly at the farm or in small stalls placed near the farm, his house or at roadsides. He some times takes his produce to small fairs in the village and in towns where the consumers buy the produce. In these cases the farmer acts as the collector, transporter and the retailer.

2. Collector

Collector is the one who collects the fresh produce from the grower. He either goes to the farm himself to collect the produce or the farmer brings it to him. In some instances especially of fruits like mango, the collector might do the harvesting himself and not the grower. The usual procedure in this case is that collector offers a price for the whole tree. In case of vegetables, the farmer harvests the crop and brings it to the collecting place of the collector. This collected produce will then be transported to the wholesale market. Even the collector might do this. Or the collector gives what is collected to the transporter. Usually the collector does both these jobs by using a hired vehicle.

3. Transporter

This can be any body; the grower, collector, wholesaler, retailer or a separate person who hires vehicles for such transportation and earns an income out of it. The transporter takes the fruits and vegetables to the wholesale market or the retail market. For this purpose, he uses lorries, trucks, tractors, bicycles, buses and vans, etc.

4. Wholesaler

Wholesaler is a person involved in selling large quantities of commodities. The collector or the transporter brings the fruits and vegetables to the wholesale market. From this point the distribution of commodities takes place. The fruits and vegetables brought in will be bought by retailers, or people who take them to a different wholesale markets. The wholesaler will only provide a place to the seller and the buyer to discuss the prices. The wholesaler will earn a commission out of the sales.

5. Retailer

Fruits and vegetables can be drawn from various stages of this marketing chain to the retailer. It can be directly from the farm, from a collector or from the wholesale market. The retailer can be any one; a farmer, collector or a shop owner, etc. This retail market is present in different forms. It can be as a separate retail outlet, a shop or a gathering of retailers. This gathering of retailers can be observed in a fair or "Pola" which is held periodically in once per week, etc. At the retail point the produce is sorted manually and displayed to the consumers.

6. Exporter

To assure continuous supply and quality, the export market prefers to operate in a separate chain with identified growers. A separate collector collects the produce and transports to the required place for preparation before exporting. In some instances the exporter comes to the farm and collects what is required. The grower stands a better chance in receiving a high price than in the local market.

7. Consumer

All the fruits and vegetables harvested has a common end point; the consumer. This consumer can be a processor, who manufactures processed fruits and vegetables, which again at the end comes to the consumer level. The consumer looks for high quality produce or products for an affordable price. Recently concern for the quality of fruits and vegetables increased than in the past. This trend created a need to apply new technologies in the marketing system to supply better quality products.

Few big companies are dominating the processing industry in Sri Lanka. They have their own farms to obtain the fresh produce they need. They also involve themselves in the marketing chain, buying directly from the farmer, collector or at the point of wholesaler. Then the fresh produce is transported to the processing plant and at the end, the processed product is distributed to the retailers.

Therefore, the fruits and vegetables produced on farmlands are sold or marketed at different stages i.e. at the farm, at the point of collector, wholesaler, retailer and at the exporter level.

