POLICY REFORM TO ENHANCE COMPETITIVENESS AND EXPORTS OF HORTICULTURE (KINNOW AND MANGO)

TRADE RELATED TECHNICAL ASSISTANCE PROGRAMME

THE TRTA II PROGRAMME IS FUNDED BY THE EUROPEAN UNION

PITAD IS THE FOCAL POINT FOR THE TRTA II PROGRAMME

THE PROGRAMME IS IMPLEMENTED BY UNIDO IN ASSOCIATION WITH ITC & WIPO

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Acknowledgments

This study was carried out as part of the Trade Policy Capacity Building Component, implemented by the International Trade Centre (ITC), of the European Union Trade Related Technical Assistance (TRTA II) Programme, which aims at strengthening the capacity of Pakistan to participate in international trade.

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Finally, we thank PITAD for their overall support as well as active involvement in the public private consultative process, which informed the findings of this study.

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List of Abbreviations

EDF	Export Development Fund
GAP	Good Agricultural Practices
HACCP	Hazard Analysis and Critical Control Point
HWT	Hot Water Treatment
IPPC	International Plant Protection Convention
ISO	International Organization for Standardization
ITC	International Trade Centre
MoC	Ministry of Commerce
MRL	Maximum Residual Limit
PARC	Pakistan Agriculture Research Council
PFVA	Pakistan Fruit, Vegetable Exporters, Importers & Merchants Association
PHDEC	Pakistan Horticulture Development and Export Company
PPD	Public Private Dialogue
PPQD	Plant Protection and Quarantine Department
TDAP	Trade Development Authority of Pakistan
TOR	Terms of Reference
TRTA II	Trade Related Technical Assistance
USD	United States Dollar
WeBOC	Web Based One Customs

Executive Summary

This research study has been carried out as part of Component 1 of the "Trade Related Technical Assistance II (TRTA II) Programme funded by the European Union, with the aim to strengthen Pakistan's capacity to participate in international trade.

This report presents the findings of research carried out to evaluate the competitiveness and export potential of the mango and kinnow segments of Pakistan's horticulture sector. All relevant aspects of the supply chain of the two fruits have been investigated. The findings of this investigation have been carefully analysed to assess the real potential of the mango and kinnow segments, and to identify the impediments in its progress, particularly with respect to export-related growth. A critical analysis of the current regulatory framework – dealing with horticulture exports in general, and the mango and kinnow segments in particular – has been carried out with the objective of identifying gaps, if any, and proposing practical modifications for the prevalent framework to encourage the growth of exports.

In line with the laid out objectives of the project, the research exercise is structured to identify major obstacles 'behind the border', 'at the border' and 'beyond the border'.

Serious gaps have been identified throughout the explored supply chains. All segments of the supply chain require careful intervention, including methods of farm management (which is found to be hugely dominated by the practice of leasing out orchards to independent farm contractors); finance and credit structure available to growers; harvesting practices; post-harvest fruit handling; transportation; packaging; wholesaling; grading; airport and seaport handling; and research,development and extension services. On the regulatory side, bold and drastic measures are required to strengthen the production base (by introducing innovative financing and crop insurance solutions), and to ensure the quality of the fruit exported from Pakistan.

In general, the practice of focusing narrowly on ethnic markets, carried out by most of the existing exporters, is a major obstruction to the progress and growth of horticultural exports. The reasons underlying this phenomenon and subsequent recommendations are presented in the report.

There is a need to revitalize the fruits processing and export segments of the value chain. The absence of well-known and successful business groups (from different sectors of the economy)

from the segment has been identified as a major reason for the below-par performance of the horticulture processing and exports, despite its huge commercial potential.

The findings of this research study will form the basis for carrying out the Public Private Dialogue (PPD), which will be overseen by the Public Private Dialogue Steering Committee. Recommendations received in the PPD sessions that get endorsed by stakeholders will be incorporated in the final report. ITC, the execution agency, will present the final set of proposals to relevant departments in Pakistan for implementation.

A synopsis of some of the major challenges identified during the course of this study, and relevant recommendations to overcome these challenges, are presented in the following chart:

Challenges	Recommendations
Poor quality of the fruits being exported	o Development of an integrated approach to fill all of the identified gaps in the supply chain in a single attempt. o Improvements in the existing infrastructure (airport and seaport handling, commercial warehousing, etc.). o Development of a quality inspection authority. o Training of farmers. o Development of a mango/kinnow research institution. o Hot water treatment to be made mandatory for exports. o Ban on the use of calcium carbide for the ripening of mangoes. o Ban on the use of wooden crates for exports.
Mediocre quality exporters	o Encouragement of successful business groups to invest in the mango/kinnow

	export segment. A strong business case to be made and presented to potential investors. o Arrangement of road shows to attract foreign investment into Pakistan's horticultural sector.
Lack of presence in high-end markets	o Setting trade targets for trade missions. o Outsourcing marketing campaigns. o Encouragement of successful business groups to invest in the mango and kinnow sectors.
Disproportionate power of middlemen	o Development of financing solutions to replace middleman credit. o Reformation of the agricultural credit regime. o Restructuring of crop insurance products. o Development of farmer's cooperatives.
Out-dated and faulty farming operations	o Introduction of a farmers training program. o Establishment of connectivity and linkages between farmers and exporters.
Non-availability of the seedless kinnow variety	o Stimulation of the commercial production of planting material for the seedless kinnow varieties. o Promotion of the timely release of approved budgets for public-sector research institutions. o Establishment of research institutions under the Public Private Partnership structure.
Ineffectiveness of public-sector trade promotion institutions	o Shift from a public-sector dominated setup to one that is driven by the private sector.

Lack of interest amongst top business groups in the horticulture exports business	o Hosting of seminars and road shows. o Preparation of a professionally .developed business case to be presented to potential investors
Lack of airspace	o Establishment of a freight service. o Rationing of available airspace to accommodate small and new exporters.
Non-availability of bank financing	o Reformation of the agricultural credit regime. o Development of financing solutions to replace middleman credit.
Ineffective insurance coverage	o Restructuring of existing crop insurance products to make them more appealing for the farming community (by the removal of the defects present in the existing products).

Purpose/Objectives of the Study

The main purpose of this study is to investigate in detail the mango and kinnow segments of the horticultural sector of Pakistan, with the objective of finding practical ways of increasing the export of these fruits from. Key objectives of the study include:

a. Identifying the gaps in the supply chain of selected fruits that currently constrain their export potential.
b. Studying the regulatory framework governing all aspects of the mango and kinnow supply chains (including the international trading of these fruits), and presenting workable solutions to overcome the identified obstacles and shortcomings.
c. Recommending new markets, along with effective marketing strategies to achieve success in these markets.
d. Forming the basis for a Public Private Dialogue on the subject, through carefully prepared recommendations.

Methodology and Approach

The following methods have been employed for gathering data, carrying out situational analyses, finding solutions, and preparing recommendations:

a. Primary research: studying the available data and literature on current trends
b. Interviews

Physical visits to farms, processing facilities, wholesale markets, port facilities and export facilities

Stakeholders

For the sake of this study, stakeholders in the mango and kinnow supply chains are defined as:

a. Growers
b. Professional Farm Contractors
c. Provincial Government Agriculture Departments (Sindh and Punjab)
d. Public Sector Trade Development Agencies
e. Commercial Banks
f. Wholesalers
g. Processors

h. Regulators
    a. Plant Protection and Quarantine Department
    b. Customs
    c. Narcotics Control
i. Packaging Material Manufacturers
j. Transporters
k. Exporters
l. Investors

Situational Analysis

A detailed survey has been carried out to understand the real potential, as well as the main causes of below-par performance of the mango and kinnow supply chains. As required by the TOR, findings have been divided into "Behind the Border", "At the Border" and "Beyond the Border" sections. The outcomes of the survey are presented in the following passages.

Behind the Border

Production – Geography, Seasonality, Volumes and Quality

Mangoes and kinnows are the large fruit crops of Pakistan. The total annual production of citrus fruits, according to the Pakistan Bureau of Statistics, was 1.98 million tons in 2010-2011. The total area under citrus plantation – during the same period, and according to the same source, – was 194,500 hectares (this study cites figures for citrus fruits, since kinnows represent the largest portion of citrus crops in Pakistan, and because data for kinnows is not available separately). The Sargodha District in Punjab is the centre of kinnow production in Pakistan, contributing to the country's total kinnow production by around 90%.

Mangoes on the other hand, grow in the provinces of Punjab and Sindh. The annual production of mangoes, according to the Pakistan Bureau of Statistics, is 1.886 million metric tons, of which around 1.4 million metric tons is produced in Punjab, while the remaining 400,000 metric tons is produced in Sindh. The total area covered by mango plantations in Pakistan is reported to be as large as 172,000 hectares.

The kinnow season lasts from November to March, while that of the mango begins in May (from the Mirpurkhas/Hyderabad region in southern Sindh), moving northwards (towards Multan) around the end of September. The estimated 1000 km long production stretch helps prolong the seasonality of the crop, which can serve as a huge advantage in strengthening its presence in international markets for a longer duration. However, this also entails that local buyers have to continuously track the fruit, which is a tricky proposition, particularly with regard to the selection of locations for setting up processing and packing facilities.

Pakistan's kinnow is highly appreciated for its taste, appearance and texture. Similarly many of Pakistan's mango varieties, such as the Sindhri, Chaunsa and Anwer Ratole varieties, are highly valued for their taste, texture and aroma.

Landholding Structure

The structure of landholding in Pakistan needs to be analysed in order for the performance of the agricultural sector to be evaluated. Broadly speaking, landowners in Pakistan are either too large or too small. Some very well-known entities/individuals and influential families own thousands of acres of agriculture land; in certain cases these family holdings are so outsized that a significant fraction of them are either contracted out to third-parties, or are left uncultivated.

On the other hand, there are segments within the farming community where family holdings are less than 10 acres in size. Whereas large and wealthy landowners are not pushed to use their landholdings in an optimal manner, small farmers on the other extreme, are underprivileged, and in turn, unable to make the most of their landholdings.

In Pakistan corporate farming has failed to develop as a concept. Collectively, all of these factors have hindered the achievement of meaningful progress within the agriculture sector.

Main Varieties

In Pakistan, there exists a single variety of kinnows but a wide range of mangoes varieties. Some popular mango varieties with significant export potential are as follows:

a. Sindhri
b. Chaunsa
c. Langra
d. Anwer Ratole
e. Saroli
f. Bangan Pali
g. White Chaunsa
h. Fajri

Exports – Volumes and Prices

In spite of a large production base and the fine quality of end products, Pakistan manages to export only a small volume of its total fruit production. Volumes are extremely low, particularly in the case of mango exports. As is evident from the tables below, Pakistan only recently (in 2011) managed to cross the mark of 100,000 metric tons of exports; this works out to around 5% of the country's annual production. The average per-kg price that Pakistani exporters are currently fetching is around USD 0.45, which is shamefully low compared to the average export price obtained by other mango-exporting countries. As shown in the tables below, the average export price fetched by India in 2012 was close to USD 0.80, whereas Brazil obtained a price as high as USD 1.08 during the same time period.

The situation in the kinnow sector seems slightly more economically sustainable; however the segment is still lagging behind other citrus exporting nations, in terms of the country's average per-kg export price. Presently Pakistan is exporting close to 370,000 metric tons of kinnows annually, at an average per-kg export price of USD 0.40. Against this figure, Spain earns USD 1.00, Israel earns USD 1.14 and Turkey earns USD 0.72 per kg. The total export volume of kinnows, expressed as a percentage of total production, however, is a ratio that looks somehow decent. In 2012, in Pakistan, this ratio was 19% (based on the export of 370,000 metric tons against a total annual production of around 2 million metric tons). Moreover, the average per-kg price of kinnows has improved from USD 0.24 to USD 0.40, whereas in the case of mangoes, the price has remained stagnant at around USD 0.43.

The tables below illustrate volumes, values, and per-kg export prices of selected mango and kinnow exporting countries:

Table 1: Mango (export volume, export value and average per kg export price)

Pakistan			
Year	Export Volume (KG)	Export Value (USD)	Average Per KG Export Price
2012	101,173,869	44,301,651	0.44
2011	105,130,191	44,731,872	0.43
2010	82,913,517	28,401,741	0.34
2009	81,450,055	33,178,617	0.41
2008	62,751,223	26,787,458	0.43
India			
Year	Export Volume (KG)	Export Value (USD)	Average Per KG Export Price
2012	214,639,718	166,858,465	0.78
2011	229,192,497	200,957,907	0.88
2010	182,973,746	228,717,182	1.25
2009	267,616,525	205,435,888	0.77
2008	281,668,634	214,580,940	0.76
Thailand			
Year	Export Volume (KG)	Export Value (USD)	Average Per KG Export Price
2012	196,440,814	128,138,959	0.65
2011	152,285,375	96,344,567	0.63
2010	144,566,153	80,366,080	0.56
2009	144,079,220	71,410,066	0.50
2008	61,608,343	37,367,509	0.61
Brazil			
Year	Export Volume (KG)	Export Value (USD)	Average Per KG Export Price
2012	127,132,014	137,924,898	1.08
2011	126,568,229	141,210,391	1.12
2010	124,380,374	119,645,385	0.96
2009	110,355,255	97,685,923	0.89
2008	133,944,342	119,122,108	0.89

Table 2: Kinnow (export volume, export value and average per kg export price)

Pakistan			
Year	**Export Volume (KG)**	**Export Value (USD)**	**Average Per KG Export Price**
2012	367,921,799	147,723,264	0.40
2011	324,961,686	120,896,093	0.37
2010	348,863,828	95,175,089	0.27
2009	247,718,982	69,207,224	0.28
2008	204,819,033	48,568,887	0.24
Spain			
Year	**Export Volume (KG)**	**Export Value (USD)**	**Average Per KG Export Price**
2012	1,670,511,629	1,668,620,614	1.00
2011	1,577,144,541	1,728,800,051	1.10
2010	1,483,928,323	1,697,554,045	1.14
2009	1,510,650,975	1,678,292,138	1.11
2008	1,513,980,815	1,808,456,012	1.19
Israel			
Year	**Export Volume (KG)**	**Export Value (USD)**	**Average Per KG Export Price**
2012	47,912,869	54,533,000	1.14
2011	43,947,624	38,224,000	0.87
2010	43,316,700	39,717,000	0.92
2009	37,175,167	35,881,000	0.97
2008	39,729,475	23,539,000	0.59
Turkey			
Year	**Export Volume (KG)**	**Export Value (USD)**	**Average Per KG Export Price**
2012	406,438,967	293,091,295	0.72
2011	470,929,337	338,023,542	0.72
2010	429,152,917	290,588,799	0.68
2009	364,271,794	253,309,852	0.70
2008	301,318,840	196,085,893	0.65

Figure 1: Per kg Export Price in the Last Five Years (Mango)

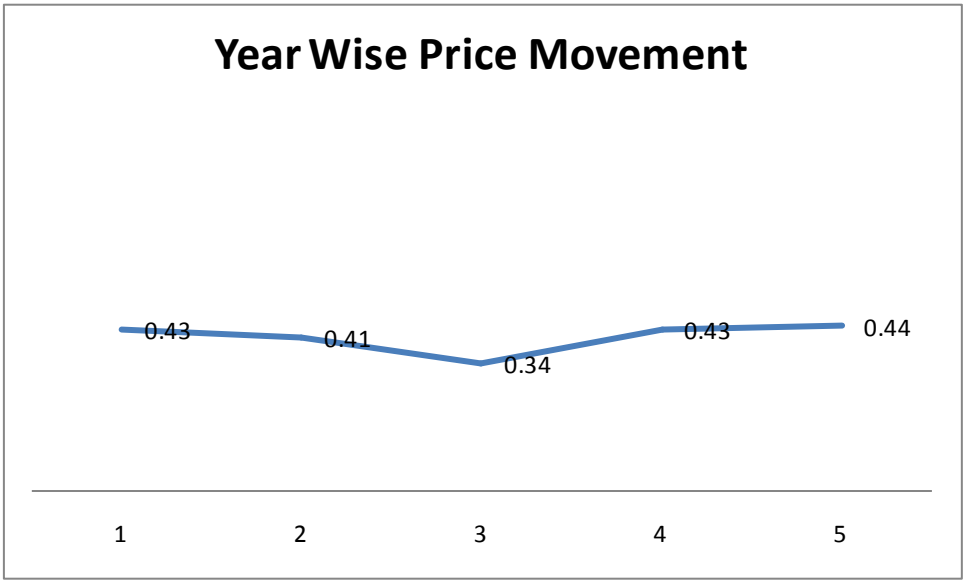
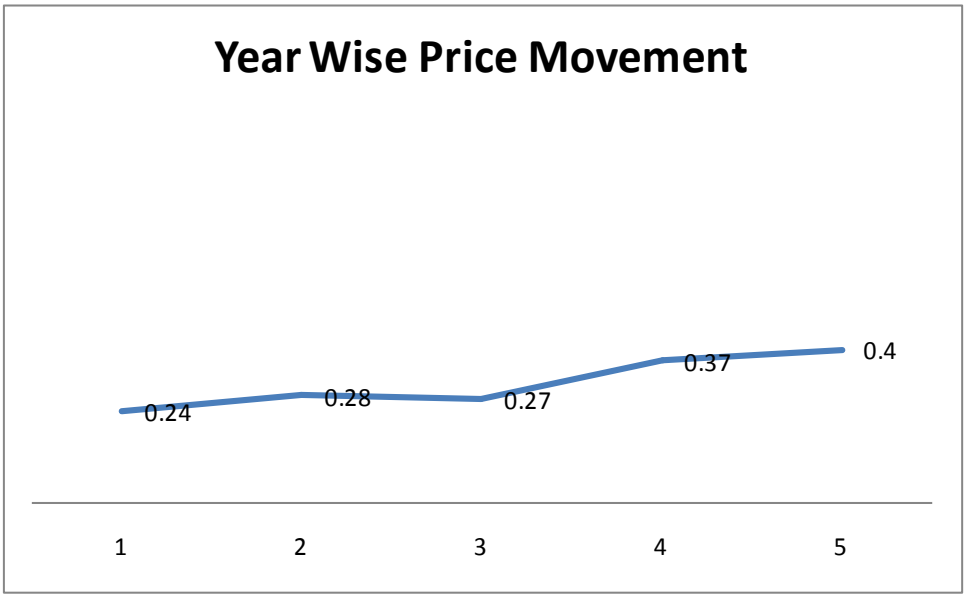


Figure 2: Per kg Export Price in the Last Five Years (Kinnow)



Production Methodologies and Farming Practices

Similar to the majority of crop management practices in Pakistan, mango and kinnow farms are also managed by conventional and out-dated techniques. Right from the development of planting material, to orchard management, irrigation, fertilization, and harvesting, – each task is carried out without the employment of modern technology or scientific methods. More so, there is a visible absence of certified nurseries to provide the required planting material, which compels farmers to select suppliers solely on the basis of local reputation.

There is a lack of use of technology in areas such as, the production of tissue-cultured plants, the development of high efficiency irrigation systems and the use of basic tools to harvest crops. Flood irrigation and the harvesting of fruit manually – or in the case of mangoes, by using a metal hook tied to a long stick – are the most common practices followed by farmers. Moreover, many farmers (particularly those that fall in the small and medium category) seem unaware of other alternatives. Some large-scale farmers have taken the initiative to adopt modern farming techniques and technology , while also making efforts to obtain the Global GAP certification for their farms. This category of farmers, however, constitutes a very small percentage of the entire farming community.

Inadequate pest management is detrimental to the expansion of exports, presenting another huge challenge for farmers. Farmers seem to lack sufficient understanding of pest management systems and the deterring effects that ill-managed pest controls have on the export potential of fruits. Adding to the detrimental impact, internationally banned pesticides continue to be commonly and excessively used in Pakistan; at the same time, the widespread infestation of fruit flies in mango orchards continues to wither the exportability of mangoes.

Ownership/Management Structure

Most farms in Pakistan are owned in the names of individuals and passed on to ensuing generations by means of inheritance; corporate farming therefore, is virtually non-existent from the agriculture sector. Farm sizes range from around an acre to a few hundred acres, implying that the challenges faced by farmers vary significantly, as their needs and expectations differ.

The practice of leasing out orchards, for one or more seasons, is a very common undertaking in both sectors. Under this arrangement, professional farm contractors (known as bekhars or thekaydars in the local terminology) take over the management of the farm and buy the entire crop yield by paying a fixed amount to the owner. The deal gives an opportunity to farm contractors to

earn a profit, over and above the price paid for the orchard as lease rental. The owner, on the other hand, earns a risk free return on the asset. Despite its merits, this arrangement is proving to be extremely damaging for the sector in the larger context. Seasonal farm contractors have very limited interest in the long-term wellbeing of the farm. Also, in most cases, these contractors borrow from middlemen/wholesalers to pay for the contract price/lease amount of the farms they acquire on contract. In return, these contractors are bound to sell the entire output to the middleman funding the transaction, resulting in serious limitations with respect to the fruit being sold directly to exporters/large retailers. This issue, along with its repercussions are discussed in more detail under the "Availability and Quality of Finance" section.

Post-Harvest Fruit Handling

It has been discovered, during the course of this research, that the entire fruit supply chain is in shambles. From the picking of fruits from trees and on-farm transportation, down to packaging, grading, farm-to-market transportation and wholesaling – every step in the supply chain contributes in some way to the serious deterioration of fruit quality.

a. Fruit Picking

Farmers have revealed that, even today, fruits are picked in the crudest manner. In the case of kinnows, a relatively smaller size of the tree enables the fruit to be picked by hand; conversely, a larger-sized mango tree makes it impossible for the fruit to be picked manually. Generally, a metal hook is tied to one end of a long stick, which is used by a semiskilled worker to pluck the mango. At the same time, other workers hold a piece of cloth under the tree in an attempt to catch the dropping fruit. Often at times, mangoes are made to fall off by shaking trees and/or their branches. Nevertheless, each of these practices results in the fruit getting damaged at a very early stage of the supply chain.

b. On-farm Transportation

In order to shift them to a central packing station, fruits are filled into wooden crates which are manually carried by workers. Some farmers feed larger quantities directly into donkey or bullock carts to transport fruits from the orchard to the packing station. This method of fruit-handling further damages the fruit as it gets bruised and squashed in the process, rendering it unfit for export.

c. Pre-cooling

At present, there is no concept of cooling down the fruit to halt the ripening process.

d. Farm-Level Grading

Grading is generally performed manually by unskilled and/or semiskilled workers. In the process of grading, varieties are initially separated, following which the fruit is segregated on the basis of size. In the case of kinnows, mechanical grading is performed at the processing stage.

e. Farm-level Packaging

Two highly destructive activities take place at this stage. The packaging technique followed requires the lowest quality fruit to be placed at the bottom of a wooden container, while the best quality fruit is placed at the top. The box is then covered with a wooden lid, which is fixed by hammering nails into the walls of the container. Consequently, the nails pierce through the container's walls, seriously damaging the fruit inside. Unfortunately, due to this technique, it is usually the best quality fruit that gets damaged by this method.

Containers are almost always overfilled in order to curtail packaging costs. Fruits can often be seen protruding from the sides of the container, since they are crushed hard on to fix the lid on top. Finally the containers are stacked up in rows of 10 to 12. All of these activities result in causing significant damage to the quality of fruit, which in turn becomes a serious obstacle in the growth of exports.

f. Farm-to-market Transportation

Farm-to-market transportation takes place in dry trucks in which wooden containers, particularly in the lower rows, break during the transportation process; some fruits are further damaged during this stage. More so, the absence of cool chain accelerates the ripening process which results in reduced shelf life and inferior fruit quality.

g. Ripening Process

The out-dated and internationally unacceptable method of ripening mangoes, which makes use of calcium carbide, is still a commonly deployed technique in Pakistan. Many major mango importing countries are placing restrictions on the use of calcium carbide for the ripening of fruit, exposing Pakistan's mango sector to important challenges.

Logistics and Infrastructure

Refrigerated vans are frequently used in numerous food sectors such as the dairy, ready-to-eat frozen food, and meat segments; however, their use in the transport of mangoes is close to being non-existent. As for kinnows, only those export consignments that have been polished and waxed in a factory are transported in refrigerated vans; prior to this stage, transportation takes place in dry trucks. Pakistan lacks necessary infrastructural amenities such as commercially available cold stores, ripening chambers, packing houses and treatment facilities.