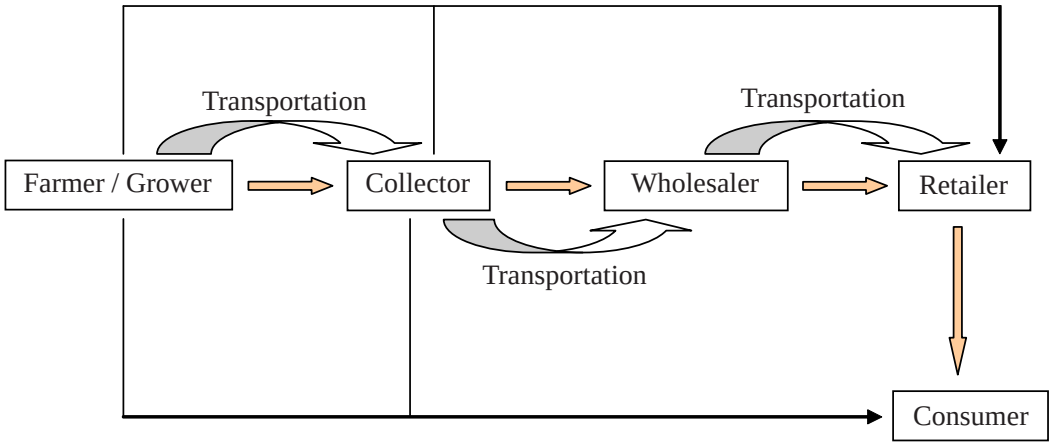

Figure 2. Marketing Chain of Fresh Fruits and Vegetables

In Sri Lanka, vegetables and fruits are highly seasonal. Therefore, the price, supply and demand normally fluctuates throughout the year. Apart from that all the people involved above have an effect on the quality, price and demand of fruits and vegetables. They participate in order to obtain a better market value because even if they harvest a very high quality produce, after harvesting, the quality and the quantity of these fresh products decrease every day due to poor postharvest practices and inadequate packaging. This requires sorting and removal of spoiled and badly damaged fruits and vegetables. This widens the price gap between the grower and the consumer.

CONSTRAINTS AND MEASURES TAKEN AND TO BE TAKEN FOR DEVELOPMENT OF MARKETING SYSTEMS IN SRI LANKA

Sri Lanka being a poor and developing country, is facing many problems in the agriculture system, especially in marketing of the agricultural produce. The majority of farmers in Sri Lanka are poor and ignorant. The high tech practices are less available to the farmers or cannot afford. Therefore, they are still using improper techniques in cultivation as well as in postharvest practices, which leads to a low profit and a low market value for their produce. Therefore, there is need to overcome the prevailing constraints/difficulties. Some of the problems faced are discussed below. Some measures taken and should be taken to over come these problems are also discussed with them.

1. Varieties and Cultivars

Much research has been done and is continuously being done on finding suitable varieties to grow. Here, the yield, pest resistance, consumer acceptance, and many other favorable characters are considered. The problem with the varieties is that some cannot compete in terms of qualities required in the export market. Many hybrid varieties with superior qualities are present in the market today, for example, Red Lady papaw varieties, “Thilina” tomato variety and “Delhi hot” chili variety. These have favorable characters, for example, traditional papaw varieties have comparatively small fruits, which weigh for about 500g - 01kg. And its soft peel makes it more susceptible for mechanical damage. The hybrid variety called “Red Lady” has much bigger fruits than the traditional varieties. One fruit can weigh up to about 3kg. And the peel is harder and less susceptible for mechanical damage. The appearance of these Red Lady fruits is highly appealing to the consumer. But some times the consumers complain that the fruit is too big for their small families. But the major problem related to such hybrid varieties is the high price of the planting material (e.g. 01kg seeds of red lady is over Rs. 1000 / US $ 10).

Therefore, continuous research is going on in Sri Lankan research institutions to develop varieties with suitable qualities and which are affordable. “Rathna” papaw variety, MI2 Chili variety are such developed varieties.

2. Seasonality of Crops

Most fruits and vegetables are seasonal and prices fluctuate drastically. There is an on season and an off-season. In the on season where production is high the price reduces markedly and in the off-season, the price goes up. This becomes a problem especially in the export market, where a continuous supply is needed. Therefore, some means to give a continuous supply should be established. For example, high tech cultivation practices capable of giving a continuous production should be developed, or else storage of fruits and vegetables should be done until the next harvest comes. A low cost cooling chamber for storing vegetables has been developed by the Institute of Post Harvest Technology. The lime storage technique also has been developed by the same institute and by the Industrial Technology Institute in Sri Lanka.

3. Land Availability for Cultivation of Crops

Sri Lanka is a small island with limited land availability. Every day arable lands are being used for residential purposes. Therefore, the production reduces and the prices increase. Therefore, suitable techniques for efficient land use should be developed. For example, use of hydroponics and Polly tunnels are being introduced to overcome this problem. Then by practicing drip irrigation like techniques, the lands with less supply of water can be cultivated.