Quality of Extension Services

The Provincial Governments of Pakistan operate elaborate Agricultural Departments, of which Agriculture Extension is usually the biggest part. However, despite their size, the extension services provided by these offices fall far below the necessary standards. Furthermore, there appears to be a complete disconnection between the farming community and the Agriculture Extension Departments.

Farmers frequently raise their voice against the incapability and lack of commitment from agriculture officers. One of the most common complaints received with respect to extension services, is that the concerned officers lack both the knowledge and the aptitude, to deal with complex problems, such as the breakout of new diseases. Another source of dissatisfaction is that the Extension Department generally comes into action only after a lot of damage has been done.

Extension officers, on the other hand, maintain that farmers do not fully embrace modern concepts and follow instructions only partially, resulting in limited impact. Many private-sector companies also offer extension services; however, farmers in general, seem to have very little faith in the extension officers deputed by these companies (as they perceive promotion of sales as being the real motive of these officers).

Quality, Price and Availability of Inputs

As aforementioned, the quality of planting material is an area that requires immediate attention. The availability of high-quality and disease-free planting material – preferably produced by means of the tissue culture technology – can play a useful role in improving yields and maintaining a first-rate fruit quality.

The penetration of counterfeit pesticides and other critical inputs is another huge menace that's seriously damaging fruit quality and restricting the profitability of farmers.

The prices of pesticides and fertilizers in Pakistan are much higher compared to other countries in the region, resulting in a serious price disadvantage to Pakistani exporters in international markets. Likewise, the unavailability of critical inputs in a timely manner is also a common grievance of the farming community. Many farmers also raise the issue of hoarding and black-marketing of fertilizers and pesticides carried out by suppliers during peak seasons.

International Quality Standards/Requirements

Barring only a few progressive large farmers, the farming community, in general, lacks an understanding of international quality requirements. A deficiency of this orientation is believed to be one of the root causes of the poor post-harvest handling of fruit.

Connectivity between Farmers and Exporters

Although a few exporters are directly working with growers and farm contractors, it appears that the relationship between the two groups is largely restricted to the purchase and sale of fruits (in addition to the near absence of long-term interactions). Evidently, a communication gap exists between the two parties, leading to a dearth of efforts, on the part of exporters, to educate the farming community about the post-harvest handling of fruit and international quality requirements.

Availability of Superior Quality Fruit for Exports

Exporters declared that the limited availability of export-quality fruits is one of the reasons behind the slow growth of mango and kinnow exports. However, in spite of possessing sufficient financial capacity, exporters do not seem to be too interested in reaching out to a wide base of growers to alert them over necessary quality requirements. They give the impression of being

content with the volumes they export. In addition, they often cite the dismal security conditions of the country as the reason for not making –the necessary effort to raise the awareness of the farming community on the international quality requirements.

Incentives for Producing Better Quality Fruit

A very common issue raised by the farming population is the absence of incentives and/or price advantages for investing in the enhancement of fruit quality.

This issue is further linked to the quality of exporters, and the types of market segments served by them. A detailed analysis of the subject can be found under the "Quality of Exporters" section of this report.

Research and Development

The shortage of research and development initiatives, undertaken by public and private stakeholders, creates yet another weak link in the mango and kinnow supply chains. The research wings of Provincial Agriculture Departments clearly lack impetus; the limited investigation that takes place in these wings can be categorized as "run off the mill" type of research, focusing only on technical aspects while paying little to no attention to the business and commercial features. At the same time, all of the current research and development activities take place in the public sector, often failing to reach the beneficiaries in a timely fashion. Furthermore, the primary private-sector stakeholders, namely growers and exporters, have very little contribution, if at all, in research and development-related activities.

At the provincial level, the Agriculture Research Wing of the Agriculture Department is the main institution responsible for carrying out agricultural research. At the federal level, the "Pakistan Agriculture Research Council" (PARC) is the focal research body created solely for the purpose of generating up-to-date and high-quality agricultural research.

In addition to the lack of technical expertise, several structural and operational shortcomings also hinder the production of valuable research. Some commonly identified issues responsible for the below par research outputs produced by the public sector include: lack of accountability, inadequate training, political interference, shortage of funds, and the delayed release of approved funds.

Initiatives to Introduce New Varieties

The issue of introducing new varieties is more severe for the kinnow sector, where there is an urgent need to produce the seedless varieties to be able to meet international preferences. Government agencies attest to the production of seedless varieties having recognized a reasonable amount of success; however, on-ground reality differs, since farmers remain unaware of such developments. More so, the Government itself does not yet know as to how the existing plantation can be replaced with the new seedless variety.

Role of Trade Promotion Institutions

There are two prominent public-sector institutions responsible for promoting international trade in Pakistan. The Trade Development Authority of Pakistan (TDAP) is mandated with overseeing the task of overall trade development. The Pakistan Horticulture Development and Export Company (PHDEC), on the other hand, exclusively operates with the objective of promoting the production and export of horticultural yields from Pakistan.

Discussions with various stakeholders in the mango and kinnow sectors reveal that both these organizations have failed to make a significant impact on the progress and development of these crucial sectors.

Belonging to the public sector, both organizations appear to be under heavy political influence. Their approach towards finding ways to promote exports lacks innovation, not only within the mango and kinnow sectors, but in the economy as a whole. Instead of putting efforts in finding solutions to core issues, such as the availability of finance to the farming community, creating awareness amongst farmers across the entire sector, and encouraging fresh investment into support sectors (transportation, packaging, warehousing etc.), the focus of these organizations is directed towards exhibitions and trade delegations. Even while selecting members for international delegations, very little effort — if any — is made to promote the selection of fresh talent.

Availability and Quality of Finance

Middleman, or wholesaler, credit is the main source of finance in the agricultural sector of Pakistan. While it is this mode of funding that has maintained the sector, it has also resulted in damaging it in more than one way. Therefore, it is important to stress the role that middleman credit is playing and the efforts to replace this financing system must be made cautiously.

Notwithstanding its positive contribution, middleman credit is believed to be the root cause of most of the troubles faced by the agricultural sector of Pakistan. The problem lies in the price the borrowing farmer needs to pay for utilizing this financing option, not in terms of interest cost, but in the shape of limitations placed on the farmer's ability to sell his produce to the best paying buyer.

The "user-friendly" nature of this method of financing makes it impossible for the formal banking sector to compete. The only condition applied under this method, is that the borrowing farmer must sell his entire crop through the lending commission agent (middleman).

Middleman credit can be availed in the absence of collateral; all that's required is a willing guarantor. On the face of it, the credit is free from all sorts of interest charges. Lending middlemen claim that their only incentive for extending credit to farmers is the commission earned when the yield is brought to their shops and auctioned. The general perception, however, is that these lenders earn a lot more than the market interest rate by way of price and weight manipulations. Moreover, this credit service works like a "running finance facility" under which a borrower can keep drawing funds up till a certain limit, the precondition being the pledge to bring the entire crop yield to the lending agents' shop.

Alongside growers, farm contractors also regularly avail this finance facility. According to a rough estimate, more than 90% of all growers and farm contractors depend on middleman credit.

In the face of the objections raised against the misuse of power exhibited by commission agents, the system in general is providing crucial sustenance to the farming community in a situation where the formal banking system has completely failed.

Existing agricultural financing products (available through the formal banking sector) have multiple structural shortcomings. Some of these are listed below:

a. Agricultural loans can only be availed by pledging original property papers (normally known as a "Pass Book"). The per-acre maximum loan amount that can be availed for different types of crops is predefined by the State Bank of Pakistan. The approved loan amount is far less in worth than the market value of the land being pledged. When inquired as to why they do not opt for bank financing, farmers raise the concern that it

seems unreasonable to pledge property worth PKR 1 to 1.5 million in order to avail a loan amounting to a mere PKR 15,000 to 20,000.

b. In many cases, agricultural land and property are not registered in the name of their existing owners. This is usually caused by the delay in transferring rights at the time of inheritance. Therefore, often at times when farmers decide to opt for bank credits, their requests are rejected because properties are either jointly owned by other family members or registered in the names of deceased elders.

c. The paper work involved in the process of availing bank loans is excessively lengthy and complicated for the farming community that is unable to meet the requirements. There have been reports of bank personnel using farmers' lack of procedural know how to manipulate processes and fleece farmers by charging substantial amounts in the form of processing fees. There have also been cases of bank staff fiddling with repayments streams. The additional amounts earned by these means are pocketed by bank employees at the branch level, leaving the top management unaware of such misconducts.

Collectively, these reasons result in bank credits becoming an extremely unattractive option, particularly in comparison to the easily available middleman credit.

Crop Insurance Coverage

Crop insurance is a popular product that has been recently introduced in Pakistan with a lot of fanfare. The product offered to farming community, however, badly failed to take off due to serious structural shortcomings. The list that follows contains details of some of the problems associated with crop insurance:

a. Crop insurance is bundled with bank credit, which means only those farmers that obtain bank financing can opt for crop insurance.

b. To allow insurance claims to be entertained, it is mandatory for the entire area where the effected farm is located to be declared as "calamity hit" by the provincial government. Unfortunately, governments are generally hesitant to make such a declaration since this relieves disaster stricken areas from taxes.

c. Farmers are charged an additional 2% above interest costs as insurance coverage. This insurance cover is mandatory, and without it bank credit cannot be availed.

With these conditions in play, farmers hardly get to attain the protection they seek. Therefore, insurance covers end up safeguarding the interests of banks rather than farmers. They also make bank credit, which is already an unpopular product, all the more expensive and unattractive.

Capacity of Fruit Processing Segments

There are only a few factories, both in the mango and kinnow sectors, that can use excess fruit or low quality fruit to make value added products like juices, jams and squashes. This induces farmers to discard the fruit that cannot be sold. An example of this phenomenon can be seen along the roadsides in Bhalwal and Khan Garh, where a load of kinnows can be found dumped. Inferior quality fruit is primarily cast off in this manner since its transportation cost would exceed its selling price.

Inappropriate Wholesaling Infrastructure and Processes

Visits to wholesale markets in all major cities have revealed an extremely dismal picture. Not a single wholesale market is equipped to handle the large volumes of fruits and vegetables that arrive on the site. Mismanagement and chaos are commonly observed in these markets.

Every market is characterized by narrow entrances and roads that are constricted further by encroachment and dumped garbage. Commercially-operated cold stores are present in almost all markets, but these can only accommodate small quantities of fruits. Auction areas seem highly inadequate, while commission agents, despite looking like sharp businessmen, lack a sense of sophistication in their dealings and decorum.

The auction process in these wholesale markets is conducted in a standard manner; however there is clear deficiency of regulatory oversight. Each market is managed by a Market Committee which comprises a government representative and various market participants. Even though technically, Market Committees have sufficient representation from the farming community, they are symbolic of exploitation and frequently blamed for being a closed circle and working against the interests of the agricultural sector. It is alleged that all wrongs, such as price manipulation, go unchecked due to the incompetence and indifferent attitude of the Market Committee. Government representatives on the committee are generally appointed by influential politicians of the respective constituency. The Market Committee is responsible for the collection of all revenues generated by

the market such as octroi, parking fee etc., and these are supposed to be invested in the preservation of the market. Regrettably, it is suspected that these funds are often siphoned off by Committee members, resulting in hardly any capital being devoted to the maintenance of market premises.

The Sindh Provincial Government has enacted a law requiring all agricultural markets to be operated either by private companies, or under a public-private partnership structure. This is a huge step in the right direction, but on-ground implementation is extremely slow. According to the Sindh Agriculture Department, one state-of-the-art agricultural wholesale market is planned to be established in Khairpur, under a public-private partnership arrangement and its international tender for private investor would be floated soon.

Developmental efforts in the agricultural sector, particularly those that drive export-related progress, incontestably require a massive overhaul when it comes to the wholesaling process and infrastructure.

Multiple Roles Played by Commission Agents (Middlemen)

An enormous problem confronting Pakistan's agriculture, and restricting progress in the mango and kinnow sectors, is a disproportionate dominance of middlemen (especially at the production stage of the supply chain). Being the most powerful element in the supply chain, commission agents are frequently seen performing multiple and overlapping roles. Typically, a middleman plays all or most of the following roles:

- Financier
- Wholesaler
- Farm Contractor
- Processor
- Retailer
- Exporter

This situation lands commission agents in a potentially exploitative position. Many farmers suspect that commission agents frequently retain the best quality fruit for their own export consignments, without bringing it to the forefront for auctioning. Therefore, efforts linked with

progress in any segment of the agricultural sector must critically look into curtailing the undue power of commission agents.

Quality of Exporters

There exists a severe discrepancy amongst exporting companies, particularly within the mango sector, with respect to the quality of human resources and operations. With a few exceptions, the majority of existing exporters lack the capability to serve high-end markets. A large number of them have evolved from a wholesaling background. Whereas there is nothing wrong with having roots in the wholesaling profession, the problem lies in the fact that nearly all of these exporters pursue wholesaling as their primary business. Another reason, underlying the wholesaling segment's dominance of the industry, is the reluctance exhibited by dynamic professional organizations to become an active part of the sector.

One other very common breed of exporters consists of players who have entered into the fruit export business primarily because they have a close family member settled in one of the countries that imports fruits from Pakistan. The convenience of a relative dealing with a wholesaler abroad (who is also most likely of Pakistani or Indian descent) encourages initial trade that transforms into a fulltime profession. Once again, the problem with this kind of evolution is that business initiation and progression are not based on in-depth industry analyses; instead, they are based on the ease of conducting business.

The failure of these exporters to collectively or individually delve into quality research, invest in technology, attract well-developed foreign players as strategic partners, and attract superior human resources places a significant amount of blame on the large and well-established exporters of the country for current standing of the industry.

The association of fruit and vegetable exporters, namely the "All Pakistan Fruit and Vegetable Exporters, Importers and Merchants Association" seems to be lacking purpose and direction (as an example, the president of the Association was contacted several times for his input for this report; however, the requests were turned down every time and the requirement of the meeting was never fulfilled). The Association's scope, as is apparent by its name, instead of being restricted to "Importers" and "Exporters" has been extended to include "Merchants" – supporting the earlier argument that the industry is dominated, or at least influenced by the wholesaling mind-set.

Talking to other stakeholders has revealed that the Association's contribution is limited to removing irritants after they have appeared. It completely lacks will as well as the capability to tackle serious issues beforehand, or to work on developing the long term strategy for the growth of exports. In fact, some stakeholders have even gone to the extent of blaming the Association for exhibiting a lack of interest in the quality of the business houses operating in the sector.

Lack of Business Acumen within the Farming Community

A large share of the blame, for below-par performance of the mango and kinnow sectors, is given to the farmers. Barring very few farmers, the entire farming community seems to be short of the genuine desire to break away from the vicious circle of poverty.

Surprisingly many of the large farmers interviewed, with landholdings in hundreds of acres, complained about being financially weak, quoting this as the main reason for selling crops in advance. However, after further probing it became apparent that it is really the lack of business acumen and the desire to change the status quo which is main reason behind the dreary situation.

Farmers Opting for the Easier Option to Make Money

The genuine desire and capability to earn more through hard work is generally missing from the farming community. Farmers have become complacent, to a certain extent, due to the availability of the easier and risk-free option of selling the produce in advance to farm contractors. Moreover, they lack the motivation to take up the challenge of earning additional income, by employing vigorous and innovative farm management practices.

Certifications

Many large exporters and processors have acquired certifications, such as the ISO and HACCP, to stand out as well-managed organizations. This is a positive step towards meeting the quality standards of international buyers; however, these certifications only relate to food safety and the quality of operations, not to the quality of the fruit itself. Therefore, even with these plausible certifications, the issue of inconsistent fruit quality remains unresolved.

Similarly, a lot of effort has been made over the past few years to acquire Global GAP certifications for several of Pakistan's orchards. Once more, this is a positive development, but at the same time, it is critical to understand that farm certifications in isolation will not help overcome the

issue of limited progress of exports. Farm certifications focus on traceability, instead of fruit quality, which more directly feeds into post-harvest issues. Also, at the moment, Pakistan's horticulture export industry is incapable, due to other severe structural shortcomings in the supply chains, of serving the sensitive markets that demand Global GAP certifications. It is therefore more prudent for farmers to first focus on rectifying post-harvest problems, in order to benefit from the exporters who are willing to pay premium for a Global GAP certified fruit.

At the Border

Airport and Seaport Handling

Inadequate infrastructure for the handling of fruit, especially at the airports, is one of the biggest impediments to the increase of the exports from Pakistan (particularly in the case of mangoes). The Karachi airport, from where export consignments leave for international destinations in bulk, does not have a single cold storage facility. Moreover, there is a common cargo-holding area for edible and non-edible goods. The open dry shed, apart from being designed improperly, cannot guarantee, in case of heavy rainfall, the complete safety of the cargo that's waiting to be airlifted.

In the absence of proper handling facilities at the airport, there is very little that exporters can do to maintain the cool chain. Even if a private-sector exporter tries to develop a cool chain, the chain would break down the consignment reaches the airport.

Most airlines require the cargo to reach the airport around 4 to 5 hours before the flight's scheduled time. However, flight delay is a common occurrence in Pakistan which can cause a consignment's stay in the dry holding area to extend significantly.

Availability of Airspace

Shortage of airspace is another problem that restricts the growth of fruit exports in Pakistan. Inconsistent geopolitical conditions, and the deteriorating security situation of the country of the last couple of decades, have led many airlines to discontinue their flights from Pakistan and close down their offices across the country.

This phenomenon has resulted in a severe shortage of airspace, especially during the mango season. Due to this deficiency, large exporters with a better financial standing manage to book airspace in advance, leaving very little room for newcomers and the relatively smaller players. Some

exporters complain that airlines, in such situations, become exploitative by charging exorbitant freight charges.

Sometimes even booked cargo is left behind by the airline if unexpected government cargo has to be accommodated in its place. In the absence of regular flights with short intervals, the cargo left behind has to stay at the dry cargo holding area for almost ten to twelve hours, resulting in a severe deterioration of fruit quality.

Customs

Pakistan Customs, one of the wings of the Federal Board of Revenue, is the primary body responsible for ensuring that all trade taking place at Pakistan's ports, and via its land routes, remains within the bounds of the applied legal framework. Pakistan Customs Department is also responsible for playing this critical role in the horticulture sector.

Pakistan Customs recently launched a completely automated online customs clearing system called the Web Based One Customs or WeBOC. This is a paperless system that provides real time integration of agents, brokers, terminal operators, cargo handlers and customs officials, for the clearance of trade consignments.

Regardless of the upgrade in its operations, exporters have numerous grievances against the way in which the Department operates. According to the exporters, the Customs Department needs to bring about a change in its highhanded attitude, and play a positive role in encouraging trade instead. Additionally, the Department has been blamed for corruption and the mishandling of perishable consignments. It has been quoted that shipments are often randomly selected by the WeBOC for inspection, and the containers are put to the ground for the physical check by customs officials. It is alleged that during this time, even reefer containers are opened and left unplugged, which results in the fruit experiencing a thermal shock deteriorating its quality.

Exporters have further pointed out that even though the inspection process is required to be completed within twelve hours, it is common for customs officials to take twenty four to forty eight hours to complete it. In addition to customs, the Anti-Narcotics Force also inspects the shipments independently. All costs pertaining to these inspections, however, are borne by the exporter.

According to the law, the Customs Department's role is only to ensure that the relevant documentations are in order, and that all applicable fees are collected on time for any particular consignment. For that reason, the Department has not been charged with the responsibility of monitoring the quality of the product.

Plant Protection and Quarantine

The Government of Pakistan is a signatory of the International Plant Protection Convention (IPPC) and therefore, all of the fruit exports are governed by the IPPC rules prevailing at the time. Pakistan also has its own law on the subject by the name of the Plant Protection Act of 1976; however, IPPC overrides the regulations of the Act. Further, the bilateral agreements signed with individual countries dictate the quarantine and plant protection standards followed at the exit points.

The Plant Protection and Quarantine Department is the government institution responsible for overseeing whether the export of fruits from Pakistan takes place in accordance with the prevalent IPPC rules, and the bilateral agreements in force. However, despite the adherence to IPPC rules, Pakistan's fruit exports are constantly failing to meet phytosanitary standards. This is primarily due to the deficiency of manpower at the PPQD, the insufficiency of technical capability and infrastructure, corruption at certain levels within the organization, and a lack of strict controls implemented by the exporters.

Concerned officers at the PPQD point out that since hot water treatment is not a mandatory requirement for mango exports, it is practically impossible to eliminate the risk of fruit flies at the destination. PPQD is only required to physically inspect a sample out of the entire consignment; therefore, it is quite possible for the sample to contain fruit fly larvae, as they go undetected by PPQD officials, even after the inspection protocols have been met.

Like the customs department, the PPQD is not concerned with the quality of fruit. The department's role is only to ensure that a consignment is fit for export to a certain destination (based on the relevant IPPC rules and bilateral trade agreements). The size and shape of the fruit; the stage of the ripening process; and the appropriateness of packaging, for example, do not disqualify a fruit consignment if it meets other phytosanitary requirements, such as the absence of fruit flies. Hence, the concern of substandard-quality fruits being exported is not likely to be resolved by PPQD's current interventions.

Beyond the Border

Poor Image of Pakistan as a Supplier of Fresh Fruit

Pakistan's diversified agro-climatic conditions enable it to produce high-quality fruits and vegetables; however, due to the reasons listed in preceding sections, the quality of fruit (particularly mangoes) upon landing in international markets deteriorates far below acceptable standards. Owing to the fact that exporters have consistently failed to serve high-end markets and have remained focused on less quality-sensitive ethnic markets, Pakistan has over time earned the reputation of being a supplier of poor-quality fruit. Additionally, the structure of the agricultural sector in general, and a very weak horticulture supply chain, restricts the ability of Pakistani exporters to commit consistent supplies of large volumes to big buyers.

Despite the fact that the kinnow segment is the most developed of all horticulture subsectors in Pakistan, the quality issues common with other fruits serve to deter the image of the Pakistani kinnow as well.

Ineffective Role Played by Pakistan Trade Missions

No major contribution has been made by the trade missions stationed in the markets to which Pakistan is already exporting mangoes and kinnows, or where a great potential for such exports exists. The activities carried out by these missions are confined to formal data sharing and welcoming delegations.

Heavy Dependence on a Few Markets

Studying Pakistan's export trends for the mango and kinnow segments makes it blatantly obvious that there is an over-dependence on a few markets - particularly those that have a large expatriate Pakistani population. Again, this applies more to the mango sector, as compared to kinnows. Both fruits have a fairly extensive geographic coverage; however, the volumes exported to the preferred markets are extremely large and constitute an enormous percentage of the total exports. This puts the entire sector at the risk of collapse, if one of the main markets stops importing from Pakistan for some reason.

The following tables list the top 10 importers of Pakistan's mangoes and kinnows:

Table 3: Top 10 Importers (Mango)

Mango (USD Thousands)					
Importers	**Exported value in 2008**	**Exported value in 2009**	**Exported value in 2010**	**Exported value in 2011**	**Exported value in 2012**
World	26,635	28,974	27,189	38,114	36,186
United Arab Emirates	5,991	7,208	9,541	12,681	14,331
United Kingdom	7,851	7,817	5,068	6,549	6,811
Saudi Arabia	5,507	5,587	4,501	5,293	4,174
Oman	1,121	1,725	1,247	1,174	3,325
Qatar	858	946	817	1,032	1,021
Germany	874	980	855	1,112	858
Belgium	91	693	701	794	679
Afghanistan	-	188	310	3,052	651
Bahrain	312	479	542	867	524
Norway	366	436	313	169	501

Source: ITC Trade Map

Table 4: Top 10 Importers (Kinnow)

Kinnow (USD Thousands)					
Importers	**Exported value in 2008**	**Exported value in 2009**	**Exported value in 2010**	**Exported value in 2011**	**Exported value in 2012**
World	48,983	61,535	104,578	122,934	147,978
Afghanistan	762	16,432	38,695	43,315	59,485
Russian Federation	9,333	18,813	22,300	32,932	42,331
Ukraine	3,236	2,688	3,339	9,695	10,572
United Arab Emirates	6,790	5,306	10,665	9,323	9,754
Saudi Arabia	2,819	2,155	3,644	3,972	4,659
Indonesia	632	82	310	3,127	4,348
Iran (Islamic Republic of)	15,861	8,788	12,360	7,510	3,877
Philippines	2,253	560	2,704	2,528	3,254
Sri Lanka	857	835	1,544	1,740	2,005
Bangladesh	200	444	350	1,150	1,530

Source: ITC Trade Map

Variations in the price per kg data for some of these markets (Tables 1 & 2) raise the fear of dumping, particularly in the case of mango exports. This issue is covered in extensive detail later, under the section "Main Markets".