4. High Cost of Production

High cost of planting materials, labor and of high tech practices has increased the cost of production drastically. This is accompanied by low productivity of the available land. By increasing the productivity, cost of production per unit can be decreased. Further excessive use of chemicals in cultivation is a common practice in Sri Lanka. This has increased the cost of production and thereby the price of the commodity. But, growing awareness and demand for organic fruits and vegetables are present in the market today. This gives a better price and income to the farmer and healthy produce to the consumer.

5. Postharvest Losses

The major constraint in fruit and vegetable sector in Sri Lanka is postharvest losses. These losses in case of fruits and vegetables account for 30 - 40% of the production, which is around Rs.13 billions annually. In minimizing this loss all the people involved in the market chain should participate. Proper postharvest techniques should be introduced and be adopted by the relevant persons. These techniques can be used at any level from the point of harvesting up to consumption. Some of the measures to be taken are listed below.

a) Harvesting

Harvesting should be done at correct maturity stage and using proper harvesting equipments. It should be done in mornings or evenings. In case of mangoes, the fruits should be harvested in between 10 am and 3 pm to reduce the latex secretion. Harvesting at correct maturity gives better marketing value and minimizes the postharvest loss. Studies on correct maturities are ongoing and for some crops they are completed. Harvesting equipments are also designed and are available at a low price.

b) Sorting and grading

This too has to be done after harvesting. This can be done according to the size, variety, color, maturity, presence of pests and diseases, etc. This will minimize the physical damages and spread of pest and diseases, eventually giving a high profit and market value. This will facilitate the marketing process. In Sri Lanka sorting and grading of fruits to some extent is being practiced but very less in vegetables except at super market level. The normal sorting is done manually which is time consuming. Sorting and grading is not done effectively due to unavailability of proper sorting and grading devices or grading houses and lack of knowledge and less interest. Research on development of grading mechanisms is being conducted at the moment in the Institute of Post Harvest Technology.

c) Pre treatments and prevention of postharvest diseases

Latex secretion is causing many problems in the fruit industry in Sri Lanka, reducing the quality. Therefore, pretreatments and washing should be done after harvesting but is not practiced. Institute of Post Harvest Technology has developed pretreatments to minimize the stem end rot in mango which is a major problem in Sri Lanka when marketing fresh mango.

d) Packaging system and transportation

One of the major constraint in fruit and vegetable marketing system in Sri Lanka is use of improper packaging materials in transporting. At present Polly sack bags, wooden and cardboard boxes are used. These cause considerable damage due to over stacking, excessive packing into one bag, and less rigidity of the packaging material. Therefore, the quality of such transported fruits and vegetables is poor leading to low price.

According to the recent studies, plastic crates have proven to be the most suitable out of the available packaging materials in Sri Lanka. According to the studies, the postharvest loss can be minimized up to about 5%, which is around 25% in transportation. But, still the use of plastic crates is very less. This is mainly due to lack of knowledge and high price of plastic crates. Even when fruits and vegetables are transported by crates, the price received for these and for the ones transported in Polly sack bags has no considerable difference. Therefore, people are not willing to use these crates. At present mostly super markets and the export markets are offering higher prices when using plastic crates. To overcome this problem, the Institute of Post Harvest Technology of Sri Lanka established a "fresh chain" from Keppetipola, which is an area of high fruit and vegetable production to Manning Market, which is the main wholesale market in Sri Lanka. Here, farmers, collectors, transporters and wholesalers all participate in this fresh chain. The institute gave one crate free for each crate a person buys. This concept was fruitful in popularizing the use of crates. The price increased markedly when transported in plastic crates.

6. Wholesale and Retail Markets

The infrastructure facilities present in these markets, especially of wholesale markets are poor in Sri Lanka and what is found in these markets are of low quality. Heaps of wasted fruits and vegetables can be found near these markets. At the retailer point the highest loss can be found because the damages exert a cumulative effect. Proper infrastructure facilities should be ensured. The Sri Lankan government has already developed some of these wholesale markets with proper buildings and spacing, but still in some places this space is not enough. With the low quality of these commodities, the export market cannot be accessed. The cost of production is high in Sri Lanka due to excessive use of chemicals and postharvest losses. With seasonality of crops, continuous supply is also a problem. Information on the export market is not freely accessible. Therefore, such systems should be developed. In Sri Lanka, the Export Development Board is giving this information at present.

7. Competition with Imported Fruits

The Sri Lankan market is loaded with apples, oranges, grapes and other imported fruits, but not in the case of vegetables. These fruits are available at low prices, have high keeping quality and appealing to the consumer than the locally produced. For example, the local oranges cannot compete with the imported oranges, because the price is comparatively low. The imported grape varieties also dominated the local market with the civil war in Sri Lanka. But with the cease-fire pact, local grape varieties are now available in the market at competitive prices. Further subsidies were given by the government to increase the local production. Improvement of local varieties and reduction of production cost should be done to facilitate the competition with the foreign fruits.

8. Quality Control

The quality control is emerging as a critical condition in penetrating in to export markets. The acquisition of ISO, HACCP and other standards is expensive for local exporters of raw and processed fruits and vegetables. Besides, the agro-industrial firms do not have adequate awareness of importance of food hygiene standards and operate outside the framework of formal food hygiene control. This weakens the ability of these enterprises to penetrate industrialized markets where quality controls and food safety measures are strictly enforced.

9. Testing and Certification Services

Many countries strictly enforce health and quality standards on imported food items. Therefore the local exporters have to do various inspection, testing and certification of their export commodities. However, most of these services are not available within Sri Lanka. Therefore the exporters depend on more expensive foreign sources for these services. The present laboratories and testing facilities are inadequate for the increasingly important role required to maintain a high export and domestic standard. Lacks of trained staff for inspection, sampling, testing and inadequate investment in laboratories aggravate the difficulty of sampling

and testing products from various parts of the country. But still, the Sri Lanka Standards Institution, which is the government body dealing with quality standards and control aspects is struggling to provide as much support as it can.

10. Lack of Market Intelligence and Information System

The exporters need much information on local supply situation, prices, and price forecasting, international prices, international supply, demand characteristics. Moreover export market trends should be studied to facilitate timely and suitable decision making on market strategy. The market information service is mainly provided by Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI) in Sri Lanka. However this service is limited to provision of wholesale and retail prices of selected agricultural commodities of selected markets disseminated through electronic media. However these services should be effectively provided to improve the competitiveness of agricultural commodities in the export market.

11. The High Cost of Air Freight and Limited Space of Air Cargo

The exporters complain regarding high cost of airfreight and limited space of air cargo.

12. Processed Fruits and Vegetables

In Sri Lanka, fresh fruits and vegetables are freely available. Although there is a market for fruit based products like jam, cordial and other drinks, etc., vegetable based products such as dehydrated or minimally processed have very low market. As the sanitation and quality control aspects are costly, other than the prominent manufacturers, most manufacturers are unable to adopt and are ignorant (for example, ISO standards etc.). But in Sri Lanka, the Sri Lankan Standards Institute, which is a government institution, offers such quality regulations. In the local market, the market share is divided among few big companies and small-scale manufacturers cannot stand the competition. With the increase in the cost of equipment and machinery used in these processes, the price of the product also increases. Therefore, it is some times much easier to import rather than manufacture it locally. Further with high production cost and low quality, the access to the export market is limited.