Penetration only in the Ethnic Markets

Surprisingly, not only are both mango and kinnow exports focused on a handful of countries, but within these countries, they are further confined to ethnic groups of the South Asian descent.

Competition

Pakistan faces stiff competition in both, the mango and kinnow sectors, from countries that have been able to improve their horticulture industries above par. India, Brazil, China, Thailand and Mexico have emerged as the major competitors for mango exports; whereas Spain, Israel, and China, are the dominant players in the citrus fruit category. These countries have surpassed Pakistan in all aspects regarding the production and exports of both of these fruit categories. In order for Pakistan to successfully compete on international markets, there is a need for a critical revamping of the industry structure. This task can be performed by implementing intelligently developed policy reforms, which address key sensitive issues, such as:

- Enforcing a ban on certain activities in order to protect Pakistan from the threat of potential restrictions.
- Making certain procedures mandatory for the sake of ensuring the export of only good quality fruits.
- Altering and amending the role of regulatory authorities, so that a seamless and efficient process is in place at the border.
- Encouraging and motivating professional business groups to invest in the sectors.

Main Markets

As discussed previously, Pakistan's fruit exports are highly skewed towards only a few countries (mostly comprising of South Asian populations). This is especially true for mango exports, as illustrated in Table 3. UK, UAE and Saudi Arabia collectively represent around two thirds of the total mango exports. UAE and Saudi Arabia, combined, are the recipients of 50% of Pakistan's total exports of mango, with UAE representing 40% alone. Unfortunately, both these countries also happen to be the lowest price markets for the mango exports of Pakistan.

On the other hand, the situation is not as strained for kinnow exports; although there is a strong dependence on a few markets, as in the previous case, diversification does exist to some

extent. Afghanistan tops the list in terms of the acquired percentage of total kinnow exports, but it is believed to be only a transit destination for the fruits being exported to Central Asian Republics. The Russian Federation, being a relatively newer market for Pakistan's horticulture exports, happens to be the second largest importer – with an 18% share of the total exports – followed by Ukraine in the third place. Luckily, both these countries consist of markets that are paying the highest prices for Pakistani kinnow.

Pakistan's Dependence on Fewer Markets:

Figure 3: Mango Export Dependence

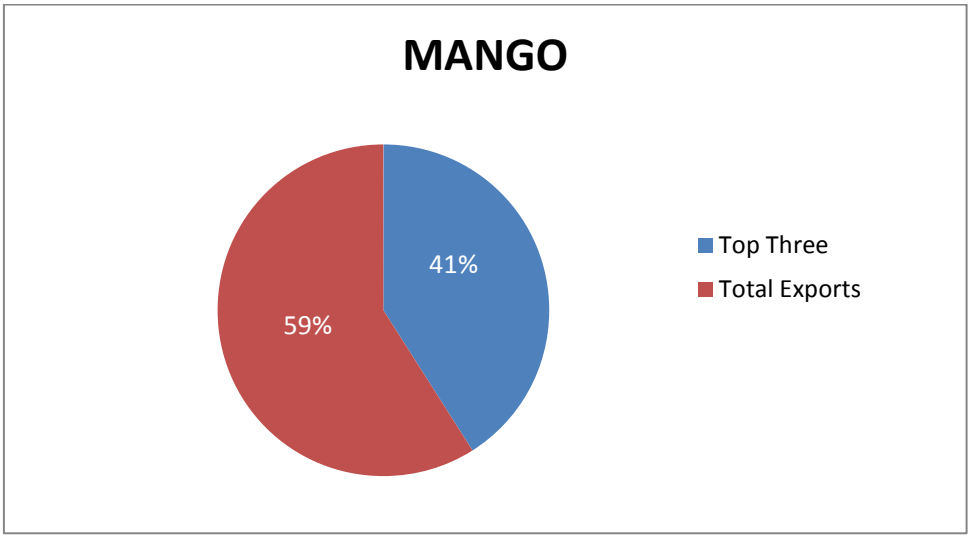
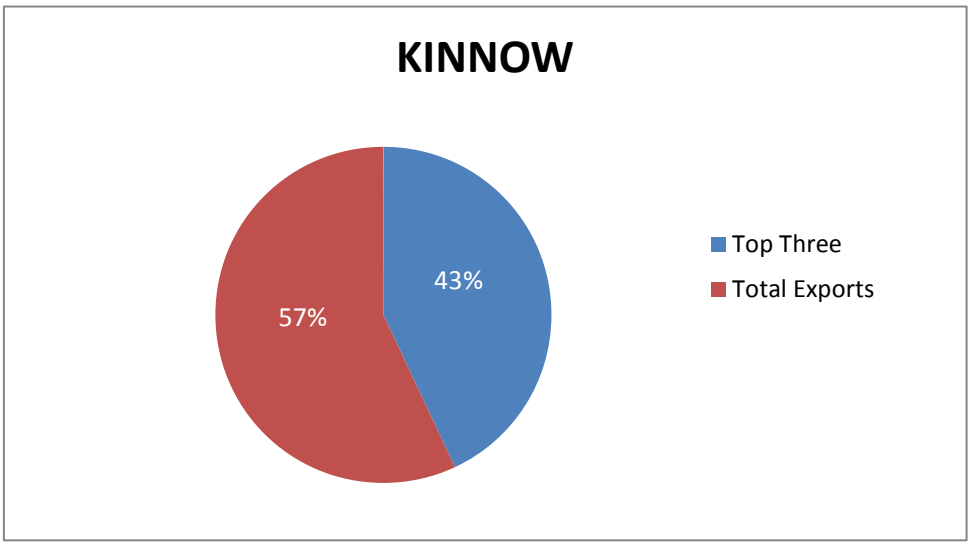


Figure 4: Kinnow Export Dependence



Potential New Markets

In spite of being concentrated to only a few countries, Pakistani mango and kinnow exports are geographically widespread. The key issue is with the low volume being exported to high-paying markets, and within these, the distinct segments that are being targeted by Pakistani exporters. Presently, the majority of exports to these markets are directed towards South Asian wholesalers, who in turn have a customer-base consisting of buyers of the same ethnic background. This South Asian clientele is famous for not being quality-conscious; consequently, the exporters are not pushed for promoting quality products. This is precisely why Pakistani exporters, who are used to catering to the demands of less conscious customers, find it difficult to penetrate into high-end foreign markets.

While it might be a good idea to search for new markets to serve, strategically, it will make more sense for Pakistan to penetrate the high-end market segments of the countries that are already importing fruits from it. Most of these markets are extremely quality-conscious, signifying that the lack of Pakistani presence therein is a direct result of the inability of exporters to meet the required quality standards. Japan is the best example of this scenario; the country consists of the highest paying market segments of the world. Justifiably, these top notch markets ask for high-quality products, while the Japanese Government expects all exporters to ensure that the "Hot Vapour Treatment" of mangoes has been carried out. Unfortunately, as of yet, Pakistani mango exporters do not possess the capability to meet this requirement.

The Government of Pakistan should not attempt to penetrate new markets without the exporters being fully prepared to fulfil all of the quality standards set forth. Moreover, unprepared attempts can result in the country earning a bad reputation which will make it even harder for Pakistan to penetrate these markets in the future (even if all of the standards requirements have been met at that point in time). However, if Pakistan succeeds in capturing the high-end market segments of its existing trade partners, it will automatically be able to penetrate the strict-on-requirements new markets of other countries.

Major Challenges

After a careful understanding of the supply chains of both mango and kinnow, several gaps that hinder the growth process have been identified. As is evident from the preceding section, "Situational Analysis", there are numerous challenges faced by Pakistan's mango and kinnow industries; the major problems have already been discussed. Additional identified problems, with their respective causes, are listed in the table below:

Table 5: Major Challenges, Descriptions and Causes

Challenge	Description	Causes
Poor Quality of Fruit Being Exported	The quality of fruit is outstanding at the production stage; however it deteriorates significantly as the fruit travels across the value chain, especially in the case of mangoes. The issues identified comprise of mostly post-harvest mishandling, which includes limited use of technology, gaps within the regulatory framework, and incapable/ill-equipped exporters. These result in a serious degradation of the quality of end-products, indicating why Pakistan fails to earn a respectable reputation when it comes to the quality of the fruits being exported. Unless these challenges are overcome, efforts focused towards increasing the exports of fruits will all go in vain	Poor Post Harvest Handling: • Faulty methods for picking fruits • Improper on-farm movement • Inappropriate packaging • Inappropriate farm to market transportation Poor Logistics: • Inappropriate transportation • Absence of cool chain Poor Port Handling: • Indifferent attitude of the customs department towards the need for maintaining quality/absence of cool chain at the department. • Lack of infrastructure • Corruption • Quarantine Department • Customs

		Lack of Capacity Among Exporters: • Lack of the required infrastructure • Lack of the capability to deal with quality-sensitive buyers • Lack of professionalism
Mediocre Quality of Exporters	Most of the exporting companies involved belong to the mediocre tier, thereby limiting the growth potential of the mango and kinnow industries. Setting these companies at par with exporters from the competing economies would require immense effort on the part of Pakistani exporters.	• Absence of top-tier business groups has left the field open for the medium-level investors to dominate the sector
Lack of Presence in High End Markets	The biggest challenge faced by Pakistan's horticulture sector is the inability to penetrate high-end markets of the world. At present, Pakistan's mango and kinnow exports are targeted towards some of the best-paying markets throughout Europe and Far East, these fruits are retailed to the low-end ethnic markets of these countries. This leads to a couple of detrimental effects on the sector's progress: firstly, the dollar per-kg value of exports is immensely low, and secondly, Pakistan is portrayed as a supplier of low-quality fruits.	• Unavailability of good quality fruit in substantial volumes • Incapability of exporters • Indifferent attitude of Pakistan Trade Missions
Disproportionate Power of the Middleman	Pakistan's agricultural sector is characterized by a lopsided balance of power, disproportionately skewed in favour of middlemen/commission agents.	• Weak financial position of the farmers • Lack of well-structured financing options for the

	The multiple roles played by these commission agents, most of which are overlapping, give rise to conflicts of interest at several critical stages along the supply chain. The undue power vested with these commission agents, grants them frequent opportunities to manipulate the system in their own favour.	farming business • Lack of awareness, aptitude and desire for progress on the part of farming community • Absence of quality exporters with the desire and the capacity to deal directly with farmers • Lack of business acumen on the part of farmers. • Absence of farmers' cooperatives
Out-dated and Faulty Farming Operations	The quality of operations conducted at the farm level is perhaps one of the weakest links in the supply chain; a lot needs to be improved in the way that the farms are being managed.	• Lack of awareness about development in the agriculture sector • Generally low level of education amongst farming communities • Low level of farmers' interest and motivation, as the farming profession is generally inherited, not selected • Exploitation of farmers by other players in the supply chain
Non Availability of Seedless Kinnow Variety	The advent of the seedless variety of kinnow is posing the most serious threat to Pakistan's kinnow sector so far. Although the country's kinnow is highly appreciated around the world for its taste and appearance, it is facing a severe loss,	• Ineffective and outdated research setup • Lack of strategic focus on part of the government • Private sector research

	in terms of popularity, at the hands of the seedless varieties coming in from Spain, Israel, and other citrus-producing countries. It is said that the seedless variety is as good as traditional kinnow varieties (in terms of taste and appearance). Pakistan's government agencies associated with this sector do not seem to have sought out a well-organized plan for the replacement of thousands of acres of existing traditional varieties with the seedless substitute.	completely absent • Farming community financially too weak to take up the challenge on its own
Ineffectiveness of Public Sector Trade Promotion Institutions	Two of the most important institutes in this regard, TDAP and PHDEC, have failed to play their expected significant role in the progress and development of the mango and kinnow sectors. The lack of innovative approaches towards problem-solving, and weak coordination among promotional institutions, are the two major causes of underperformance of the entire horticulture sector	• Corruption • Political interference • Low wages failing to attract talent • Lack of strategic direction/dynamic leadership
Lack of Interest Amongst Top Business Groups to Invest in the Horticulture Export Business	Top-tier business groups of Pakistan show little interest in the horticulture export business, thereby limiting the progress of the industry. Attracting these successful and innovative companies to the industry — via an effective demonstration of the available commercial potential in this area — is a serious challenge for the respective government agencies.	• Lack of knowledge of the investors community of the commercial potential of the horticulture sector • Investors – generally belonging to urban centres – not too keen to operate in rural areas • Poor law and order situation in rural areas