In general Sri Lankan government is involved in overcoming these problems through various aspects. Most of the agriculture related research is being done by government institutions and the extension activities are also done by such institutions, for example, Department of Agriculture, Department of Agrarian Development, Institute of Post Harvest Technology, Hector Kobbekaduwa Agrarian Research and Training Institute, Industrial Technology Institute and many more. Continuous research, training and extension activities are carried out throughout the country every day. But still more trouble shooting research should be done, and the extension service should be provided efficiently. The banks in Sri Lanka have special loan schemes with low interest rates for adopting new technologies, and cultivation practices etc. Crop insurance schemes are also present to facilitate continuous production of fruits and vegetables. The private sector is also lending a supporting hand in developing these marketing strategies. With all these problems and assets, Sri Lanka is slowly moving towards better marketing systems and competitiveness in local and export market.

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1. LIST OF PARTICIPANTS, RESOURCE SPEAKERS AND SECRETARIAT

A. PARTICIPANTS

Country	*Name/Official Address*
Cambodia	Mr. Lim Saody Deputy Chief, Agricultural Marketing Office Department of Planning, Statistics and International Cooperation Ministry of Agriculture, Forestry and Fisheries No.200, Preah Norodom Blvd., Sangkat Tonle BasacKhan Chamkar Mon. Phnom Penh
India	Mr. Manish Kumar Choudhary Marketing Officer, Directorate of Marketing and Inspection Department of Agriculture and Cooperation Ministry of Agriculture Branch Head Office, New Secretariat Bldg. Civil Lines Nagpur 440 001
Islamic Republic of Iran	Mr. Jafar Rajabian Agriculture Manager, Shir & Dam Company Agriculture and Horticulture Organization Bonyard Mostazafan 9th Fl., Bonyad Bldg., Argantin Sq. Tehran
Republic of Korea	Dr. Dong Hwan Kim Associate Professor Department of Trade and Distribution Anyang University Anyang 5-dong, Manan-ku, Anyang City Gyeonggi-do
Lao People's Democratic Republic	Mr. Boun Oum Douangprachanh Head, Agriculture and Forestry Department Ministry of Agriculture and Forestry Vientiane
Pakistan	Dr. Khalid Mahmood Aujla Senior Scientific Officer, Social Sciences Division Pakistan Agricultural Research Council G-5/1, Plot No. 20, P.O. Box 1031 Islamabad
	Mr. M. Ilyas Anjum Senior Marketing Officer Department of Agricultural and Livestock Products Marketing and Grading 79-E, Al-Rehman Chamber, 1st Fl., Blue Area Islamabad
	Mr. Mahsheed Mohyuddin Marketing Executive Cosmic Holdings & Italian Agro-based Marketing Lahore Cantt Lahore

(Pakistan)	Mr. Mian Sabir Hussain Director, Agribusiness Pakistan Agricultural Research Council G-5/1, Plot No. 20, P.O. Box 1031 Islamabad
	Mr. Mohammed Riaz Malik Senior Scientific Officer, Social Sciences Division Pakistan Agricultural Research Council G-5/1, Plot No. 20, P.O. Box 1031 Islamabad
	Dr. Muhammad Aslam Commissioner Minor Crops M/o Food, Agriculture and Livestock B-Block Islamabad
	Mr. Muhammad Iqbal Assistant Research Officer Vegetable Research Institute Faisalabad
	Mr. Naveed Ayyub Secretary Jadeed Zarat Society, Pakistan Organic Former Foods 28-B, New Muslim Town Lahore
	Mr. Sikandar Shah Project Director Department of Agricultural and Livestock Products Marketing and Grading 79-E, Al-Rehman Chamber, 1st Fl., Blue Area Islamabad
Philippines	Ms. Julieta A. Delos Reyes University Researcher II Department of Agricultural Economics College of Economics and Management University of the Philippines Los Banos Laguna 4031
Sri Lanka	Mrs. C.A.K. Dissanayake Extension Officer Institute of Post Harvest Technology Research and Development Centre Jayanthi Mawatha Anuradhapura
	Mr. Thavendren Ravichandren Research Associate Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI) No.114, Wijerama Mawatha Colombo 07
Thailand	Mr. Vichai Poonpiriyasup Vice President Charoen Pokphand Seeds Co., Ltd. 36 Soi Yenchit, Chand Rd., Sathorn Bangkok 10120