Non-Availability of Bank Finance	Inaccessibility of the formal banking sector (to obtaining credit) leads the farming community to accept loans from middlemen; this is the root cause for most of the problems faced by the mango and kinnow sectors. Developing a sound financing structure, that is acceptable to both the banking sector and the farming community, is critical for making any kind of progress at the production stage.	• The banking industry too narrowly focused on urban industries • Bankers lack a thorough understanding of the farming sector. • High risk of lending to the farming sector
Unsatisfactory Research and Development Activity	Despite the significant production volume and trade potential of the mango and kinnow sectors, there is no research institution dedicated to the realization of this potential. The existing research and development activities, performed by governmental institutions, are unsatisfactory in terms of quality. Hence, these institutions are unable to boost the progress of these important sectors. Unfortunately, these industries cannot witness a substantial breakthrough, without a thorough restructuring of the existing research and development frameworks.	• Brain drain; the poor socioeconomic conditions of the country over last couple of decades have resulted in the migration of talent from the country • The low pay scales offered by public sector research institutions fail to attract talent • The hiring in public sector institutions is politically influenced
Ineffective Insurance Coverage	As stated in the preceding section, "Behind the Border", the existing crop insurance products have inherent problems. Thus, they fail to provide any sort of protection to the farming community, and instead, work solely to safeguard the interests of the banking	• The farming community not effectively represented at the product development stage • Lack of understanding of agriculture and the

	sector. The structure of these products not only fails to serve its own purpose, but also results in more expensive bank credit for the farmers.	needs of farming community, both on the part of the insurance industry and the State Bank
Agriculture Extension	Agriculture extension services in Pakistan are substandard in quality, characterized by a lack of operational control and a severe deficit of trust between farmers and provincial agriculture extension departments.	• Lack of coordinated efforts, on the part of agriculture departments. • Weak leadership • Corruption; misappropriation of the approved budget • Lack of capacity-building
Cost/Availability of Farm Inputs	Farming inputs, such as fertilizers and pesticides, are costlier in Pakistan compared to other regional countries. Above that, there is often a shortage of these inputs in the market at critical stages of fruit production. Overcoming this issue — via the development of practical mechanisms, to ensure the timely availability of these inputs at affordable prices — is a major challenge faced by the Government.	• Inconsistent strategy on the part of the Government • Corruption • Government's lack of commitment towards agriculture

Recommendations

The list of recommendations presented in this section has been developed after a careful analysis of the current situation of the mango and kinnow sectors of Pakistan. Efforts have been made to understand the reasons underlying the failure of the previous attempts made towards the improvement of the sectors' performance. Subsequently, the root causes of the prevalent issues have been analysed, and inputs from the participants of the two PPDs held (one in Lahore and the other in Karachi) have been incorporated in these recommendations.

Holistic Approach

A thoroughly thought-out strategy that deals with all of the weak areas needs first to be formulated, and subsequently executed in a close knit sequence (in consultation with all the stakeholders involved). This study has revealed that the efforts that were made in the past, failed because of being executed in isolation. A case in example is of the attempts made to acquire the Global GAP certification for farms; these efforts were carried out without ensuring whether the demand for Global GAP-certified fruits was enough to justify the cost and effort required for the certification. Moreover, there were no parallel improvements in the quality of logistics, in order to ensure that the Global GAP certified fruit did not travel in dry trucks, and was not ripened through calcium carbide, offsetting the value-added of the Global GAP certification as there is no difference between a rotten certified fruit and a rotten uncertified one.

It is proposed that from here on, each of the critical areas should be studied concurrently, and serious efforts should be put in to plug all of the major gaps simultaneously.

Clearly Defined Strategy

Keeping all of the key stakeholders on board, a strategy, for the sustainable progress of mango and kinnow production and exports proliferation, is required to be crafted in the shortest time possible. In order to acquire valuable and accurate inputs for strategy formulation, special focus should be kept on involving those stakeholders who have an in-depth understanding of the segment of supply chain they represent.

This strategy, once it has been developed, should be made public – as it is not only intended to benefit existing players, but is also needed to attract new quality investors to the horticulture export industry.

Having a well-defined strategy in place will help in tracking industry performance against the set targets. It would enable all of the individuals involved to collectively focus on carefully identified issues. To maintain check and balance, a mechanism that ensures regular follow-up on the agreed actions should be developed under the defined strategy.

Infrastructure Improvement

All of the efforts made, to bring about sustainable growth in the exports of mangoes and kinnows in Pakistan, run the risk of going in vain unless the logistics infrastructure (especially of the sea and air ports) can be improved. As an example, this problem could arise if the Karachi airport, that handles around 80% of mango shipments, continues to have an improper temperature-controlled cargo-holding facility. All of the attempts on the part of private exporters, with respect to maintaining the cool chain, will be of no use as the chain would break once the fruits reach the airport. Therefore, it is recommended that the Government prepares plans to revamp the cargo-handling facilities available for perishable goods at these ports, and bring them at par with standards set by the rest of the competing economies. Moreover, the possibility of having separate channels to hold and transport perishable goods should also be considered.

Similarly, work should be done, on priority bases, to develop temperature-controlled warehouses, ripening chambers and pack houses that are commercially available for use by a third-party. Efforts should also be made to improve the transportation segment; private investors should be encouraged to set up these facilities as stand-alone businesses.

Encourage Successful Business Groups to Enter the Fruit Export Business

Companies and business groups with successful track records must be made aware of the commercial potential of fruit exports. A professional organization would have both, the desire and the capability, to do things the right way. Special incentive packages, in the form of tax holidays and subsidized funding, should be offered to those companies that commit to invest in new technologies (such as cool chain machineries, ripening chambers, etc.), and procure at least 50% of their fruit requirements directly from the farmers. However, as mentioned under “point a” of this section, simultaneous efforts are required to overcome other gaps in the supply chain. It is therefore, critical to provide farmers with financing options that relieve them from the clutches of middleman, in turn, enabling them to sell their produce directly to exporters.

A task force must be set up, comprising of representatives from chambers of commerce, investment banks, ministries of commerce and agriculture, and aided by specialists from international trade, agriculture and agribusiness areas, to develop a strategy for promoting quality investment into the horticulture exports business. A professionally prepared 'Business Case' – detailing costs and returns tied to the fruit exports business – must be prepared and presented, first at the Chamber of Commerce level, and then exclusively to interested business groups.

Quality Inspection Authority

An independent institution must be formed under the Public Private Partnership structure to inspect every export consignment along quality parameters. This organization should have the power to check whether customs and quarantine formalities are being carried out without damaging the quality of goods.

In order to ensure that the proposed institution does not become an additional layer in the bureaucracy (that ends up doing more damage than good), it is critical to keep the institution independent from government control and to structure it as a public private partnership, with sufficient leeway given to the operating private partner. Also, the Board of Directors of such an establishment must include members from all segments of the supply chain.

Farmers Training

Training on the pre and post-harvest handling of fruit must be given to farmers through electronic media. Training material must be developed bearing in mind the need to make farmers aware of the quality standards of international markets. Provincial agricultural departments should take up the responsibility of publishing GAP booklets in regional languages, and distributing them to farmers at the grassroots level. In this regard, special attention must be paid to small farmers (as these constitute around 90% of the total farming community), and trainings must be structured being mindful of their needs and limitations. Sector specialists and media professionals must be used to develop these training programs, instead of leaving the job to be accomplished by government departments.

MRL Testing Labs at Tehsil/Taluka Level

Once the farming community has been informed about the quality requirements of international markets, it should be equipped with facilities that can help it conform to the set quality

standards. In this regard, MRL testing labs at the tehsil/taluka level could help farmers adjust their pest-control practices, and maintain the requisite MRLs for meeting quality requirements.

Nursery/Supply of Planting Material to be regulated

Some sort of monitoring is required in order to make sure that farmers get good-quality planting material, and to filter out black sheep from the business thereof. Accordingly, a unit with sufficient authority could be created within the Agriculture Extension wing of Provincial Agriculture Departments, to examine the quality of the nurseries supplying planting materials, not just to the mango and kinnow segments, but to all of the horticulture subsectors. However, it would be extremely important to ensure that the unit thereby created, is also carefully overseen so that it refrains from misusing its power to harass farmers and/or nursery operators.

Prequalification of Exporters

During the course of this study, the majority of exporters interviewed (particularly belonging to medium and small categories) did not seem to possess the basic capabilities to qualify as fruit exporters. This incompetence of some of the players, who appear to be significant in number, is pulling down the credibility of the entire segment. It is therefore recommended that minimum eligibility criteria should be developed, which must be met by companies wanting to export horticulture products from Pakistan. These criteria must include a detailed understanding of fruit science, the availability of necessary equipment, high-quality human resources, sufficient financial standing, etc.

Dealing with Exporters whose Consignments get Rejected in International Markets

In order to expose the exporters who are failing to maintain quality, thereby risking the country's reputation, the Ministry of Commerce or some other relevant authority should publish names of the exporters whose consignment(s) get rejected in the international markets due to quality issues. These names list should be prominently displayed on the websites of the MoC, TDAP, PHDEC and PFVA. The list should be updated live and not at the end of the season, i.e. as soon as a consignment gets rejected. Two rejections in a season should put the guilty exporter under special observation of the Quarantine and Customs Departments. On the third rejection, the operations of such an exporter must be discontinued for the on-going season. If the same export company continues to face rejections in the following year, its operations should be put to a halt indefinitely. The moratorium should only be lifted when the authorities feel confident that the company has

developed enough capability to meet the quality requirements of international markets. Again, intelligent checks must be put in place to curb out corruption from the process.

In addition, a fine, equalling three times the declared value of the export consignment that has been rejected, should be placed on the concerned exporter. This amount should be used for furthering research and development activities in the mango/kinnow sector.

Strengthening Agriculture Extension Services

The inability of agriculture extension services to deliver is one of the main causes of the quality problems faced at the production stage. Capacity building and careful monitoring of the extension staff, and the timely release of approved budgets, could bring about huge positive change in the production of mangoes and kinnows.

Revamping and Strengthening of the Pakistan Horticulture Development and Export Company (PHDEC)

Pakistan Horticulture Development and Export Company is a valuable forum for focused development in the horticulture segment, however, unfortunately it is not being fully capitalized. In order to increase its effectiveness, the Company should be given adequate amount of independence and appropriate funding. It should be relieved from internal and external politics by bringing in quality management, led by a non-controversial private-sector entrepreneur.

Sector/Industry Publications

Publications covering areas, such as issues faced by stakeholders; new opportunities; critical analyses of existing and potential challenges; and developing international trends, must be produced (preferably by PFVA) to keep stakeholders abreast with the current trends. However, it is critical for the quality of these publications to be sufficiently high to promote readership.

Improved Coordination between Development Agencies, and with Trade Promotion Institutions

Numerous initiatives are being undertaken by multiple developmental agencies for the progression of the horticulture sector. However, most often, these efforts are being made in isolation, with a clear absence of coordination between the agencies. This results in a duplication of efforts and wastage of resources. There is an urgent need to develop a mechanism to facilitate coordination between the concerned institutions, agencies and government departments, in order to achieve healthier results from the concerted efforts of these entities.

Subsidy for the Euro GAP Certification

The prerequisites of operating in high-end markets include adequate pre and post-harvest handling of fruit, and the maintenance of acceptable MRLs. In order to achieve these, farmers must be encouraged to opt for the Euro GAP certification for their orchards. The Government must prepare a mechanism for subsidising the cost of this certification, so that most of the farmers get a chance to improve their operations. However, as has been discussed previously, these farm certification initiatives must be supported by the filling of other loopholes in the supply chain, in order to reap the real benefits of farm-level certifications.

Farmers/Exporters Connectivity

Conscious efforts must be made to bridge the gap between farmers and exporters, and an association of farmers and exporters should be formed to foster connectivity between the two. To render the association both active and effective, initial members must be selected cautiously. Farmers must be given equal representation within the association to ensure that their voice is adequately heard and their points of view understood. The ultimate objective of the association should be to overcome the trust deficit that exists between farmers and exporters, and to find ways for enhancing the level of direct trade between them.

Commercial Production of Planting Material for the Seedless Kinnow

Efforts must be made on war footing, not just to develop the planting material required for the seedless kinnow (if this has not already been done), but also to make this material be commercially available (to ensure that fresh plantations are made using the seedless variety). These efforts must be made to guarantee that the taste, as well as the appearance of the fruit, is not compromised in the attempt to produce the seedless varieties of kinnow.

Farmers must be made aware of the importance of adopting the seedless kinnow variety, and of the risk associated with adhering to the existing seeded variety.

Dedicated Mango and Kinnow Research Companies to be set up under the Public Private Partnership Structure

International-standard research companies must be set up under the Public Private Partnership structure; at the same time internationally renowned research companies must be invited to carry out quality research in the mango and kinnow sectors of Pakistan. These companies must be paid through the Export Development Fund (EDF), and their performance must be linked to

clearly quantifiable milestones, such as the introduction of new varieties. Development in research could also be achieved by encouraging reputable international fruit-trade companies to set up their offices in Pakistan. These companies, however, must be given special incentives to invest significantly into research and development-related work in Pakistan.

Combined 'Customs and Anti-narcotics' Inspection

It is recommended that in order to limit the risk of fruit damage – resulting from the unnecessary delays in customs and anti-narcotic inspections − both inspections must be conducted in parallel, within a stipulated timeframe.

Hot Water Treatment to be Made Mandatory for Mango Exports

Hot water treatment plants must be set up in sufficient numbers under the Public Private Partnership structure. These facilities must be made available to exporters, and should also be set up in sufficient numbers within key production areas, to allow farmers to provide hot water-treated mangoes to the exporters directly.

Once the facility becomes commercially available to all exporters, a complete restriction must be imposed on exporting mangoes without conducting the hot water treatment (HWT). Companies providing HWT services should be allowed to charge exporters on a per-kg basis. The Government, through a concession agreement, must guarantee a minimum return to the companies that set up HWT plants. In this regard, the Government must also look into developing schemes that offer soft loans for the setting up of HWT facilities.

Ban on the Export of Mangoes Ripened by Calcium Carbide

Ethylene generators must be made easily available, after which a complete ban should be placed on the ripening of mangoes (at least for export consignments) using calcium carbide.

Ban on the Use of Wooden Crates for Exports

In order to comply with international quality standards and to quickly enhance Pakistan's image in international markets, the use of wooden crates for exports must be banned.

Outsourced Marketing Campaign

A highly reputable marketing company must be hired through international tender to market Pakistani mangoes and kinnows in carefully selected markets. However, in the proposed

sequence of events, effective marketing campaigns fall subsequent to improvements in the supply chain. The last thing that Pakistan's fruit industry can afford is the failure to deliver against ambitious claims. Lastly, the marketing company must be given a free hand and should be liberated from bureaucratic and political interference.

Timely Release of Approved Budget to Public Sector Research Institutions

One of the reasons for below-par performance of public-sector research institutions is the delay in the release of approved budgets, since agricultural research is linked very closely to the year-round changing climatic conditions. In order to make public-sector research institutions more effective, efforts will have to be made to ensure the timely release of approved budgets. These institutions should also be given measurable and verifiable targets.

Export Targets for Trade Missions

Pakistani trade missions are the biggest source of marketing exports in target markets. The trade commissioner in each target market must be given a clear target of export value and volumes. Future assignments and promotions should be linked to the achievement of these targets. Further, these trade commissioners must be obligated to complete a minimum of three years before they are moved to another station, or are given another assignment.

The prospects of tying financial incentives to the increase in exports (mainly in terms of value) should be explored. Australia successfully managed to revitalize its trade missions' role in export enhancement after linking performance to financial benefits. It is strongly recommended that the Australian experience be studied carefully and adopted for Pakistan's trade missions.

Local Manufacturing of Processing Equipment

Efforts must be made to locally manufacture equipment, such as washing and grading machines; hot water treatment plants; ripening chambers; etc. This will reduce the cost for exporters on the one hand, and create business opportunities for manufacturers on the other.

Similarly, small-scale simple juice-making and pulping equipment should be developed locally, and made available at the grass root level to reduce the wastage of fruits during the glut periods.

Development of Financing Solutions to Replace Middleman Credit

Finding alternative financial solutions for the farming community, so that it could be relieved from middleman credit, is probably the single most critical success factor in developing a high-quality production base for the mango and kinnow sectors.

The success of an alternate financing structure would depend on the following two things:

- The proposed solution should be as user-friendly as the existing middleman credit, or at least fairly close to it
- The proposed solution should not cost more than the existing middleman credit

One potential solution could be to set up private companies (at the district level) that procure inputs, such as fertilizers and pesticides, directly from manufacturers and supply them to farmers on credit, at a price slightly higher than the prevalent retail prices. The higher-than-market price charged from farmers would cover the companies' financial cost for selling on deferred payment basis. Initially these companies would provide inputs only to those farmers who get into an arrangement with established buyers, such as exporters or superstores, for selling their produce directly to them. The buyers, in this arrangement, would pay the farmer after deducting the payment due to the company providing inputs. These buyers would then deposit the deducted amount from the farmers' payment, directly into the bank account of the company that sold goods to the farmers on credit. A carefully designed regulatory framework, as well as strict oversight, would be required to ensure that these companies do not become exploitative, using their financial position to hurt the interests of farming community.

Restructuring the Agricultural Credit Regime

Along with finding an alternative to middleman credit, it is also critical to restructure the existing credit regime to remove its shortcomings. Improvements in the existing agriculture credit regime would call for:

- Working with the State Bank to overcome the issue of the value of collateral being much greater than the loan amount
- Reducing the paperwork required to avail agriculture loans
- Delinking insurance claims from the Government's decision to declare an area calamity-hit
- Working with the land revenue department to resolve the issue of "foti khatay" (ownership of lands in the name of the deceased)

Development of a Legal Framework for Contract Farming

Many agricultural activities in Pakistan take place through contract farming. Currently there is no formal legal framework defining the roles and responsibilities of the contracting parties. There is an urgent need to bring this form of trade under the regulatory framework so that it could contribute towards the sustainable growth of agriculture in Pakistan.

Restructuring Crop Insurance Products

Effective protection against unforeseen risks is a prerequisite for the progress of any sector. Well-developed crop insurance products would be critical for sustainable growth in the mango and kinnow production segments. In order to develop the right kinds of insurance products it is important that insurance companies work directly with the farming community, without any influence from the banking sector. The availability of insurance must not be limited to those farmers who avail bank credit. Further, claims must be delinked from the Government's decision to declare an area calamity-hit.

Farmers' Cooperatives

The large number of small farmers, and the disparity in the landholding structure, calls for concerted efforts on the part of the Government to encourage the development of a cooperative culture in the agriculture sector. Unfortunately, no serious effort was put in by the Government to accomplish this. As a result, small farmers have failed to play a constructive role in the progress and development of the sector and are invariably at the mercy of wholesalers/middlemen (even for the ploughing of their fields and the purchase of basic ingredients, such as fertilizers and pesticides).

The successful encouragement of small farmers to organize their efforts under a cooperative structure could be a major turning point in the strengthening of the production base for both mangoes and kinnows. Operating as an organized entity would enable farmers to deal with banks and other players in the supply chain as an institution, thus overcoming many issues restricting growth at the production stage.

Discussions with farmers revealed that they had absolutely no understanding of the cooperative model. However, once the basic concept was explained to them they seemed very keen to adopt it.

In order to make this successful the Government would need to educate farmers on the concept. The State Bank of Pakistan must work with commercial and microfinance banks to develop credit products that suit the structural and business dynamics of farmers' cooperatives.

While working on this recommendation, caution must be exercised to avoid the pitfalls experienced by countries that have already gone through the evolution of a cooperative structure in their agriculture sector. In Australia, for example, farmers' cooperatives are accused of selling their lowest quality fruit through the cooperative and selling premium quality directly in the market. In order to avoid such developments, the cooperative law must be revamped to be more in line with current economic realities, as well as with the objectives that the Government wishes to achieve through the development of the cooperative mind-set amongst farmers.

Direct Exports by Farmers

Around five large-size growers of the Mirpukhas region have formed an association of their own through which they have started exporting to high-end market segments in the UK directly. This is probably the most encouraging development in the mango sector.

The interaction with these growers has revealed that they benefited to a great extent from the training and infrastructure support they received from the USAID mango sector support initiatives, and the ASLP (a joint initiative of Pakistan and the Australian government to augment Pakistan's competitiveness in mango exports). These farmers feel that they can export ten to twenty times more volumes if they have access to finance at reasonable rates. Thus, efforts must be made to educate more farmers to form such associations and to commence direct exports to international buyers.

Shift from Public-Sector Dominated Setup to one that is driven by the Private Sector

In order to bring about a sizeable change in the overall functioning of the horticulture export industry, the public sector will have to take the backseat and allow the private sector to drive the industry. This would necessarily call for a huge change in the mind-set of the concerned institutions that would require some amount of contemporary thinking, supported by a strong political will.

The increased involvement of the private sector under the Public Private Partnership structure, in areas such as research, trade promotion, infrastructure and logistics (including airport

handling), would be an effective way of moving away from public-sector dominance towards increased private-sector engagement.

Freighter Service during the Peak Mango Season

Overcoming the shortage of airspace during peak seasons is critical for the growth of exports. All efforts of attracting fresh investment into the sector; infrastructure and logistical improvement; marketing; and revamping of public sector institutions; would fail if there is not enough airspace available to meet the buyers' demands during peak seasons. To resolve this problem, the Government should arrange commercial air freighters to meet the demand of the additional airspace required during the peak mango season.

Rationing of Airspace to Accommodate New Entrants

Until commercial freighters are made available by the Government, private airlines must be instructed to earmark 20% of their available airspace to the exporters with less than five years of an operational track record (provided they book the airspace at least 48 hours in advance). With less than 48 hours remaining to the scheduled flight time, airlines could sell this earmarked airspace to any exporter willing to book it. Systematic checks would, however, be required to ensure that existing exporters not qualifying for the earmarked 20% airspace do not manoeuvre the system by creating new companies.

Road Shows to Attract Foreign Investment into Pakistan's Horticulture Sector

Investment from well-developed international horticulture trading companies is the shortest and safest way to bring about an improvement in the systems and processes linked to the fruit export business. The lack of such investments, due to uncertain geopolitical and security conditions, is one of the major reasons behind the slow development of the sector.

It is recommended that well-designed road shows be planned, in carefully selected targeted countries, to attract investment into this sector. In spite of the political instability, investment is seen to be flowing in some sectors (such as the energy and telecom sectors). Therefore, it is strongly felt that if the real potential of Pakistan's horticulture sector could be represented effectively, sufficient interest could be generated in the target markets.

Conclusion

We have arrived at the following conclusions after having gone through past studies and research reports of Pakistan's mango and kinnow sectors, followed by on-ground research that included several approaches ranging from visits to farms; interviews with stakeholders; and visits to wholesale markets, ports and processing facilities.

- Both, the mango and kinnow sectors of Pakistan, possess significant potential for the expansion and growth of exports.
- No single factor is restricting the growth of these sectors; there are numerous gaps in the mango and kinnow supply chains that are diminishing this growth.
- Overcoming some factors, while leaving others unattended will not yield the desired results; the supply chains need to be revamped entirely.
- The kinnow sector is a lot more developed than the mango sector. This could be attributed to a more compact plantation, in case of kinnows, which makes the setting up of processing facilities easier as compared to mango plantation which is spread over around a thousand kilometres, and the season keeps moving from the south to the north. Moreover, this difference in the level of development could also be linked to kinnows being less perishable than mangoes.
- The availability of the seedless kinnow variety for farmers is a prerequisite for the long-term sustainability of the kinnow sector.
- Even though, at present, middleman credit is catering to the financing needs of the farming community, it is also the root cause of most of the problems faced. Thus, the progress of the two sectors is closely linked to finding viable alternatives to replace middleman credit.
- The training of farmers, on an urgent basis, to educate them about international quality requirements is essential given the current circumstances.
- The quality of exports and exporters needs to be improved.
- The encouragement of successful business groups to invest in the mango and kinnow export business can bring about a revolution in the two sectors.
- The resurrection of trade missions, supported by well-planned marketing efforts, can be critical in achieving the desired outcomes.