B. RESOURCE SPEAKERS (alphabetical)

Dr. Mian Munir Ahmad
(EADA E&M)
Agriculture Marketing Wing, Punjab
Pakistan

Ms. Shahuren Ismail
Director
Best Practices Management Division
National Productivity Corporation
P.O. Box 64, Jalan Sultan
Petaling Jaya, Selangor 46904
Malaysia

Dr. Abdul Hayee Qureshi
Agricultural Economist
Senior Scientific Officer-WTO
Social Sciences Division
Pakistan Agricultural Research Council
P.O. Box 1031, Islamabad 44000
Pakistan

Dr. Saipin Maneepun
Director
Institute of Food Research and Product Development
Kasetsart University
50 Phaholyothin Rd., Chatujack
Bangkok 10903
Thailand

Dr.Usman Mustafa
PLA Consultant
WWF, Environmental Education Program
Islamabad
Pakistan

Mr. Chhime Tshering
Agricultural Marketing Services
Ministry of Agriculture
Thimphu
Bhutan

C. SECRETARIAT

PARC, Pakistan

Dr. Abdul Hayee Qureshi
Agricultural Economist
Senior Scientific Officer-WTO
Social Sciences Division
Pakistan Agricultural Research Council

Pakistan Agricultural Research Council
P.O. Box 1031, Islamabad 44000
Pakistan

NPO, Pakistan

Mr. Anwar-ul-Haque Anwer
Manager, APO Programs

National Productivity Organization
42 - A, Nazimuddin Road, Sector F-7/4
Islamabad, Pakistan

Tel. No. 92-51-9215981, 9215982, 9215983
Fax No. 92-51-9215985, 9215984
Email: npopakistan@yahoo.com

APO, Tokyo

Dr. Muhammad Saeed
Program Officer
Agriculture Department

Asian Productivity Organization
1-2-10 Hirakawacho, Chiyoda -ku
Tokyo 102 - 0093
Japan

Tel. No. 81 - 3-5226—3924
Fax No. 81 - 3- 5226 - 3954
Email: csakaguchi@apo-tokyo.org
URL: www.apo-tokyo.org

2. PROGRAM OF ACTIVITIES

(7-12, February 2005)

Date/Time	Topic/Activity
Sun., 6 February 2005	Arrival of participants in Islamabad
Mon., 7 Feb.	
Forenoon	Registration Inauguration Brief remarks about the program by APO
	Presentation and discussion of resource paper: *"Recent trends and future prospects of fruit and vegetable marketing in Asia and the Pacific—an overview"* by Mr. Chhime Tshering
Afternoon	Presentation and discussion of resource paper: *"Major lessons learned for enhancing the competitive edge of SMEs in international marketing of fruit and vegetables"* By Dr. Usman Mustafa
	Presentation and discussion of resource paper: "*Exploring new foreign markets for fruit and vegetables—best cases"* by Dr. Saipin Maneepun
Tues., 8 Feb.	
Forenoon	Presentation and discussion of resource paper: "*Challenges and possible options for small producers to cope with increasing market competition"* by Dr. Abdul Hayee Qureshi
	Presentation and discussion of resource papers: *"Agricultural marketing systems for fruits and vegetables in Pakistan*" by Dr. Mian Munir Ahmad
Afternoon	Presentation and discussion of resource paper: "*Productivity management tools for enhanced export competitiveness"* by Ms. Shahuren Ismail
	Presentation and discussion of country papers
Wed., 9 Feb.	Presentation and discussion of country papers
Thu., 10 Feb.	Field visits
Fri., 11 Feb.	Workshop
Sat., 12 Feb.	
Forenoon	Program Evaluation Discussion on adoption of seminar highlights Closing sessions
Afternoon	Free time
Sun., 13 Feb.	Participants' return to the respective countries