Appendix

Questionnaire – Exporter

1. Size of operations – annual turnover
2. Number of years in business
3. Type of entity – sole proprietorship / partnership / registered company, etc.
4. Reason for being in the fruit export business
5. Total number of registered exporters in the country (both for mango and kinnow)
6. Main markets serviced by Pakistani exporters (both for mango and kinnow)
7. Potential markets where Pakistani kinnow and mango can be sold
8. Countries / regions with high demand but where Pakistani mangoes and kinnows cannot be sold due to restrictions / failure to meet the required food standards
9. Which government agencies do exporters have to necessary deal with?
10. Current level of investment into research and development – contribution of exporters
11. How can export volumes / value be increased?
12. Level of satisfaction with the quality of fruit-handling facilities at airport / seaport
13. How can the infrastructure / process for fruit-handling at airports and seaports be improved?
14. Quality controls – current situation – what can be done to improve them?
15. Role of trade promotion agencies – how can they play a more effective role?
16. Availability of airspace / shipping lines
17. Use of technology – cool chain / ripening chambers, etc.
18. Payment terms normally in practice
19. Default rate
20. What interventions are required at the policy level to improve the performance of the sector?
    a. Quality improvement
    b. Customs clearance
    c. Airspace availability
    d. Market access
21. Quality of packaging currently being used in Pakistan – comparison with packaging used in competing countries (India, Thailand, Kenya etc.)
22. Hurdles in the improvement of packaging
    a. Cost
    b. Availability
    c. Awareness

   d. Attitude of exporters

23. Branding – are exporters trying to develop their brands in the international markets? If not, what are the reasons?
24. Are there any existing well known Pakistani brands?
25. Is the marketing strategy well-defined or ad hoc?
26. How dedicated are the marketing managers?
27. How can the Government help in the marketing efforts?
28. Currently, how active are Pakistani trade commissions in promoting Pakistani mangoes and kinnows in the target markets?
29. Backward integration – production – how many exporters directly buy fruit from the orchard / take farms on contract?
30. The issue of the cool chain breaking on the way to the port – the issue of transporters turning off truck mounted gensets – what are the solutions?
31. What are the three biggest threats to Pakistan's fruit industry in general, and the mango / kinnow sector in particular?
32. Reference of customs / SPS / transporters / clearing and forwarding agents
33. Wholesalers

Questionnaire – Middleman

1. Size of operations
2. Number of years in business
3. Approximate annual income
4. Type of entity – sole proprietorship / partnership / registered company
5. Is the commission shop rented or owned?
6. What other facilities are owned / leased along with the shop?
   a. Cold store
   b. Dry store
   c. Auction area
   d. Others
7. Value of commission shop – ownership / rentals
8. Rate of commission charged
9. Auctioning process – transparency (rate setting, weighing of consignments, etc.)
10. Other roles being played in the mango / kinnow supply chain

   a. Grower
   b. Farm Contractor
   c. Financier
   d. Processor
   e. Exporter
   f. Retailer
   g. Other
11. Is credit being provided to farmers? If yes, at what rate?
12. What is the average outstanding amount lent to farmers during a given year? What is the maximum?
13. Mechanism used for recovery of loan from farmers
14. How are the defaulters handled?
15. Is lending to farmers a preferred option or is it a compulsion for the wholesaling business?
16. Types of clients serviced
   a. Wholesalers
   b. Retailers
   c. Hyper stores
   d. Exporters
   e. International buyers (i.e. direct exports)
   f. Others
17. What are the major hurdles / problems faced by the wholesalers of mango / kinnow?
18. What role is the Government expected to play to improve the wholesaling business?
19. What policy interventions are required to improve the supply chain?
20. Exposure of wholesale markets in the developed world
21. Would Pakistani mango and kinnow sectors benefit if the wholesaling segment of the supply chain is brought at par with international standards? What are the hurdles in achieving this? What are the suggestions in this regard?
22. Given a choice, what would the wholesalers like to see changed in the segment (both in terms of infrastructure and process)?
23. Duration for which the fruit stays with the wholesalers
24. Handling of fruit during the time that it stays with wholesalers
   a. Cold store availability
   b. Loading and unloading

25. Wastage – approximately what percentage of the fruit coming into the wholesaling segments gets wasted completely (i.e. fruit that does not move further in the supply chain and is thrown away)?
26. What percentage of the fruit gets damaged?
27. What happens to the damaged fruit?
28. Approximate percentage of wholesalers who are also involved in:
    a. Retailing
    b. Exports
    c. Farm contracting
    d. Financing credit to farmers
29. Overall condition of the wholesale market; major handicaps like the lack of storage facilities, the roads being too narrow, inappropriate auctioning area, etc.
30. What is seen by wholesalers as the biggest threat / risk to their business?

Questionnaire – Grower

1. Size of the farm
2. Location
3. Self-managed or contracted out
4. Certification – Global GAP, etc.
5. If contracted out, what is the reason for it?
    a. Lack of finance
    b. Lack of capability
    c. Lack of interest
    d. Lack of on-ground presence
    e. Other
6. Awareness of the real potential of owning a mango / kinnow orchard
7. The status of technical support available (qualified agriculture specialist as a farm manager)
8. Current status of the practices of:
    a. Sourcing planting material
    b. Tree management
    c. Irrigation
    d. On-farm fruit handling
        i. Methods used for plucking the fruit

ii. On-farm transportation
iii. Packaging material used
iv. Packing house – availability / quality
v. Grading
vi. Pre-cooling
vii. De-sapping

9. Average yield per acre
10. Approximate annual income
11. How and to whom the fruit is sold
12. Sources of finance
    a. Self-financed
    b. Middleman credit
    c. Bank financing
13. Awareness and understanding of:
    a. Best international farming practices
    b. Quality requirements
14. Use of technology
    a. Irrigation
    b. Harvesting
    c. Pre-cooling
    d. Grading
    e. Packing
15. Willingness / ability to improve farm management practices
16. What has restricted them from migrating to better farm management practices and the use of technology?
17. Efforts made to introduce new varieties e.g. the seedless kinnow variety and internationally-known mango varieties
18. Percentage of farmers under middleman debt
19. What percentage of the annual farm expense is borrowed from middlemen?
20. Awareness about the costs (both direct and indirect) of borrowing from middlemen
21. Why are other forms of financing not opted for?
    a. No awareness
    b. Cost is higher than middleman credit
    c. Hefty paperwork required

   d. Scared to borrow from the bank – (I am not educated enough, and will not fully understand their products; therefore I may end up making a mistake) / (banks are ruthless and may confiscate my collateral if I lose my crop and cannot pay back the loan in time)
   e. Cannot provide the collateral acceptable to banks
22. Ability / willingness / past experience of interacting directly with exporters
23. Experience of running another business – agricultural / non-agricultural
24. Experience of participating in previous training / educational programs run by the Government / aid agencies
25. What would it take mango / kinnow farmers to:
   a. Self-manage their farms
   b. Move ahead in the supply chain – retailing / processing / exporting
26. Willingness to invest in technology, certifications, etc., if business model with healthy returns is explained
27. Is the profession of farming viewed as a business proposition, or just an activity that was inherited from past generations?
28. What policy interventions are required to improve the farming business?
   a. To improve quality of fruit
   b. To restrict exploitation of farmers by middlemen / other intermediaries
   c. Agri-credit:
      i. Increase the scope
      ii. Collateral requirement
      iii. Interest rate
      iv. Paperwork
      v. Security / law and order situation
   d. Crop insurance
29. What form of research and development activities are being performed, if at all, by the farming community?
30. Role and quality of Government extension services

List of Interviewees

S. No.	Name	Sector	Date
1	Mr. Noor Ahmed Nizamani	Mango Grower (small) Mirpurkhas region	November 11, 2013
2	Mr. Habib Shah	Mango Farm Contractor	November 11, 2013
3	Mr. Mir Muhammad	Mango Grower (small) Mirpurkhas region	November 11, 2013
4	Mr. Wali Muhammad	Mango Farm Contractor	November 11, 2013
5	Mr. Maula Bukhsh Khaskheli	Mango Grower (small) Mirpurkhas region	November 11, 2013
6	Mr. Tariq Khan	Government (Plant Protection and Quarantine)	November 19, 2013
7	Dr. Usman Shar	Government (Agriculture Entomology Department, Sindh)	November 20, 2013
8	Mr. Atta Husain Soomro	Government (Agriculture Research Sind)	November 20, 2013
9	Mr. Mahmood Nawaz Shah	Mango Grower (Large)	November 20, 2013
10	Mr. Ghulam Sarwar Abro	Mango Grower (Large)	November 20, 2013
11	Mr. Khalid Ejaz	Mango Exporter	November 21, 2013
12	Mr. Hashim Laghari	PHDEC	November 24, 2013
13	Mr. Malik Zafar Hussain	Mango Grower – Multan	December 04, 2013
14	Mr. Nazeer Ali	Mango Grower – Multan	December 04, 2013
15	Mr. Malik Nazir Ahmed	Commission Agent – Multan	December 04, 2013
16	Mr. Malik Altaf	Mango Grower – Multan	December 05,

			2013
17	Mr. Arshad Mahay	Mango Grower – Rahim Yar Khan	December 05, 2013
18	Mr. Ghulam Muhammad	Commission Agent – Multan	December 05, 2013
19	Mr. Zafar	Farm Contractor – Kinnow	December 06, 2013
20	Malik Anis	Kinnow Grower – Shahpur Sargodha	December 06, 2013
21	Mr. Safdar Hussain	Kinnow Grower – Shahpur Sargodha	December 06, 2013
22	Mr. Allah Ditta	Kinnow Grower – Shahpur Sargodha	December 06, 2013
23	Mian Nadeem	Factory Owner – Al-Makka Kinnow Processing	December 06, 2013
24	Malik Iqbal	Kinnow Grower – Bhalwal Sargodha	December 06, 2013
25	Sarfaraz	Kinnow Grower – Bhalwal Sargodha	December 06, 2013
26	Shaukat Hussain	Kinnow Grower – Bhalwal Sargodha	December 06, 2013
27	Mr. Haji Javed	Commission Agent – Lahore	December 07, 2013
28	Mr. Nadeem	Mango & Kinnow Exporter – Lahore	December 07, 2013

The International Trade Centre implemented the Trade Policy Capacity Building Component of the European Union funded TRTA II programme. It is aimed at the Ministry of Commerce and Government of Pakistan in developing a coherent trade policy and attendant regulations for export competitiveness. Specifically, it will aim to reinforce the skills of government officers working in trade related ministries and implementing agen- cies on issues related to trade policy, commercial diplomacy and regulatory reform. The main way in which to achieve this through the institutional capacity building of key local training institutes, which is intended to have an immediate effect on the capacity of government officers working on trade policy issues.

In addition, Component 1 promotes comprehensive, regular and well informed public-private dialogue among the government, private sector and civil society for trade policy development, monitoring and evaluation. To promote local ownership and legitimacy of the dialogue, a steering committee comprising equal representa- tion of the public and private sectors has been established with the formal approval of the Ministry of Com- merce of Pakistan. Its mandate is to oversee the planning, implementation and monitoring of public-private dialogue on key issues. To better inform the public-private dialogue process, research studies are commis- sion and internationally peer reviewed before dissemination to stakeholders.

The targeted interventions of Component 1 to achieve these goals constitute the following:

Result for Component 1: Coherent trade policy and regulatory reform for export competiveness

1. The Pakistan Institute for Trade and Development (PITAD) institutional capacity is strengthened.
2. PITAD's and other research institutes' expertise on trade policy strengthened.
3. Government officers' capacity on specific trade policy and international trade negotiations strengthened.
4. Research studies contributing to the development of a national export strategy conducted.
5. Public-private dialogue for a coherent national export strategy is fostered.

International Trade Centre

For further information about the ITC implemented Component 1 and the TRTA-II programme visit: http://trtapakistan.org